



# CHAPTER ONE

## *Basic Theory*

- *Intervals*
- *Inverting Intervals*
- *Triads*

### *Intervals*

**A**s atoms are the building blocks of matter, intervals are the building blocks of melody and harmony. A good definition of an *interval* is “the space between two notes.” **Figure 1-1** shows all the intervals from the smallest, the half step/minor 2nd, up to the octave, all based on middle C. The most commonly used term is shown above each interval; alternate terms are shown just below.

**Figure 1-1**

minor 2nd half step	major 2nd whole step	minor 3rd	major 3rd
perfect 4th	tritone augmented 4th diminished 5th	perfect 5th	minor 6th augmented 5th
major 6th	minor 7th augmented 6th	major 7th	octave

The table that follows lists all the intervals, both ascending and descending, as they occur in tunes from the standard jazz repertoire. Unless otherwise noted, the interval in question is the first two melody notes of the song. *Sing* each interval and then play it on your instrument. If you can sing an interval accurately, you'll find that the interval is easier to hear when you play it. Footnotes after each song title list a great recording of the tune—in many cases, the original recording.

## Table of Intervals

### ▲ ascending minor 2nd

Thelonious Monk's "Blue Monk"<sup>1</sup>

Musical notation for the ascending minor 2nd interval in Thelonious Monk's "Blue Monk". The notation is in 4/4 time, key of B-flat major (two flats). The melody starts on B-flat and moves up to C. A bracket under the first two notes is labeled "minor 2nd". Chord symbols Bb7, Eb7, and Bb7 are placed above the staff.

### ▼ descending minor 2nd

Cedar Walton's "Bolivia"<sup>2</sup>

Musical notation for the descending minor 2nd interval in Cedar Walton's "Bolivia". The notation is in 4/4 time, key of B-flat major (two flats). The melody starts on B-flat and moves down to A-flat. A bracket under the first two notes is labeled "minor 2nd". Chord symbols EbΔ, Bbsus, A sus, and DΔ are placed above the staff.

<sup>1</sup> Thelonious Monk, *Thelonious In Action*, Fantasy, 1958.

<sup>2</sup> Cedar Walton, *Eastern Rebellion*, Impulse, 1975.

▲ **ascending major 2nd**

Miles Davis' "Four"<sup>3</sup>

▼ **descending major 2nd**

Miles Davis' "Tune-Up"<sup>4</sup>

▲ **ascending minor 3rd**

Charlie Parker's "Confirmation"<sup>5</sup>

▼ **descending minor 3rd**

Dizzy Gillespie's "Groovin' High"<sup>6</sup>

<sup>3</sup> Miles Davis, *Workin'*, Prestige, 1956.

<sup>4</sup> Miles Davis, *Cookin'*, Prestige, 1956.

<sup>5</sup> Charlie Parker, *Bird At The Roost*, Savoy, 1949.

<sup>6</sup> *Ibid.*

▲ **ascending major 3rd**

Thelonious Monk's "Monk's Dream"<sup>7</sup>

▼ **descending major 3rd**

John Coltrane's "Giant Steps"<sup>8</sup>

▲ **ascending perfect 4th**

Duke Jordan's "Jordu"<sup>9</sup>

▼ **descending perfect 4th**

Wayne Shorter's "ESP"<sup>10</sup>

<sup>7</sup> Thelonious Monk, *Monk's Dream*, Columbia, 1962.

<sup>8</sup> John Coltrane, *Giant Steps*, Atlantic, 1959.

<sup>9</sup> Clifford Brown And Max Roach, *Jordu*, Emarcy, 1954.

<sup>10</sup> Miles Davis, *ESP*, Columbia, 1965.

