

## Lesson XXX – Introduction to Rhythm and Meter

### Introduction:

The duration of notes and silence—that is, how long a pitch or pause is held—is an essential part of performing, composing, and experiencing music. Many of these lessons are concerned primarily with matters of pitch: scales, intervals, and chords. But without a firm understanding of how these elements interact in time, they lose much of their meaning. Consider the following example in which the note durations of a well-known melody have been altered. See if you can identify the melody in its altered form:

Example 1:



Chances are, the melody seemed unfamiliar. Even though the pitches are the same and appear in the same order, the melody is virtually unrecognizable. The following example restores the notes to their original durations:

Example 2 (H. Mancini, “The Pink Panther Theme”):



As you can see (and hear), the note durations and how they’re organized make a big difference!

We use the words *rhythm* and *meter* to describe how music unfolds in time. In this lesson we will cover a number of rudimentary topics pertaining to rhythm and meter, beginning with the concept of the beat, and progressing through discussions of tempo, note values, and rests. We will conclude by looking at several more complex ways of notating rhythm.

### The beat:

Central to both rhythm and meter is a musical characteristic referred to as *the beat*. A periodic—that is, regularly occurring—pulse that underlies a piece of music, the beat is something we’ve all experienced while listening. Virtually all Western music has an underlying pulse of this sort.

Listen to the following movement from a Mozart piano sonata while tapping along with your foot. Try to pick out the beat that is consistent throughout the excerpt. (Even if you are unfamiliar with all of the notation symbols, you should find it easy enough to follow along visually with the score.)

Example 3 (W.A. Mozart, Piano Sonata in B<sup>b</sup> major, K. 333, Mvt. III, mm. 1-16):

The first system of music is in 3/4 time. The bass line consists of quarter notes: C2, D2, E2, F2, G2, A2, B2, C3. The treble line starts with a dotted quarter note G4, followed by quarter notes A4, B4, and C5. The second measure has a quarter note G4, a quarter note A4, and a quarter rest. The third measure has eighth notes G4, A4, B4, C5, B4, A4, G4. The fourth measure has eighth notes G4, A4, B4, C5, B4, A4, G4, and a quarter rest.

The second system starts at measure 5. The bass line continues with quarter notes: D2, E2, F2, G2, A2, B2, C3. The treble line has a triplet of eighth notes G4, A4, B4, followed by quarter notes C5, B4, A4, and G4. The second measure has a quarter note G4, a quarter note A4, and a quarter rest. The third measure has eighth notes G4, A4, B4, C5, B4, A4, G4. The fourth measure has eighth notes G4, A4, B4, C5, B4, A4, G4, and a quarter rest.

The third system starts at measure 9. The bass line continues with quarter notes: D2, E2, F2, G2, A2, B2, C3. The treble line has a triplet of eighth notes G4, A4, B4, followed by quarter notes C5, B4, A4, and G4. The second measure has a quarter note G4, a quarter note A4, and a quarter rest. The third measure has eighth notes G4, A4, B4, C5, B4, A4, G4. The fourth measure has eighth notes G4, A4, B4, C5, B4, A4, G4, and a quarter rest.

The fourth system starts at measure 13. The bass line continues with quarter notes: D2, E2, F2, G2, A2, B2, C3. The treble line has a triplet of eighth notes G4, A4, B4, followed by quarter notes C5, B4, A4, and G4. The second measure has a quarter note G4, a quarter note A4, and a quarter rest. The third measure has eighth notes G4, A4, B4, C5, B4, A4, G4. The fourth measure has eighth notes G4, A4, B4, C5, B4, A4, G4, and a quarter rest.

If you were unable to pick out a steady beat while listening to this example, try listening to it again. Being familiar with a piece of music helps a great deal in analyzing it, particularly with regards to rhythm and meter. You may find that even with just two listenings, you will be quite familiar with this excerpt.

