# INTERVALS

The *interval* is to music as the atom is to matter—the basic essence of the stuff. All music as we know it is composed of intervals, which in turn make up scales or melodies, which in turn make up chords, etc. An understanding and ability to use intervals can be very helpful in (1) grasping the construction of chords, (2) understanding why we are affected by musical sounds the way we are, (3) communicating with other musicians who use the universal language of intervals (you might have heard somebody say something like "Let's move that whole thing up a minor 3rd," or if not, you will, so it would be nice to know what they are talking about), (4) composing quickly and consistently with new, fresh ideas.

The word "interval" refers to the *sound* resulting when two tones are heard together. Another common definition is *an interval is the distance between two tones, measured by their difference in pitch.*

If the two tones are not heard at the same time, but rather one after the other, this is called a *melodic interval;* when the tones are heard together as mentioned above, this is called a *harmonic interval.*

Example:



There are at least three common properties of all intervals: (1) its *general* name, (2) its *specific* name, and (3) its degree of what are known as *consonance* or *dissonance* (more on this soon). First, the general name is found by counting the letters of the musical alphabet involved (normally this is done from the bottom note up in harmonic intervals, except for special situations, which will be covered later); in a melodic interval you just *mentally* join the two notes and analyze as if it were a harmonic interval.

Examples:
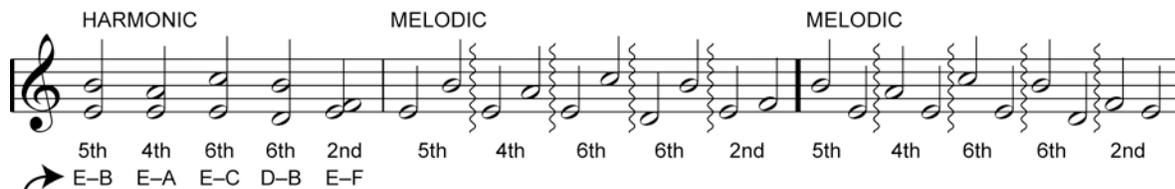


If you count the letters up from E (EFGAB) you get five and the interval is called a 5th, and the same thing goes for the other intervals listed above.

Notice that if sharps or flats are added to the above, the *general* names are still the same.

GENERAL NAMES →   5th    4th    6th        5th    6th    etc.

Looking at the first example above, and comparing it with the first example on the previous staff, you will see that some method is necessary to be able to distinguish intervals that have flats and sharps from their unaltered brothers—in other words, they are both 5ths but how are we to refer to one without referring to the other if we want to; it is like knowing that three people all have the same last name of Smith and live in the same house, but suppose you want to refer, in a conversation, to just one of the three; that is why we have first names—so it is with intervals. We also give them *specific* names [see Transcriber's note on page 5]. One of the most common methods used in giving the specific names to intervals is by assuming that the bottom note in an interval is the root of a major scale. If the upper note is one of the notes of that major scale, the interval is called *major,* unless it is an octave, 5th, 4th or unison (two of the same note) in which case the term *perfect* is used.

Example (key of C):



| Perfect unison | Major 2nd | Major 3rd | Perfect 4th | Perfect 5th | Major 6th | Major 7th | Perfect octave |

Also called "prime"

A unison is classified as an interval even though there is no distance between the notes.

Perfect intervals are so called because these were the only intervals tolerated by the human ear in ancient days. All other intervals were considered harsh or unpleasant. This seems pretty amazing to us now, that people couldn't tolerate 3rd and 6th intervals and others, but it is true, and because of this they named their only useable intervals (unisons, 4ths, 5ths, and octaves) *perfect*. Well, gradually mankind's ears got more tolerant and they accepted the other listed intervals (which we now call *major*) and quite a few others also (soon to come).

