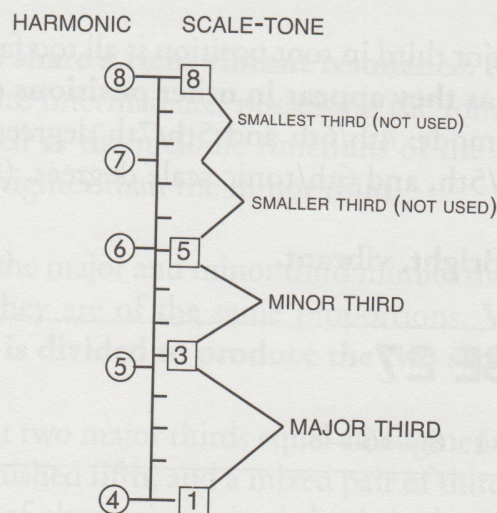




## THIRDS: ESSENCE OF MODALITY

In the 3rd octave of the harmonic series, the fifth is divided proportionally, creating a **large (major) third** and a **small (minor) third**. Refer to page 49.



Again, the harmonic series has provided a **pair of intervals that are essential** for everyday music making. The configuration of large and small thirds defines the shape of each mode.

While 12-equal temperament has provided a near perfect fifth, **the major and minor thirds are only crude replicas of their harmonic counterparts** 5:4 and 6:5. The equal-tempered major third (400 cents) is larger (sharper) than its harmonic counterpart (5:4) which is 386 cents. Its complement, the minor third, is similarly imperfect: the equal-tempered version is 300 cents whereas the harmonic (6:5) interval is 316 cents. Consequently, we have learned to tolerate a wide range of intervals identified as thirds. In your casual listening, notice how performers are able to deviate the pitch of a minor or major third.

**The remaining two intervals** (7:6 and 8:7) are inappropriate for 12-equal tempered music, as the 7th harmonic is too far from the tempered interval grid.



## ▶ MAJOR THIRD

**TONALITY** In the major third (5:4), the 5 “points” to the 4 (multiple of the fundamental) as the root. (Refer to the diagram on the previous page.) When listening to an isolated major third, we would naturally identify **the lower tone as the root.**

**SPAN** The major third in root position is all too familiar. **Become aware of major thirds as they appear in other positions of scales and chords**, i.e. in the major mode: 4th/6th and 5th/7th degrees; in the Phrygian mode: 2nd/4th, 3rd/5th, and 6th/tonic scale degrees. (See modes in section 6)

**RESONANCE** Bright, vibrant.

### EXERCISE 27

Sing: 1—3—1. 8— $\flat$ 6—8.

## ▶ MINOR THIRD

**TONALITY** In the minor third interval as found in the harmonic series (6:5), the 6th and 5th harmonic seem to “point” to the fundamental (4). You may also perceive the lower tone of an isolated minor third as the tonality. **Musical context ultimately determines the perceived tonality.**

### EXERCISE 28

Listen internally to a major triad (alternating the three tones). Now alternate only the upper two tones, a minor third which “points” to its silent root. Still listening to the minor third interval, start to hear the lower tone as the root. The ambiguous tonality is dependent on musical context.

**SPAN** The minor third is easier to sing than the major third and is therefore **more common in melodies.** Find minor thirds in various scales and chords.

**RESONANCE** Dark, mellow.



**EXERCISE 29**

Sing: 1— $\flat$ 3—1. 8—6—8.

**◆ FINE TUNING**

**RESONANCE** Both thirds share a rich, vibrant resonance. In the scheme of all the intervals, they are intermediate, possessing the tonal qualities of the fifth and fourth as well as the melodic functions of the seconds. The major third is distinctly brighter than the minor third.