If you were able to recognize a steady beat, chances are you noticed several things. For one, certain beats seem stronger than others. In this case, the beats alternate between strong beats and weak beats. For another, the actual music only rarely just follows the beat. There are many different note durations—some are equal to the beat while others are shorter or longer—that make up this excerpt. These observations form the basis for distinguishing between rhythm and meter, though it is important to keep in mind that both of these concepts are closely interrelated.

**Note:** You may have found that as you were tapping along to the example above, you found that there were several different pulses happening at once. Not to worry! As we'll discuss in a moment, meter consists of a hierarchical set of pulses. In other words, if you heard a pulse that was rather quick, it's likely that you were tuned into a division of the beat instead of the beat itself. Generally speaking, the beat of a piece of music occurs at a moderate pace: not too fast, not too slow.

## Rhythm and meter:

When we talk about meter, we refer to how the basic beats are *grouped*. In Example 3, we saw and heard how every other beat was emphasized: strong – weak – strong – weak – strong, etc. We refer to this type of beat grouping as a *duple meter* because the beats are grouped in twos: one strong and one weak. The following example shows the strong and weak beats in the first four measures of the Mozart example:

Example 4 (W.A. Mozart, Piano Sonata in B $\flat$  major, K. 333, Mvt. II, mm. 1-4):

strong weak strong weak strong weak strong weak

As you can see in the notation, the strong-weak groups are separated with vertical lines. Each group is referred to as a *measure* (or, *bar*) and the vertical lines as *measure lines* (or, *bar lines*).

Listening to a different piece of music, we may find that every third beat is emphasized: strong – weak – weak – strong – weak – weak – strong, etc. This type of beat grouping would be referred to as a *triple meter*. The following excerpt is in a triple meter:

Example 5 (W.A. Mozart, Piano Sonata in E $\flat$  major, K. 282, Mvt. III, mm. 1-16):



Quadruple meter, because it sorts the beat into groups of four, can easily be mistaken for duple meter. Hearing the difference between the two, in other words, can be difficult. (In some cases, the difference is one of personal opinion based on how the listener experiences a particular piece of music.)

Being able to hear and distinguish between these three common meter types—duple, triple, and quadruple—is essential to your understanding of how music works in time. Lessons YYY and ZZZ discuss meter in greater depth.

**Note:** Besides duple, triple, and quadruple meters, you will occasionally come across other, more complex meters. With these meters, you may find the beats organized into groups of five, seven, or more pulses per measure. For our intents and purposes, however, we will focus on meters that group beats into sets of two, three, or four.

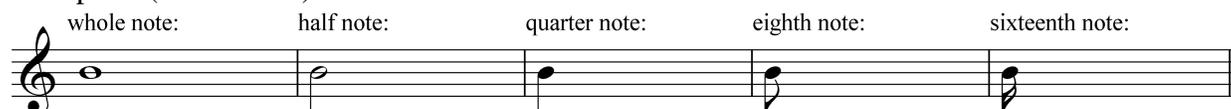
*Rhythm*, on the other hand, refers to the variety of note and rest durations that appear in the context of the meter. Notes can last for any length of time: a note can last for an entire beat or even multiple beats. Notes can be shorter than a beat as well. Most of the notes in the excerpts above, for example, don't last an entire beat. The remainder of this lesson will be devoted to rhythmic durations and how to notate them.

### Note and rest durations:

The rhythm of a piece of music specifies how long each note or pause between notes should last. This is not to be confused with *tempo*, which refers to the rate of the underlying beat. Rhythm typically occurs in the context of a specific meter and either conforms to or works against the underlying pulse of the meter.