<u>Playing with Perfect Intervals</u>

Perfect intervals are the strongest intervals of all. Play the following example of all 5ths and notice the feeling of solidity, strength given off.
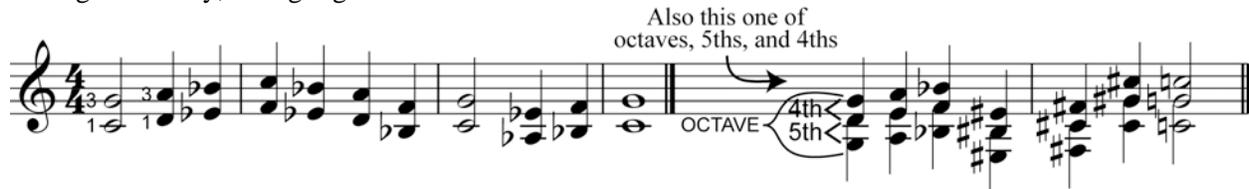


Also this one of octaves, 5ths, and 4ths

OCTAVE 4th 5th

Intervals are also classified by how *consonant* or *dissonant* they are. A *consonant interval* is one which sounds complete by itself, that is, it does not arouse the feeling that something else has to come (this is only true *out of context* of a song or piece of music because in such a context many other factors contribute to this expectancy).

The consonances are perfect, major 3rds, and major 6ths (also the soon to be discussed minor 3rd and minor 6th).

A *dissonant interval* gives a feeling of incompleteness, restlessness (even an outright unpleasant effect sometimes but not always), and a sense of urgency, a feeling that a consonant interval should follow.

The dissonances are the major 2nd, major 7th, and the following soon to be discussed intervals: minor 2nd, minor 7th, and all augmented and diminished intervals. DISSONANCE CREATES MOTION and INTEREST. The above labels are questionable, as you shall see.

<u>Alternation of Major and Perfect Intervals</u>

(1) If a major interval is made smaller by a half-step (by either lowering the top note or raising the bottom one) the interval is now called *minor;* the reverse is true, that is, a minor interval made larger by a half-step becomes a major.

Examples:



| M6 | m6 | m6 | M7 | m7 | m7 | M7 |

Notice that the chromatic alteration necessary to make minor intervals must happen on the same

notes that are originally involved; like C to G♯ *sounds* the same as C to A♭, but for communication and musical notation purposes C to A♭ is a minor 6th and C to G♯ is what is called an *augmented 5th.*

(2)  Any major or perfect interval made larger by half-step is called an *augmented* interval (like the C to G# mentioned above).

Examples:

The most common augmented intervals that you will encounter are the augmented 2nd, augmented 4th, augmented 5th, and augmented 6th.

(3)  A minor or perfect interval made smaller by a half-step is called a *diminished* interval.

Example:

If the bottom note of any interval does not correspond to the root of any major scale (like A♯ for instance), then mentally remove the accidental (sharp or flat) and figure the interval without it, then add it back in and change accordingly.

Example:

There is no key of E♯, so mentally remove the sharp from the E, and you have a minor 6th (E to C), then adding the sharp back in, you get a diminished 6th.

Any interval larger than an octave is called a compound interval.  They may be thought of as their smaller counterparts by subtracting seven from whatever the number is.
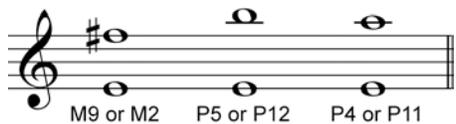
Example:

The intervals of the 9th, 11th, and 13th are commonly referred to as they stand, rather than their smaller counterparts, due to chord building principles to be covered later.

While these intervals can be *thought* of as the same, their *effect* is quite different as you will see as you analyze music more and more.