▲ *ascending tritone*

Joe Henderson's "Isotope"<sup>11</sup>

C7

tritone

▼ *descending tritone*

Third bar of bridge of Duke Ellington's "Sophisticated Lady"<sup>12</sup>

G Δ      E-7      A-7      D7      B-7      E7<sup>b9</sup>

tritone

▲ *ascending perfect 5th*

Milt Jackson's "Bag's Groove"<sup>13</sup>

F-7

perfect 5th

▼ *descending perfect 5th*

Woody Shaw's "Katrina Ballerina"<sup>14</sup>

G-7      F7

perfect 5th

<sup>11</sup> Joe Henderson, *Power To The People*, Milestone, 1969.

<sup>12</sup> Duke Ellington and Ray Brown, *This One's For Blanton*, Pablo, 1973.

<sup>13</sup> Miles Davis *And The Modern Jazz Giants*, Prestige, 1954.

<sup>14</sup> Woody Shaw, *United*, Columbia, 1981.

▲ **ascending minor 6th**

Woody Shaw's "In A Capricornian Way"<sup>15</sup>

minor 6th

▼ **descending minor 6th**

Second bar of Joe Henderson's "Serenity"<sup>16</sup>

minor 6th

▲ **ascending major 6th**

Thelonious Monk's "Misterioso"<sup>17</sup>

major 6th

▼ **descending major 6th**

Miles Davis' "All Blues"<sup>18</sup>

major 6th

<sup>15</sup> Woody Shaw, *Stepping Stones*, Columbia, 1978.

<sup>16</sup> Joe Henderson, *In 'n Out*, Blue Note, 1964.

<sup>17</sup> Thelonious Monk, *Live At The Jazz Workshop*, Columbia, 1964.

<sup>18</sup> Miles Davis, *Kind Of Blue*, Columbia, 1959.

▲ **ascending minor 7th**

Last bar of bridge of McCoy Tyner's "Aisha"<sup>19</sup>

▼ **descending minor 7th**

Fourth bar of bridge of Billy Strayhorn's "Chelsea Bridge"<sup>20</sup>

▲ **ascending major 7th**

Second and third notes of Joe Henderson's "Serenity"<sup>21</sup>

▼ **descending major 7th**

Wayne Shorter's "Lady Day"<sup>22</sup>

<sup>19</sup> John Coltrane *Olé*, Atlantic, 1961.

<sup>20</sup> Joe Henderson, *The Kicker*, Milestone, 1967.

<sup>21</sup> Joe Henderson, *In 'n Out*, Blue Note, 1964.

<sup>22</sup> Wayne Shorter, *The Soothsayer*, Blue Note, 1965.

▲ *ascending octave*Sam Jones' "Del Sasser"<sup>23</sup>

Musical notation for an ascending octave in Sam Jones' "Del Sasser". The key signature has one flat (Bb), and the time signature is 4/4. The melody starts with a quarter rest, followed by a dotted quarter note (Bb), a quarter note (C), and a quarter note (D). A bracket under the last two notes is labeled "octave". The piece then changes to a key signature of two flats (Bb, Eb) and continues with a quarter rest, a dotted quarter note (Eb), a quarter note (F), and a quarter note (G). Chord symbols F-7 and Bb7 are written above the staff.

▼ *descending octave*Freddie Hubbard's "Philly Mignon"<sup>24</sup>

Musical notation for a descending octave in Freddie Hubbard's "Philly Mignon". The key signature has three flats (Bb, Eb, Ab), and the time signature is 4/4. The melody starts with a quarter rest, followed by quarter notes (Bb, Ab, Gb, Fb, Eb, D). A bracket under the last two notes is labeled "octave". The piece then changes to a key signature of two flats (Bb, Eb) and continues with a quarter rest, a dotted quarter note (Eb), a quarter note (F), and a quarter note (G). Chord symbols D<sup>b</sup>Δ, E<sup>b</sup>-7, and A<sup>b</sup>7 are written above the staff.

