NUSEC THEORY STUDENT WORKBOOK



EVEL 8



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Review of Level 7

An **augmented** triad consists of a *major 3rd* and an *augmented 5th*.

A **diminished** triad consists of a *minor 3rd* and a *diminished 5th*.

Triads can be in **root position** (root is the bottom note), **1st inversion** (3rd is the bottom note) or **2nd inversion** (5th is the bottom note).

Triads can be in **closed** position (notes as close together as possible), or **open** position (notes spread out).

Transposing a piece of music means changing it from one key into another.

You can transpose a piece by finding the interval between the two keys, and then transpose every note by that same interval.

Instruments are either in **concert pitch** or they are a **transposing instrument**.

In **simple time signatures**, the number on top tells you how many beats are in a measure. In **compound time signatures**, the number on top tells you how many **simple beats** there are, but the number of simple beats can also be divided by three, giving you **compound beats**.

3/2 and 4/2 are simple time signatures. The half note gets one beat.
6/4, 9/4 and 12/4 are compound time signatures. Each simple beat is a quarter note. Therefore, each compound beat is three quarter notes.

The speed of a piece determines whether a compound time signature is counted in simple beats or compound beats.

<u>Lesson 8.1 – Compound Intervals</u>

In addition to the intervals that exist within an octave, there are also intervals that are larger than an octave. We classify these in the same way but, naturally, they have larger numbers.

Here are some examples based in the key of C.



EXERCISE

1) Classify the following **melodic** intervals.



2) Fill in the required note **above** the one given for these harmonic intervals.



Inversion of Intervals

Any interval we work with can be inverted. By moving the bottom note of an interval up an octave, or by moving the top note of an interval down an octave, we create a new interval.

Two important rules to remember:

- 1. The size of the original interval and its inversion will always add up to 9.
- 2. The *quality* of the interval changes to its opposite (*EXCEPTION: Perfect intervals*)

Study the examples below!



EXERCISE

1. Name each of the following pairs of intervals. Notice the second interval is inverted. The first example is done for you.



2. Write the harmonic interval above the given note. Invert each interval and name it.



When inverting compound intervals, there are three ways to do this:

- 1. Move the lower note *up* an octave and the upper note *down* an octave.
- 2. Move the upper note *down* **2** octaves.
- 3. Move the lower note *up* **2** octaves.

Two rules to remember:

- The size of the original compound interval and its inversion will always add up to 16.
- 2. The quality of the interval changes to its opposite (EXCEPTION: Perfect intervals)

EXERCISE

1. Name the given interval. Then, invert the given interval and rename it.





SUMMARY

- Intervals can be inverted by raising the bottom note of an interval by an octave, or lowering the top note by an octave.
- ✓ The size of the original interval and its inversion always add up to 9.
- ✓ The quality of the interval changes to its opposite, with the exception of perfect intervals. They remain perfect.
- ✓ Intervals can also be larger than one octave, such as 9ths, 10ths, 11ths, etc. These are called compound intervals.
- ✓ When inverting a compound interval, the size of a *compound* interval and its inversion will always add up to 16.
- ✓ The *quality* of a compound interval changes to its opposite, with the exception of perfect intervals.

Lesson 8.2 – Chord Symbols and Lead Sheets

In music, a **chord** is a group of notes that produce a certain sound (i.e. the basic unit of **harmony**). For the purposes of this lesson, we are going to define a **chord** as a combination of **three or more notes with a bass note below**. In other words, a **chord** can be a triad, with one more note below it acting as the bass note.

Usually, the triad is written in the Treble Clef while the bass note is written in the Bass Clef on what is called a **Grand Staff** – a series of two or more staves joined by a bracket that all play at the same time, as in a score.



In this lesson, we are going to look at the most basic types of chords - major and minor.

A **major chord** has a major triad in the top voice with a bass note below that is the root of that triad (i.e. the chord is in **root position** unless otherwise specified). The triad in the top can be in any inversion or position and can possibly have one or more notes **doubled** (i.e. the same note occurs twice). Similarly, a **minor chord** has a minor triad in the top voice with a bass note below that is part of that triad.