There will be times in your dealings with music when you will want to (or have to) be able to figure intervals from the top note *down;* the quickest way might be to relate to major scales once again. Example:  Suppose you wanted to find out what interval is a perfect 4th below A; what you do is ask yourself "In what major scale is A a perfect 4th above the root?"  The answer is E, that is, A is a perfect 4th above E, therefore E is a perfect 4th *below* A.  Sometimes, you run into a hitch this way though. Example:  Suppose you want to find the note a perfect 4th below E♯; well E♯ is not the 4th of any *common* major scale (one that doesn't include double-sharps or double-flats) so an easier method might be to count down four tones from E (remove the sharp) including the E—this gives you B $\left(\begin{smallmatrix} E & D & C & B \\ 1 & 2 & 3 & 4 \end{smallmatrix}\right)$. So if

you know your major scales you say "E is the 4th of B; therefore E♯ would be the 4th of B♯; so the note a perfect 4th below E♯ is B♯.  Sorry that all this is so complicated but it all gets easier with practice like almost everything else.

## Inverting Intervals

This concept is related to the above material.  An interval may be inverted by placing the lower note an octave higher or the upper note an octave lower.  The results of interval inversions can be given as follows:

(1)  Perfect intervals remain perfect; major intervals become minor and minor become major; diminished intervals become augmented and augmented become diminished (examples soon to come).
(2)  The numerical sum of any interval and its inversion is nine.

Examples:
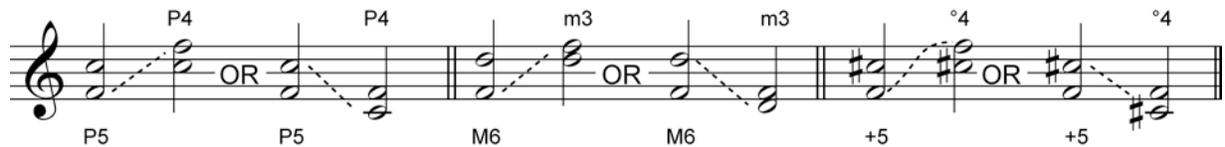


It is important to remember that inverted intervals do use the same notes as the original interval—the only difference is that they have shifted positions.  Also notice that a compound interval can't really be inverted, you just get the smaller counterpart as discussed above.

## Playing with 3rds and 6ths

Major and minor 3rds and 6ths are classified as *imperfect consonances.*  They add beauty in music (to most ears).

Examples:
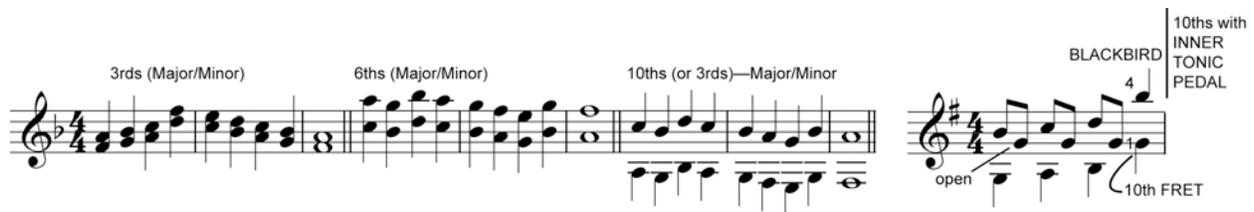


RARE OCCURENCES:

Any diminished interval made smaller by a half-step is a doubly-diminished interval; any augmented interval made larger by a half-step is a doubly-augmented interval.

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(1) Identify these intervals and play them, too.  Try to learn to recognize the sounds of different types of intervals.



Ask yourself if each above interval is consonant or dissonant—the whole issue is pretty controversial and interesting sometimes.

(2) With F as the lower tone, write the following intervals:  perfect 4th, perfect 5th, minor 6th, major 7, augmented 5th, major 3rd, augmented 4th, perfect octave.