**SPAN** The relationship of the major and minor third mimics the relationship of the fifth and fourth; they are of the same proportions. **Visualize the interval of the fifth as it is divided to produce the two sizes of thirds.**

**It is helpful to realize** that two major thirds equal an augmented fifth, two minor thirds equal a diminished fifth, and a mixed pair of thirds results in a perfect fifth. The pattern of alternating mixed thirds is the foundation of chord structures. (See page 237)

**MODALITY** The two types of thirds are often mistakenly interchanged, as they are similar in all qualities: tonality, resonance and span. **The obvious difference is modal context**—we never confuse major with minor. In scale passages, the choice of third is often a modal concern. Hearing thirds in the context of the prevailing mode or scale will guarantee accuracy.

**In modal context**, the differentiation of the two thirds is obvious, even definitive. **In melodic context**, the distinction is subtle. The modes will be explored as valuable tools of perception in SECTION 6.

**EXERCISE 30**

Sing a major scale, alternating thirds, i.e. 1-3-2-4-3-5, etc. noting which thirds are major and which are minor. Repeat, singing a minor scale.

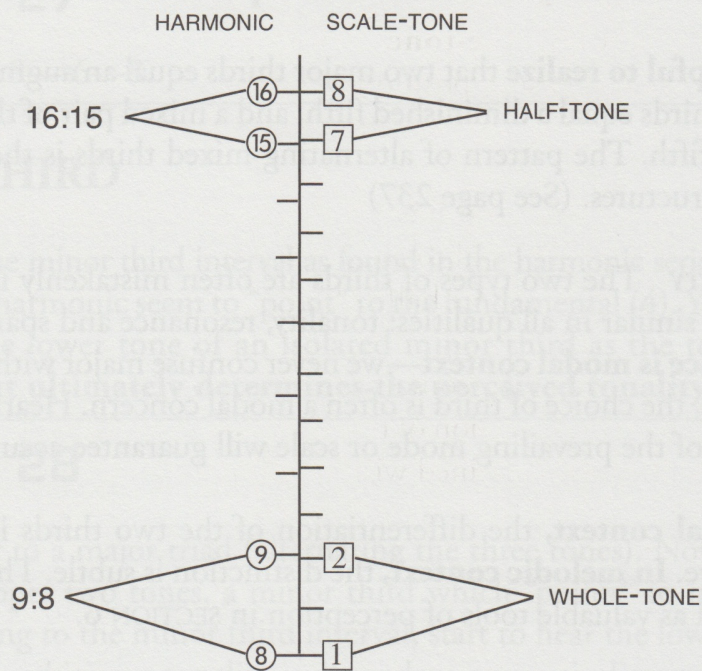




## SECONDS: ESSENCE OF MELODY

The whole-tone (major second) and half-tone (minor second) are the **building blocks of melody**. Various configurations of the major and minor seconds define the characteristics of each mode.

In the fourth octave of the harmonic series, we find major and minor seconds that are **near perfect for the 12-equal tempered interval set** (9:8 and 16:15).





## ◆ WHOLE-TONE

**The whole-tone is an important structural element, as well as a primary component of melody and scales.**

In the 4th octave, again, there is a proportional division which produces more intervals. The first interval in this octave (9:8) is a whole-tone that is ideal for 12-equal temperament. **The 9th harmonic**—being a multiple of the 3rd harmonic—shares the structural (near perfect) acoustic properties of the fifth. (Review pages 49, 58.)

**The tempered ninth** is a very good replication of the natural ninth (9th harmonic). As the ninth is a projection of two fifths, the out-of-tuneness is twice the error of a fifth, an interval of only 4 cents.

**TONALITY** **The whole-tone is ambiguous** because it appears in the harmonic series in both positions—the root on top (8:7) and the root on the bottom (9:8).

**SPAN** **The whole-tone has great melodic potential**—it is probably the most natural interval to sing. The span is critical, as a whole-tone is sometimes perceived as a half-tone.

**RESONANCE** **The ninth** contains the tonal and structural characteristics of the fifth, as it is a projection of two fifths. When collapsed to a **whole-tone**, those qualities are combined with the compressed vibrancy of a second.