In written music, we use a number of different symbols to represent various note durations:

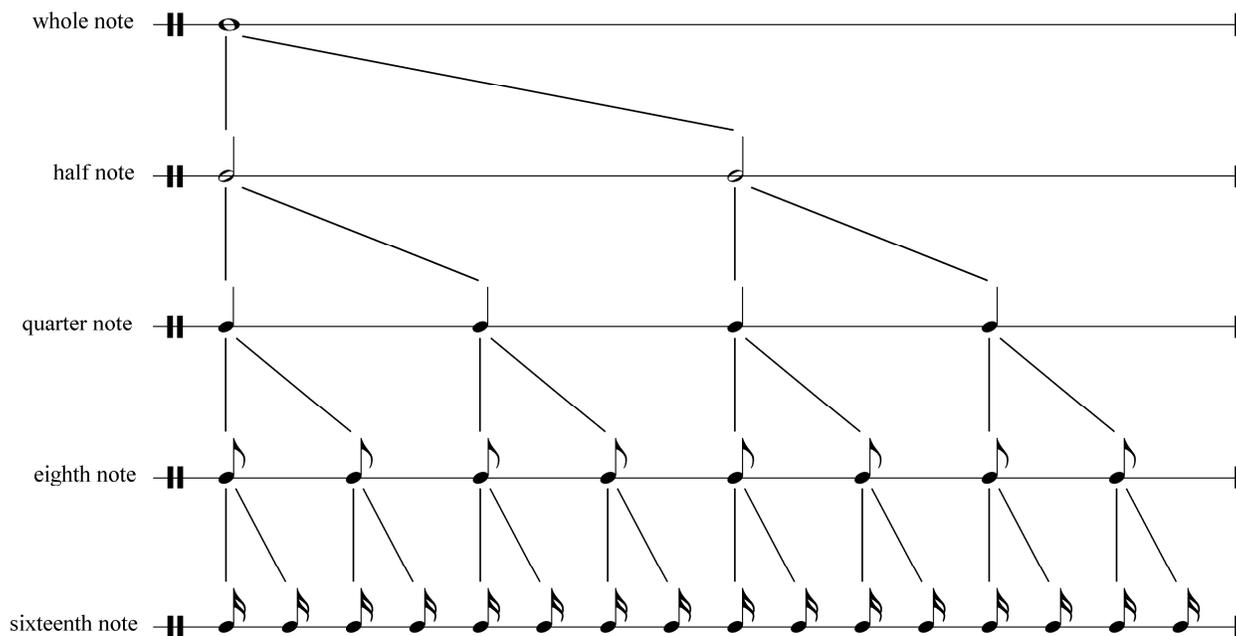
Example 7 (note values):



Any of the note values in Example 7 can represent the beat. A triple meter, for example, could consist of three quarter notes per measure just as easily as three eighth notes. This is discussed in greater detail in Lessons YYY and ZZZ.

As their names imply, the durations of all of these note values are proportional to one another. The following chart shows these relationships more clearly:

Example 8 (proportional note durations):



As you can see, one whole note lasts as long as two half notes, one half note lasts as long as two quarter notes, eight sixteenth notes last as long as two quarter notes, and so on. Listen to the following example to hear the relationship between quarter notes and half notes. For every half note, we hear two evenly-spaced quarter notes:

Example 9 (relative durations of quarter notes and half notes):



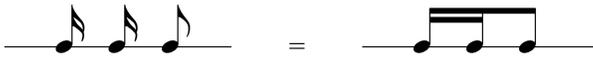
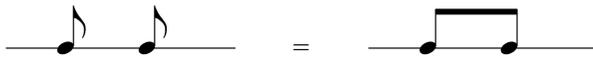
Each half note in Example 9 lasts exactly twice as long as each quarter note.

Notice that the symbols for quarter notes and eighth notes are quite similar—the only difference being the addition of the flag attached to the stem of the eighth note. Sixteenth notes have two flags. Shorter durations can be written by adding more flags to the stem: each additional flag divides the previous duration in half. (A thirty-second note, therefore, will have three flags, and so on.)

**Note:** Note durations longer than a whole note are possible as well. Double whole notes (written as a whole note with two vertical lines on either side: ♯♯) last as long as two whole notes, but are not commonly used. We will discuss other ways of lengthening a note's duration momentarily.

Notes with flags (eighth notes, sixteenth notes, etc.) are sometimes connected by beams. This is done for a number of reasons—one of which, as discussed in Lesson *YYY* and *ZZZ*, is to clarify the meter of a given piece. The following example shows how a group of flagged notes is equivalent to the same number of beamed notes:

Example 10:



As Example 10 demonstrates, separate notes with flags are heard and performed the same as if they were beamed together. Note that different durations can be beamed together as well, as in the third line of Example 10.