(3) With A as the upper note, play and write the following intervals:  major 2nd, minor 3rd, perfect 4th, augmented 4th, diminished 5th, augmented 5th, augmented 6th, diminished 7th.
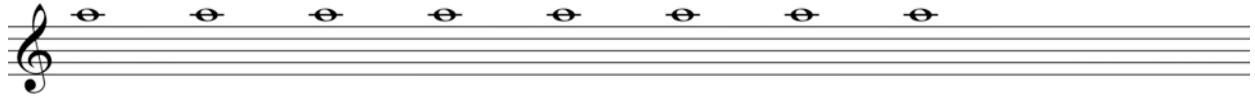


Make up similar exercises occasionally or often to help you really learn your intervals.
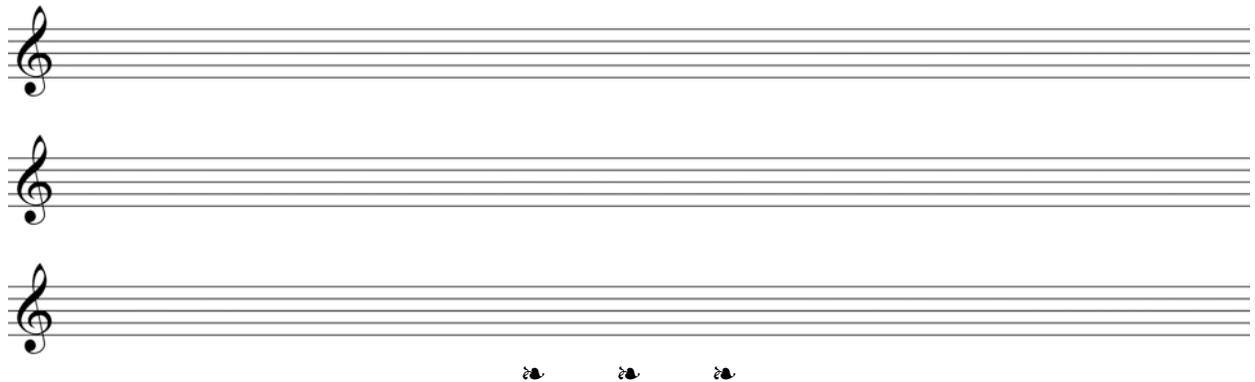


Transcriber's note:  The following abbreviations have been used in the figures for the *specific* names of intervals:

|            |   |
|------------|---|
| Perfect:   | P |
| Major:     | M |
| Minor:     | m |
| Augmented: | + |
| Diminished:| ° |

# INTERVALS

The interval is to music as the atom is to matter - the basic essence of the stuff. All music as we know it is composed of intervals, which in turn make up scales or melodies, which in turn make up chords, etc. An understanding and ability to use intervals can be very helpful in: ① Grasping the construction of chords, ② Understanding why we are affected by musical sounds the way we are, ③ Communicating with other musicians who use the universal language of intervals (You might have heard somebody say something like "Let's move that whole thing up a minor 3rd," or if not, you will, so it would be nice to know what they are talking about), ④ Composing quickly and consistently with new, fresh ideas.

The word INTERVAL refers to the sound resulting when two tones are heard together. Another common definition is: An interval is the distance between 2 tones, measured by their difference in pitch.

If the 2 tones are not heard at the same time, but rather one after the other, this is called a melodic interval; when the tones are heard together as mentioned above, this is called a harmonic interval.

Example:


HARMONIC INTERVAL     MELODIC INTERVAL

There are at least 3 common properties of all intervals: ① its general name; ② its specific name; and ③ its degree of what are known as consonance or dissonance (more on this soon). First, the general name is found by counting the letters of the musical alphabet involved (normally this is done from the bottom note up, in harmonic intervals, except for special situations which will be covered later; in a melodic interval you just mentally join the 2 notes and analyze as if it were a harmonic interval).