Intervals of greater than an octave rarely occur in tunes, but here are a few examples:

▲ *ascending minor 9th*Bar 11 of bridge of Wayne Shorter's "Wild Flower"<sup>25</sup>

Musical notation for an ascending minor 9th in Wayne Shorter's "Wild Flower". The key signature has one flat (Bb), and the time signature is 3/4. The melody starts with a dotted quarter note (Bb), a quarter note (C), and a quarter note (D). A bracket under the last two notes is labeled "minor 9th". The piece then changes to a key signature of two flats (Bb, Eb) and continues with a dotted quarter note (Eb), a quarter note (F), and a quarter note (G). Chord symbols G<sup>sus</sup><sup>b</sup>9, C-7, F7, and B<sup>b</sup>Δ<sup>#</sup>5 are written above the staff.

▼ *descending minor 9th*Bar 18 of Benny Golson's "I Remember Clifford"<sup>26</sup>

Musical notation for a descending minor 9th in Benny Golson's "I Remember Clifford". The key signature has one flat (Bb), and the time signature is 4/4. The melody starts with a dotted quarter note (Bb), a quarter note (C), and a quarter note (D). A bracket under the last two notes is labeled "minor 9th". The piece then changes to a key signature of two flats (Bb, Eb) and continues with a dotted quarter note (Eb), a quarter note (F), and a quarter note (G). Chord symbols A<sup>o</sup>, D7<sup>alt</sup>, G<sup>o</sup>, C7<sup>alt</sup>, F-7, and B<sup>b</sup>7<sup>alt</sup> are written above the staff.

<sup>23</sup> Cannonball Adderly, *Them Dirty Blues*, Riverside, 1960.<sup>24</sup> Freddie Hubbard, *Here To Stay*, Blue Note, 1962.<sup>25</sup> Wayne Shorter, *Speak No Evil*, Blue Note, 1964.<sup>26</sup> The Jazztet, *Meet The Jazztet*, Argo, 1960.



▲ **ascending major 9th**

Bass part, intro of Joe Henderson's "No Me Escueca"<sup>27</sup>

A musical staff in bass clef with a 4/4 time signature. The key signature has one flat (B-flat). The notes are: B2 (quarter), C3 (quarter), D3 (quarter), E3 (quarter), F3 (quarter), G3 (quarter), A3 (quarter), B3 (quarter). A bracket under the first two notes (B2 and C3) is labeled "major 9th". Above the staff, the chord symbol "A-7" is written.

▲ **ascending minor 10th**

Bass part, fifth bar, intro of Joe Henderson's "No Me Escueca"<sup>28</sup>

A musical staff in bass clef with a 4/4 time signature. The key signature has one flat (B-flat). The notes are: B2 (quarter), C3 (quarter), D3 (quarter), E3 (quarter), F3 (quarter), G3 (quarter), A3 (quarter), B3 (quarter), C4 (quarter), D4 (quarter). A bracket under the first two notes (B2 and C3) is labeled "minor 10th". Above the staff, the chord symbols "A-7" and "C7" are written.

▼ **descending 11th**

Bar 15 of Joe Henderson's "Inner Urge"<sup>29</sup>

A musical staff in treble clef with a 4/4 time signature. The key signature has two flats (B-flat and E-flat). The notes are: G4 (quarter), F4 (quarter), E4 (quarter), D4 (quarter), C4 (quarter), B3 (quarter), A3 (quarter), G3 (quarter), F3 (quarter), E3 (quarter), D3 (quarter), C3 (quarter). A bracket over the last two notes (A3 and G3) is labeled "11th". Above the staff, the chord symbol "DbΔ#4" is written.

▼ **descending major 13th**

Bar 24 of Billy Strayhorn's "Chelsea Bridge"<sup>30</sup>

A musical staff in treble clef with a 4/4 time signature. The key signature has two flats (B-flat and E-flat). The notes are: G4 (quarter), F4 (quarter), E4 (quarter), D4 (quarter), C4 (quarter), B3 (quarter), A3 (quarter), G3 (quarter), F3 (quarter), E3 (quarter), D3 (quarter), C3 (quarter). Brackets over the first three notes (G4, F4, E4) and the last three notes (A3, G3, F3) are labeled "3". A bracket under the last two notes (A3 and G3) is labeled "major 13th". Above the staff, the chord symbols "G-7" and "Db7#11" are written.