When naming chords, we use **chord symbols**.

All chord symbols take the same form – the root followed by the type of chord.

NOTE: If there is no type of chord listed after the note, then it is a major chord. For example, a C chord is a C major chord, but a Cm chord is a C minor chord.



EXERCISE

Label the following chords and the notes (root, 3rd and 5th and doubling if applicable). Remember that the bass note gives the chord its name because it is the root of the chord. The triad on top determines whether it is major or minor. The first one is done for you.







Just as triads can be put into inversions, so can chords.

Remember, when the **root** of the chord is on the bottom, this is called **root position**. When the **3rd** of the chord is the bass note, this is called **1st inversion**. When the **5th** of the chord is the bass note, this is called **2nd inversion**.

However, when we use chord symbols to label inversions we use a slightly different system.

In general, if you see _____, it means that the letter *before* the slash is the type of triad or chord you play and the note *after* the slash is the bass note (particularly helpful for bass guitar players when reading lead sheets).

For instance, if you had a C (major) chord in 1st inversion, the chord symbol would be **C/E**. For a C chord in 2nd inversion, the chord symbol would be **C/G**.

Sometimes, the bottom note (after the slash) does not fit into the chord above it. For instance, if you see C/F, this indicates a C chord on top with the note F on the bottom just by itself.

NOTE: Unlike triads, the notes above the bass note must still have all of the notes in the triad. They don't have to change just because the bass note does.



Study the example below:

EXERCISE

1. Label each of the following chords using chord symbols. Label the notes in the chord as root, 3rd or 5th. Some chords may not have the root as the bass note. In this case, you will need to use a slash to properly label the chord.









2. Write the following listed chords.









Sometimes in music, we are only given the melody and chord symbols, or even just chord symbols by themselves. Music written this way is often referred to as a **lead sheet**, because the only written music is the melody (i.e. the lead), with the underlying harmonies being indicated by chord symbols for the benefit of those providing the accompaniment. Here are some examples of typical lead sheets (see diagrams below). Notice how **chord symbols** are written above the words and/or music. They tell the players (guitarist, pianist etc.) which chords to play to accompany the melody in a song.



Holy Ground

Here is a lead sheet for the same piece above. Only in this example, the lyrics are given with the chords written above and no music notated.

Е A/E This is holy ground, we're standing on holy ground Е A/E Е F#m В For the Lord is present and where he is is holy Ε A/E Am/E This is holy ground, we're standing on holy ground E/B C#m F#m В A/E Е For the Lord is present and where he is is holy

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SUMMARY

- ✓ A chord is the basic unit of harmony and consists of three or more notes (usually in the Treble Clef) above a lower bass note in the Bass Clef.
- ✓ When two staves are bracketed together (as in piano or keyboard music), it is called the Grand Staff.
- ✓ A major chord is just a major triad (in any position, and possibly with some notes doubled) with a bass note as the root of that triad.
- ✓ A minor chord is just a minor triad with a bass note as the root of that triad.
- ✓ Chords can have **inversions** just like triads.
- Chord symbols tell us the root of the chord and then the type. If it is just a letter (i.e. just an E chord), then we assume it is a major chord. In other words, if there is no *type* beside the letter, we assume it is a major chord.
- ✓ Some songs are written only using chord symbols placed above the words and/or the melody line. These are called **lead sheets** and are helpful for those providing accompaniment to the song (guitarists, pianists, etc.) to make sure they play the correct harmonies.
- ✓ If we have a chord symbol with a slash such as C/E it tells us that it is a C chord, but E is the bottom note. This is how inversions are notated using chord symbols.

Lesson 8.3 – Seventh Chords

The next type of chord we are going to learn about is called a **7th chord**.

A **7th chord** has **four unique notes** - a root, 3rd, 5th and 7th (which is a 7th above the root). The different types of 7th chords are determined by what kind of 3rds, 5ths and 7ths are above the root.