Examples:


HARMONIC          MELODIC          MELODIC
5th 4th 6th 6th 2nd   5th 4th 6th 6th 2nd   5th 4th 6th 6th 2nd
E-B E-A E-C D-B E-F
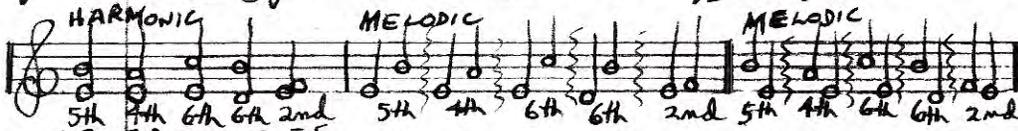
If you count the letters up from E (E F G A B) you get 5 & the interval is called a 5th, and the same thing goes for the other intervals listed above.

Notice that if sharps or flats are added to the above, the general names are still the same.


GENERAL NAMES → 5th 4th 6th  5th 6th  etc
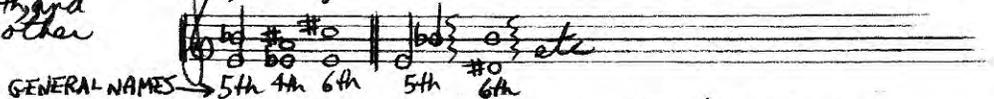
Looking at the first example above, and comparing it with the 1st example on the previous staff, you will see that some method is necessary to be able to distinguish intervals that have flats and sharps from their unaltered brothers - in other words, they are both 5ths but how are we to refer to one without referring to the other if we want to; it is like knowing that three people all have the same last name of Smith, and live in the same house, but suppose you want to refer, in a conversation, to just one of the three; that is why we have first names - so it is with intervals. We also give them SPECIFIC names. One of the most common methods used in giving the specific names to intervals is by assuming that the bottom note in an interval is the root of a major scale. If the upper note is one of the notes of that major scale the interval is called major, unless it is an octave, 5th, 4th or unison (two of the same note) in which case the term perfect is used. Example: Key of C


ALSO CALLED "PRIME" → PERFECT UNISON   MAJOR 2nd   MAJOR 3RD   PERFECT 4th   PERFECT 5th   MAJOR 6th   MAJOR 7th   PERFECT OCTAVE

A unison is classified as an interval even though there is no distance between the notes.

Perfect intervals are so called because these were the only intervals tolerated by the human ear in ancient days. All other intervals were considered harsh or unpleasant. →

This seems pretty amazing to us now, that people couldn't tolerate 3rd and 6th intervals and others, but it is true, and because of this they named their only useable intervals (unisons, 4ths, 5ths & octaves) PERFECT. Well gradually, mankind's ears got more tolerant and they accepted the other listed intervals (which we now call MAJOR) and quite a few others also (soon to come).

## Playing with Perfect Intervals

Perfect intervals are the strongest intervals of all. Play the following example of all 5ths and notice the feeling of solidity, strength given off.



Intervals are also classified by how consonant or dissonant they are. A consonant interval is one which sounds complete by itself, that is, it does not arouse the feeling that something else has to come (this is only true, out of context of a song or piece of music because, in such a context many other factors contribute to this expectancy). The consonances are: Perfect & Major 3rds & 6ths (also the soon to be discussed m.3rd & m.6th).

A dissonant interval gives a feeling of incompleteness, restlessness, (even an outright unpleasant effect sometimes - but not always) and a sense of urgency, a feeling that a consonant interval should follow. The dissonances are: the major 2nd, major 7th, and the following soon to be discussed intervals: minor 2nd, minor 7th and all augmented & diminished intervals. DISSONANCE CREATES MOTION & INTEREST. The above labels are questionable as you shall see.

## Alteration of Major & Perfect Intervals

① If a major interval is made smaller by a ½ step (by either lowering the top note or raising the bottom one) the interval is now called minor - the reverse is true, that is, a minor interval made larger by a half step becomes a major. Examples:



Notice that the chromatic alteration necessary to make minor intervals must happen on the same notes that are originally involved; like C to G♯ sounds the same as C to A♭ but for communication and musical notation purposes C to A♭ is a minor 6th and C to G♯ is what is called an augmented 5th. → ② Any major or perfect interval made larger by ½ step is called an augmented interval (like the C to G♯ mentioned above). Examples:



The most common augmented intervals that you will encounter are the aug. 2nd, aug. 4th, aug. 5th, aug 6th.