<sup>27</sup> Joe Henderson, *Power To The People*, Milestone, 1969.

<sup>28</sup> *Ibid.*

<sup>29</sup> Joe Henderson, *Inner Urge*, Blue Note, 1964.

<sup>30</sup> Joe Henderson, *The Kicker*, Milestone, 1967.

## Inverting Intervals

An important skill all musicians must have, especially when transposing,<sup>31</sup> is the ability to *invert* intervals. If you have to transpose a tune “up a major 6th” on the spot, you’ll probably find it easier to transpose it “down a minor 3rd,” which is the same thing. A 3rd is a lot closer than a 6th. In other words, you need to know that a major 6th inverts to a minor 3rd. When you invert an interval, you take the bottom note and put it on top, or vice versa. The result is a new interval, and the rules for inverting intervals are simple.

**Figure 1-2**

major 3rd                  minor 6th                  **major becomes minor**  
 $3 + 6 = 9$

The figure shows a treble clef staff with two measures. The first measure contains a major 3rd interval between C4 and E4. The second measure contains a minor 6th interval between E4 and C5. The text above the staff indicates the inversion and the sum of the interval numbers: 3 + 6 = 9.

**Figure 1-3**

minor 2nd                  major 7th                  **minor becomes major**  
 $2 + 7 = 9$

The figure shows a treble clef staff with two measures. The first measure contains a minor 2nd interval between Bb3 and C4. The second measure contains a major 7th interval between C4 and Bb4. The text above the staff indicates the inversion and the sum of the interval numbers: 2 + 7 = 9.

**Figure 1-4**

perfect 4th                  perfect 5th                  **perfect remains perfect**  
 $4 + 5 = 9$

The figure shows a treble clef staff with two measures. The first measure contains a perfect 4th interval between C4 and F4. The second measure contains a perfect 5th interval between F4 and C5. The text above the staff indicates the inversion and the sum of the interval numbers: 4 + 5 = 9.

**Figure 1-5**

tritone                  tritone                  **tritone remains tritone**  
 $4 \frac{1}{2} + 4 \frac{1}{2} = 9$

The figure shows a treble clef staff with two measures. The first measure contains a tritone interval between F#4 and C5. The second measure contains a tritone interval between C5 and F#4. The text above the staff indicates the inversion and the sum of the interval numbers: 4 1/2 + 4 1/2 = 9.

When you invert an interval

- Major becomes minor
- Minor becomes major
- Perfect remains perfect
- Tritone remains tritone<sup>32</sup>

and the old and new intervals add up to nine.

Look at **figure 1-2**. If you invert a major 3rd, C with E on top, it becomes E with C on top, a minor 6th. Major becomes minor, and three plus six add up to nine. In **figure 1-3**, a minor 2nd inverts to a major 7th. Minor becomes major, and two plus seven add up to nine. In **figure 1-4**, a perfect 4th becomes a perfect 5th. Perfect remains perfect, and four plus five equals nine. In **figure 1-5**, a tritone inverts to another tritone. Because a tritone is right between a 4th and a 5th, you could say that it is “four and a half,” and four and a half plus four and a half equals nine.

To really internalize this information, and have the sound of all the intervals in your head, you should sing the intervals as part of

your daily practice routine. You don’t need your instrument to do this (unless you’re a singer, of course), so you can practice in the shower, in your car, and

<sup>31</sup> Going from one key to another.

<sup>32</sup> And, if you use the alternate terms “augmented” and “diminished” as shown in **figure 1-1**, augmented becomes diminished, and diminished becomes augmented.

anywhere else you want. In addition, practice singing along with your favorite records—heads, melodies, solos, and so on, of standards, bebop, and other jazz tunes. As you do so, try to identify specific intervals between notes. This is all part of what’s called *ear training*. If your school offers an ear training course, take it! There are also some good ear training tapes available.<sup>33</sup> You have to train your ears because creating a good solo consists largely of playing on your instrument what you “hear in your head.”