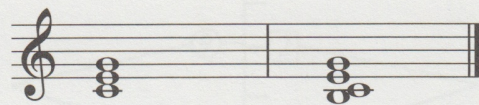
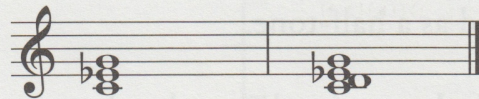
## ▶ HALF-TONE

At the top of the 4th octave of the harmonic series, the 9:8 whole-tone is harmonically divided to produce 16:15, a **very accurate equal-tempered half-tone**. (Refer to pages 49, 64.)

**TONALITY** Because the half-tone is the smallest unit used in equal temperament, **it contains no index of tonality**; either tone could be a root.

**SPAN** **Melodically, a half-tone is conspicuous.** Even when not functioning as the traditional leading tone, half-tone movement is perceptible, as one tone is usually harmonic (a chord tone) and the other tone non-harmonic. Concentrate on singing and hearing a half-tone until the movement is definite.

**RESONANCE** **There is little doubt when hearing a half-tone**, as the vibrant “buzz” is apparent in any type of vertical. A half-tone, added to an established vertical tonality, lends a sense of sadness, drama or emotional depth.





## ◆ FINE TUNING

The basic materials of melody are whole-tones and half-tones. Various combinations of major and minor seconds define the scale configuration of each mode.

**Interchanging major and minor seconds is a common error in perception.** The goal here is to never confuse the two intervals—each has a distinct, characteristic sound. **The whole-tone** is a powerful interval; it is stable, harmonic, and independent. On the other hand, **the half-tone** is fluid, melodic; it begs to move, to resolve. While **the vertical whole-tone** creates a rich, prominent drone, **the half-tone** creates a “buzz,” suggesting activity, anxiety or turmoil.

**Since music space is virtual space,** you can imagine intervals to be any size. Exaggerate to clarify and distinguish between a whole-tone and half-tone: Imagine a whole-tone to be a two-story building. Mentally sing a whole-tone as you look from the ground up to the roof of the second story. Next to it is a single-story building. Sing a half-tone as you look at it. If you can keep the whole-tone and half-tone in perspective, the difference between them will always be distinct.

Sing the following combinations of whole-tones and half-tones.

### EXERCISE 31

1—2—8—9—8— $\flat$ 7—8—2—1.

### EXERCISE 32

1— $\flat$ 2—8— $\flat$ 9—8— $\sharp$ 7—1— $\flat$ 2—1.

### EXERCISE 33

(slowly) 1— $\flat$ 2— $\sharp$ 2— $\flat$ 2—1.

### EXERCISE 34

(slowly) 8— $\sharp$ 7— $\flat$ 7— $\sharp$ 7—8.





## THE TRITONE

It is curious that while the fifth divides the octave harmonically, **the tritone divides the octave linearly**. It has the ambiguity to be a flat fifth or sharp fourth and the symmetry of containing six half-tones, three whole-tones and two minor thirds.

**RESONANCE** **The tritone has its own distinct sound.** It contains the brightness of the whole-tone and major third, yet the mellowness of the minor thirds that it encompasses. The tritone is the determining factor in the dominant seventh chord and its extensions; its presence or absence is felt immediately. Identify the tritone in dominant chords, not only the 3rd/7th, but altered tones such as ROOT/#11, 5/b9, 9/b13 and #9/13.

**Traditional harmony** treats the tritone as the restless interval, yearning for resolution either up or down a half-tone. **In the late nineteenth century**, composers such as Satie and Debussy used the tritone to emphasize tone color, rather than formal progression. **During the 1940s and 1950s**, jazz innovator Thelonious Monk incorporated the tritone as an integral part of his style, allowing it to sustain unresolved in melody and occasionally to replace the fifth as a resolved vertical structure.