③ A minor or perfect interval made smaller by a ½ step is called a diminished interval. Example:



If the bottom note of any interval does not correspond to the root of any major scale (like A♯ for instance), then mentally remove the accidental (sharp or flat) and figure the interval without it, then add it back in and change accordingly. Example: There is no key of E♯ so mentally remove the sharp from the E, and you have a minor 6th (E to C) then adding the ♯ back in, you get a diminished 6th.

interval. Any interval larger than an octave is called a compound interval. They may be thought of as their smaller counterparts by subtracting 7 from whatever the number is. Example:

MAJ. 9th or MAJ 2nd    PERF. 5th or 12th    PERF. 4th or 11th

the intervals of the 9th, 11th, and 13th are commonly referred to as they stand, rather than their smaller counterparts, due to chord building principles to be covered later.

While these intervals can be thought of as the same, their effect is quite different as you will see as you analyze music more & more. There will be times in your dealings with music when you will want to (or have to) be able to figure intervals from the top note down; the quickest way might be to relate to major scales once again. Example: Suppose you wanted to find out what interval is a perfect 4th below A, what you do is ask yourself "A is a perfect 4th above the root?" The answer is E, that is, A is a perf. 4th above E, therefore E is a perf. 4th below A. Sometimes, you run into a hitch this way though. Example: Suppose you want to find the note a perfect 4th below E#; well E# is not the 4th of any common major scale (one that doesn't include double sharps or flats) so an easier method might be to count down 4 tones from E (remove the sharp) including the E - this gives you B (E D C B). So if you know your major scales you say "E is the 4th of B; therefore E# would be the 4th of B#; so the note a perfect 4th below E# is B#. Sorry that all this is so complicated but it all gets easier with practice like almost everything else.

## INVERTING INTERVALS

This concept is related to the above material. An interval may be inverted by placing the lower note an octave higher or the upper note an octave lower. The results of interval inversions can be given as follows:

① Perfect intervals remain perfect; major intervals become minor & minor become major, diminished intervals become augmented & augmented become diminished. (Examples soon to come)

② The numerical sum of any interval and its inversion is 9. Examples:

P 5th    P 4th    P 5th    P 4th    MAJ 6th    MIN 3rd    MAJ 6th    MIN 3rd    AUG 5th    DIM 4th    AUG 5th    DIM 4th

It is important to remember that inverted intervals do use the same notes as the original interval - the only difference is that they have shifted positions. Also notice that a compound interval can't really be inverted, you just get the smaller counterpart as discussed above.

## Playing With 3rds & 6ths

Major & minor 3rds & 6ths are classified as imperfect consonances. They add beauty in music (to most ears). Examples:

3RDS (MAJ + MIN)    6THS (MAJ + MIN)    10ths (or 3rds) - MAJ + MIN    10THS WITH INNER TONIC PEDAL    BLACKBIRD    open    10TH FRET

### RARE OCCURRENCES:

Any diminished interval made smaller by a ½ step is a doubly-diminished interval; any augmented " " larger " " " " " -augmented interval.

**① IDENTIFY THESE INTERVALS:**
**+ PLAY THEM TOO.**

*Try to learn to recognize the sounds of different types of intervals.*

*Ask yourself if each above interval is consonant or dissonant — the whole issue is pretty controversial + interesting sometimes.*

**②** *With F as the lower tone, write the following intervals;* PERF. 4th, PERF. 5th, min 6th, maj 7, aug 5th, Maj 3rd (+ play), aug 4th, perf octave

**③** *with A as the upper note, play + write the following intervals: maj 2nd, min 3rd, Perf 4th, Aug 4th, dim 5th, aug. 5th, aug 6th, dim. 7th*

*Make up similar exercises occasionally or often to help you really learn your intervals.*