## Triads

You can play intervals not only individually, but also in combinations. For example, stacking two 3rds on top of one another forms a triad. There are four possible combinations, each forming a different triad:

- A major 3rd with a minor 3rd on top forms a major triad.
- A minor 3rd with a major 3rd on top forms a minor triad.
- Two minor 3rds form a diminished triad.
- Two major 3rds form an augmented triad.

Figure 1-6 shows all four triads.

Figure 1-6

C major triad                      C minor triad                      C diminished triad                      C augmented triad

minor 3rd  
major 3rd

major 3rd  
minor 3rd

minor 3rd  
minor 3rd

major 3rd  
major 3rd

Play each triad on the piano. Listen and feel the different emotional effect of each triad. In music for TV, movies, and the theater, harmony is often used to enhance the emotional content of a scene. A major triad may sound happy, strong, or triumphant. A minor triad may sound sad, pensive, or tragic. A diminished triad often suggests tension or agitation. An augmented triad has a floating, misty quality, suggesting, among other things, enchantment—like Bambi emerging from the mist at dawn (seriously).

<sup>33</sup> Jamey Aebersold, *Jazz Ear Training*. Armen Donelian, *Training The Ear*. David Baker, *A New Approach To Ear Training*

Although these musical devices have all become clichés, they still work, otherwise composers, including jazz composers, wouldn't continue to use them.

It's no accident that tunes such as Benny Golson's

"I Remember Clifford,"<sup>34</sup>

John Lewis' "Django,"<sup>35</sup>

and Eden Ahbez'

"Nature Boy"<sup>36</sup> are

written in minor keys,

or that Bix Beiderbeck's

"In A Mist"<sup>37</sup> uses

augmented chords. As

you play, you elicit an

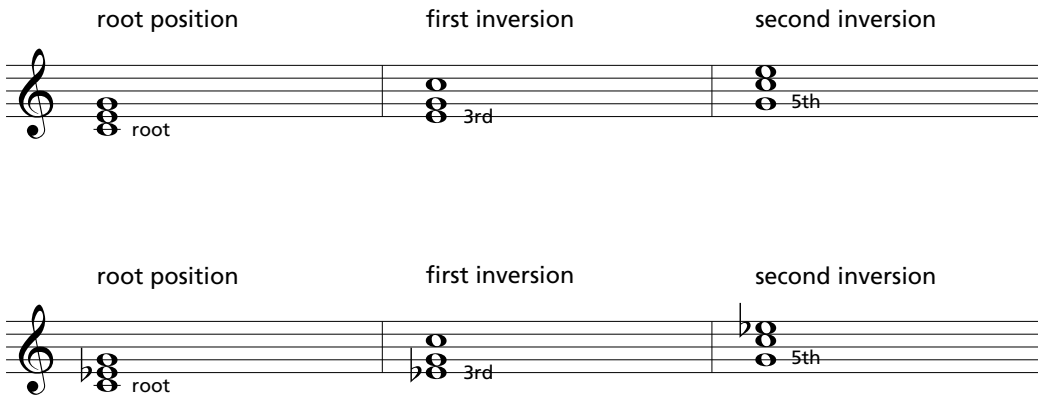
emotional response in

your listener, your fellow

musicians, and yourself.

Be aware of it.

**Figure 1-7**



Triads are often inverted. An *inversion* is a chord with a note other than the root on the bottom. **Figure 1-7** shows a C major and a C minor triad in their three possible positions:

- Root position, with the root on the bottom.
- First inversion, with the 3rd on the bottom.
- Second inversion, with the 5th on the bottom.

*We're ready to move on to II-V-I,  
the basic chord progression in jazz.*

<sup>34</sup> The Jazztet, *Meet The Jazztet*, Argo, 1960.

<sup>35</sup> Grant Green, *Idle Moments*, Blue Note, 1963.

<sup>36</sup> John Coltrane, *The John Coltrane Quartet Plays*, MCA/Impulse, 1965.

<sup>37</sup> Freddie Hubbard, *Sky Dive*, CTI, 1972.