**SPAN** **How we perceive a tritone depends on its function:** if there is melodic movement, the tension/resolution will be felt. It may be helpful to slide up or down a half-tone to find the proximity of a fifth or fourth. The tritone is the essential ingredient of dominant seventh-type verticals and the bridge to chromatic music.

### EXERCISE 35

Sing, ascending and descending, until comfortable:

1—5—TT; 1—TT. 1—4—TT; 1—TT. 1—TT—8—TT—1.



**TONALITY** A truly symmetrical interval; **either tone may be the root**. The choice depends on the context of the moment. While an isolated tritone is singular, it has dual, contrasting roles as either a flat fifth or a sharp fourth. **In terms of hearing**, we need only acknowledge the interval as a tritone. **When committing to notation**, it is necessary to decide if we're hearing a flat fifth or a sharp fourth.

**The tritone as flat fifth** is related to the minor third—heavy, dark, a “blue” tone, resolving to the fourth if at all. Conversely, **the tritone as sharp fourth** is perceived as Lydian—light and bright, related to the major third. If it resolves, it will resolve upward to the fifth. Note that the lydian tone ( $\#4$ ) coexists with the natural fifth and the  $b5$  coexists with the natural fourth. **The flat fifth and sharp fourth define the opposite ends of the modal spectrum**—Locrian and Lydian.

**The tritone is as important as the half-tone** in determining tonality and modality. Because a diatonic scale contains only one tritone, **its unique position within each mode** is definitive. (Modality is discussed in SECTION 6.)

### EXERCISE 36

Sing: Tritone as sharp four (lydian):  $1-\#4-5$ .  $8-\#4-5$ .

Tritone as a flat five:  $1-b5-4$ .  $8-b5-4$ .

### EXERCISE 37

Learn to name—immediately—the tritone relationship of any given note. (What is the tritone of  $A^b$ ? etc.)

**The tritone is unique among all intervals**. Its sound is distinct and its presence—melodically or vertically—is conspicuous. Listen for tritones in all musical contexts.

You've completed the basic interval set. If you are familiar and comfortable with the fifth, fourth, thirds, seconds and tritone, you are ready to expand your interval palette.





## COMPLEMENTARY INTERVALS

When dividing the octave at any point, the resulting intervals are **complementary**. The traditional term “inversion” may be confusing when applied to intervals. In the interest of clarity, we’ll use “complement” when referring to intervals and “inversion” when referring to chords.

**Complementary intervals have their own distinct identities**, yet share some of the qualities of their harmonic counterparts. Completing the span of an octave are the sevenths and sixths.

### ▶ MAJOR SEVENTH

**TONALITY** Unlike its complement, the minor second, **the major seventh has gained a strong presence** as an independent interval and exhibits a definite sense of tonality with the lower tone as the root. We may hear the implied chord-tones, filling in a complete major seventh chord. The interval itself is a stark outline of that chord and may be perceived as biting, lonely or dramatic.

**SPAN** Just short of an octave, the major seventh **may have a tendency to resolve** by expanding or contracting by a half-tone. However, as the perimeter of a major seventh chord, the interval stands resolved.

**RESONANCE** **may vary with context.** A complete major seventh chord may be mellow and dignified while the stark, isolated interval emits the buzz of a minor second, although somewhat softened by the open span.

#### EXERCISE 38

1—7—8—7—1. 8—b2—1—b2—8.

#### EXERCISE 39

Name the note a major seventh above and below any given note.



## ◆ MINOR SEVENTH

**TONALITY** The harmonic series provides a minor seventh (7:4). **Unusable as a 12-equal interval**, it nevertheless retains its harmonic identity; therefore the lower tone is usually perceived as the root. The interval itself can function as a 7th chord without the inner chord-tones sounding.

**SPAN** The minor seventh is a **common jazz keyboard voicing for the left hand**—a combination of comfortable hand position, economy of voicing and rich sound. The interval has the same function in lower brass, woodwind and string voicings. When necessary, mentally fill in the implied chord-tones, completing the familiar dominant 7th chord.