### Activity XXX.1:

Being familiar with the basic relationships between different note values will be immensely helpful in your study of music. Answer the following questions pertaining to the accompanying rhythms.

#### Exercise XXX.1a

The duration of each measure of the following rhythm is equivalent to how many quarter notes?



[Answer: 2. Response if correct: “Correct!” Response if incorrect: “Incorrect. (Hint: Add up the fractions represented by each of the note values in a single measure. How many quarter notes would it take to achieve the same sum?)”]

#### [Follow-up question:]

The duration of each measure of this rhythm is equivalent to two quarter notes. How many half notes would be equivalent to the duration of a single measure?

[Answer: 1. Response if correct: “Correct!” Response if incorrect: “Incorrect. (Hint: Referring to Example 8, how many half notes are equivalent to two quarter notes?)”]

#### Exercise XXX.1b

The duration of each measure of the following rhythm is equivalent to how many eighth notes?



[Answer: 6. Response if correct: “Correct!” Response if incorrect: “Incorrect. (Hint: Add up the fractions represented by each of the note values in a single measure. How many eighth notes would it take to achieve the same sum?)”]

#### [Follow-up question:]

The duration of each measure of this rhythm is equivalent to six eighth notes. How many quarter notes would be equivalent to the duration of a single measure?

[Answer: 3. Response if correct: “Correct!” Response if incorrect: “Incorrect. (Hint: Referring to Example 8, how many quarter notes are equivalent to six eighth notes?)”]

### Exercise XXX.1c

The duration of each measure of the following rhythm is equivalent to how many half notes?



[Answer: 2. Response if correct: “Correct!” Response if incorrect: “Incorrect. (Hint: Add up the fractions represented by each of the note values in a single measure. How many half notes would it take to achieve the same sum?)”]

[Follow-up question:]

The duration of each measure of this rhythm is equivalent to two half notes. How many eighth notes would be equivalent to the duration of a single measure?

[Answer: 1. Response if correct: “Correct!” Response if incorrect: “Incorrect. (Hint: Referring to Example 8, how many eighth notes are equivalent to two half notes?)”]

### Exercise XXX.1d

The duration of each measure of the following rhythm is equivalent to how many quarter notes?



[Answer: 3. Response if correct: “Correct!” Response if incorrect: “Incorrect. (Hint: Add up the fractions represented by each of the note values in a single measure. How many quarter notes would it take to achieve the same sum?)”]

[Follow-up question:]

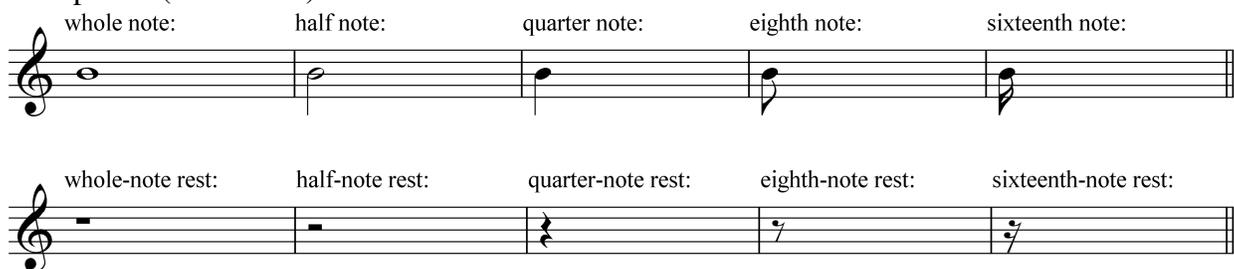
The duration of each measure of this rhythm is equivalent to three quarter notes. How many sixteenth notes would be equivalent to the duration of a single measure?

[Answer: 12. Response if correct: “Correct!” Response if incorrect: “Incorrect. (Hint: Referring to Example 8, how many sixteenth notes are equivalent to three quarter notes?)”]