**RESONANCE** It possesses the strength of its complement, the major second: rich and vibrant in the lower registers and ringing in the upper registers.

### EXERCISE 40

1— $\flat$ 7—8— $\flat$ 7—1. 8—2—1—2—8.

### EXERCISE 41

Name the note a minor seventh above and below various notes.

## ◆ FINE TUNING

Although the spans of the major and minor sevenths are similar, there is little danger of confusing them if the qualities of tonality and resonance are observed.

### EXERCISE 42

Proceed up a major scale: 1—7—2—8—3—9, etc., deciding whether each seventh is major or minor.



## ▶ MAJOR SIXTH

**TONALITY** Like its complement, the minor third, **the tonality of the major sixth is ambiguous**; you may hear the lower or upper tone as the root depending on musical context.

**SPAN** The closeness of the minor third produces a unified sound, whereas **the open voicing of the major sixth** allows us to hear each tone independently.

**RESONANCE** **The richness and mellowness** of the minor third is contained in the major sixth.

### EXERCISE 43

Sing a major sixth above the root, then below. Recognizing the complementary minor third may help establish the major sixth.

### EXERCISE 44

1—5—6. 1—6.

8—6—1.

1—6—8—6—1.

### EXERCISE 45

8— $\flat$ 3—1— $\flat$ 3—8.



## ▶ MINOR SIXTH

**TONALITY Ambiguous:** the root may be the upper or lower tone. The minor sixth may in fact be an augmented fifth; musical context determines spelling.

**SPAN** If you hear the lower tone as the root, you may sing up a fifth, then a half-tone to arrive at the minor sixth. If the upper tone seems to be the root, the interval is easily perceived as the complement of a major third.

### EXERCISE 46

Listen to an isolated minor sixth. Concentrate on hearing the upper tone as the root then the lower tone as the root.

### EXERCISE 47

1—5— $\flat$ 6. 1— $\flat$ 6.

### EXERCISE 48

1— $\flat$ 6—8— $\flat$ 6—1.

8— $\flat$ 6—1— $\flat$ 6—8.

### EXERCISE 49

8—5—3. 8—3.

**RESONANCE** The minor sixth possesses **the brightness of the major third**. Its proximity just above the fifth adds **a certain amount of unresolved tension, an edge**.

## ▶ FINE TUNING

Like the thirds, the sixths are often used in parallel voicing, interchanging major and minor according to the prevailing mode. **In diatonic music**, the incidence of major or minor sixths are determined by the mode and any exception (altered scale-tone) will be obvious to the ear. **In non-diatonic music**, great care is required to determine if a sixth is major or minor. **Use tonality, span, and resonance to perceive accurately.**



## Interval Characteristics

Don't get disappointed if in the beginning most intervals sound similar. That's normal. Instead, try to focus on the subtle qualities of the intervals. What characters do they have? Certain intervals are quite common and occur frequently in many melodies, so in the beginning it's helpful to try and recognize the character of the sounds of the intervals.

### Consonance & Dissonance

No concept is more important to western music than that of consonance and dissonance. These qualities alone are responsible for the power of music to create a sense either of rest or of tension and movement.

**Consonance:** Consonant intervals are stable and do not require resolution to another note. When an interval is consonant, it has a sense of rest about it, as if there isn't really anywhere else to go. There's no sense of being pulled in any direction.

**Dissonance:** By contrast, dissonant intervals are tense and do require resolution. They are more active. They create a sense of being pulled in a particular direction: either up or down, away from the note that is being played. They want to resolve into consonant notes.

### Practicing Intervals

The table on the next page lists all the variations of intervals and gives examples of songs which use them, so you can hear what they sound like. The first words or notes of the songs listed in the boxes are examples of the corresponding intervals on the left. If you are not familiar with the song, dig it up on Youtube and learn them. Practice the interval by holding the first note of the interval for two beats and hold the second note of the interval for two beats, and repeat. See if you can make the changes more accurate and more quickly.