## Rests:

The symbols described in the previous section are used to write notes of varying duration. We also use a series of symbols to indicate varying lengths of *rests*, or, pauses in music. The following example shows the note values from Example 7 and the corresponding rests:

Example 11 (rest values):



Each of the rest values in Example 11 lasts as long as the corresponding note value, and all of the proportional relationships still apply. Note the similarity between eighth-note and sixteenth-note rests with their corresponding note symbols. Both rests consist of a diagonal slash with the same number of

flags as found in the note symbols. (A thirty-second-note rest, therefore, would have three small flags attached to a diagonal slash.)

**Note:** Whole-note rests and half-note rests look very similar and it is easy to confuse the two. Both are written on the staff within the third space from the bottom. One way to remember the difference is that the whole-note rest is written below the line it is attached to, as though somebody dug a hole in that line. (“Whole” sounds like “hole.”) Half-note rests, on the other hand, appear above the line they are attached to, as though that line was wearing a hat. (“Half” sounds similar to “hat.”)

**Activity XXX.2:**

Replace each of the rests in the following example with a note of equal value:



[Answers:



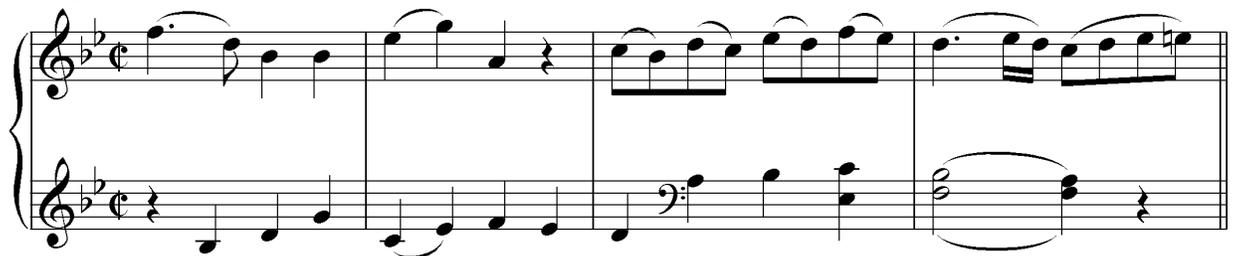
. Response for each correct answer: “Correct!” Response for each incorrect answer: “Incorrect. Try again.”]

**Dots and ties:**

The symbols for note durations and rests discussed so far are very useful and capable of expressing a wide variety of rhythms. However, they are limited in that the relationships between different note values are based on simple 1-to-2 ratios. What if, for example, a composer wanted a rhythm consisting of a half-note (equal to two quarter notes) followed by a note whose duration was equal to three quarter notes. This likely situation would be impossible using only the symbols described so far. Fortunately, there are two ways of notating such durations.

Very frequently, you will encounter notes with a small dot immediately to the right. One such note appears at the very beginning of the first Mozart excerpt from above:

Example 12 (W.A. Mozart, Piano Sonata in Bb major, K. 333, Mvt. II, mm. 1-4):



The high F in the first measure of Example 12 is referred to as a dotted quarter note. Adding a dot to a note increases the duration of the note by half of the original note value. A dotted quarter note, in other words, lasts one and a half times as long as a normal quarter note:

Example 13 (dotted note):



An eighth note is equal to half of a quarter note. Therefore, a dotted quarter note is equal to a regular quarter note plus an eighth note. Any note value can be dotted. A dotted eighth note, for example, is equal to one and a half eighth notes (or, an eighth note plus a sixteenth note).

Rests can be dotted as well. Just as with dotted notes, adding a dot to a rest will increase its duration by half of the original value.

**Note:** You may occasionally come across notes with two dots. These are referred to as *double-dotted* notes. The second dot adds half of the value of that added by the first dot! A double-dotted quarter note, for example, would be equal to a quarter note plus an eighth note plus a sixteenth note:

Example 14 (double dotted note):



Activity XXX.3:

Answer the following questions about dotted notes.

Exercise XXX.3a

A dotted quarter note is equivalent to how many eighth notes?

[Answer: 3. Response if correct: "Correct!" Response if incorrect: "Incorrect. Try again."]

Exercise XXX.3b

A dotted whole note is equivalent to how many half notes?

[Answer: 3. Response if correct: "Correct!" Response if incorrect: "Incorrect. Try again."]

Exercise XXX.3c

A dotted half note is equivalent to how many eighth notes?

[Answer: 6. Response if correct: "Correct!" Response if incorrect: "Incorrect. Try again."]

Exercise XXX.3d

A dotted whole note is equivalent to how many sixteenth notes?

[Answer: 24. Response if correct: "Correct!" Response if incorrect: "Incorrect. Try again."]

Another way of increasing a note's duration is through the use of *ties*. A tie is written as a curved line connecting two notes. The duration of the first note is increased by the duration of any notes tied to it. The following example demonstrates:

Example 15:

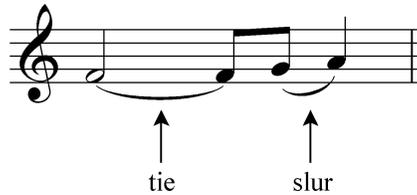


In Example 15, the initial half-note F is tied to the following eighth-note F. The initial F is heard as one long note, the duration of which is equal to a half note plus an eighth note. In other words, listening to Example 15, we hear three different notes: a long F, followed by a short G and a short A.

Any two note values can be tied together, making the tie a particularly versatile rhythmic tool. The duration created by the tie in Example 15, for instance, could not be expressed using dotted notes. Unlike dots, which can be added to notes or rests, ties cannot be used to increase the duration of a rest. Ties can be used to connect three or more notes as well.

Ties can be easily confused with *slurs*. Slurs are also written as curved lines connecting two (or more) notes. They serve a variety of purposes—phrase grouping in particular—but are essentially used to indicate to the performer a grouping of notes for expressive purposes. The following example shows a tie and a slur:

Example 16:



Slurs are easily distinguished from ties because they connect *different* pitches. A tie, because it is used to extend a single pitch, always connects two notes at the same pitch.

#### Activity XXX.4

The following excerpt (W.A. Mozart, Piano Sonata in Bb major, K. 333, Mvt. II, mm. 1-4) contains a number of slurs and one tie. Identify the tie by clicking on it.



[Answer: the tie connects the two Fs in the left hand, m. 4. Response if correct: “Correct!” Response if incorrect: “Incorrect. Remember: a slur connects two or more notes of different pitches, a tie connects just two notes of the same pitch. Try again.”]

#### Conclusion:

Rhythm and meter are different—but closely-related—aspects of how music unfolds in time. Most Western music is characterized in part by a steady, underlying pulse, commonly referred to as the beat. Meter refers to how these beats are organized, whether in groups of two (duple meter), three (triple meter), four (quadruple meter), or some other number. Rhythm refers to the actual durations of sounds and silence in the context of a particular meter.

In written music, we use a set of symbols to indicate various note durations:

Table 1:

|                |   |
|----------------|---|
| Whole notes:   |  |
| Half notes:    |  |
| Quarter notes: |  |
| Eighth notes:  |  |

Sixteenth notes: 

And so on. Shorter durations can be written by adding extra flags. Longer durations are possible as well, but are not in common use. Any of these note values can represent the beat. Each of these note values also has a corresponding symbol to represent a rest of equal duration:

Table 2:

|                      |   |
|----------------------|---|
| Whole-note rest:     |  |
| Half-note rest:      |  |
| Quarter-note rest:   |  |
| Eighth-note rest:    |  |
| Sixteenth-note rest: |  |

And so on.

Versatile though the note value symbols are, they are not, by themselves, capable of expressing all possible durations. There are two common methods for increasing the duration of a given note. Adding a dot to a note increases its duration by half of the original value. Rests can be dotted as well. Connecting one note to another increases the value of the original note by the value of the added note. Rests cannot be tied.