There are four main types of 7th chords:





Keep in mind that the bass note doesn't always have to be the root – it could be a "slash chord" where the bass is some other note instead.

The first type of 7th chord we are going to learn about is the **Major 7th** chord. The Major 7th chord is a **major triad** with an added **major 7th** above the root. The chord symbol is the root followed by maj⁷ (e.g. Cmaj⁷, Fmaj⁷, Gmaj⁷).

Note: The four notes on top can be in any order, except the 7th *must* be on the top. Study the example below.



EXERCISE

Write the following Major 7th chords.

| Dmaj ⁷ /F# | A♭maj ⁷ | E♭maj ⁷ /B♭ | |
|-----------------------|-----------------------|--|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | Dmaj ⁷ /F# | Dmaj ⁷ /F# Abmaj ⁷ | Dmaj ⁷ /F [#] Abmaj ⁷ Ebmaj ⁷ /Bb |



The next type of 7th chord we are going to learn about is the **Dominant 7th**. A Dominant 7th chord is a **major triad** with an added **minor 7th** above the root. When using chord symbols, we just put a ⁷ after the root (e.g. C^7 , F^7 , G^7).

Note: Unlike the Major 7th chord, the four notes in the top staff can be in *any* order. Study the example below.



EXERCISE

Write the following Dominant 7th chords.





The third type of 7th chord is the **Minor 7th**. The Minor 7th chord is just a **minor triad** with another **minor 7th** above the root. The chord symbol is the root followed by m⁷ (e.g. Cm⁷, Fm⁷, Gm⁷). Less often, the symbol min⁷ is used (e.g. Cmin⁷).

Note: Like the Dominant 7th, the four notes in the top staff can be arranged in *any* order. Study the example below.



EXERCISE

Write the following Minor 7th chords.





The fourth type of 7th chord we are going to learn about is the **Diminished 7th**. The Diminished 7th chord is just a **diminished triad** with a **diminished 7th** above the root. Another way of thinking about the Diminished 7th chord is **four minor thirds** stacked on top of each other. The chord symbol is the root followed by dim⁷ (e.g. Cdim⁷, Fdim⁷, Gdim⁷). Less often we see the symbol °⁷ (e.g. C°⁷).

Note: Like the Dominant and Minor 7ths, the four notes in the top staff can be in *any* order. Study the example below.



EXERCISE

Write the following Diminished 7th chords.





EXERCISE

Write chord symbols for the following chords above the staff. The first one is done for you.







SUMMARY

There are four main types of 7th chords:

- ✓ **Major 7th** (e.g. $Cmaj^7$). A major triad with an added major 7th above the root.
- ✓ **Dominant 7th** (e.g. C^7). A major triad with an added minor 7th above the root.
- ✓ **Minor 7th** (e.g. Cm^7). A minor triad with an added minor 7th above the root.
- ✓ Diminished 7th (e.g. Cdim⁷). A diminished triad with an added diminished 7th above the root (i.e. three minor thirds stacked on top of each other).

Lesson 8.4 – Other Types of Chords

Now we are going to learn about some other types of chords that you might encounter in your musical experience.

First of all, did you notice that for all of the "7th chords" in the previous lesson, the chord symbol had the number 7 after the root of the chord? This is because there is a 7th added above the root of the chord.

This same rule can be applied to other types of chords.

If there is a number after the note name in a chord symbol, it tells you that there are one or more notes added to the chord (notes that normally wouldn't be in a regular *major* chord).

For example, **C**⁷ tells you to play a C major chord but with a 7th above the root. Similarly, **C**² tells you to play a **C major chord** but **with a major 2nd added above the root**. Study the example below:



This rule can also be applied to another common type of chord called the **"6" chord**. For example, **C**⁶ tells you to play a **C major chord** but **with a major 6**th **added above the root**. Study the example below:



Another important type of chord to learn is the **"sus" chord**.

When you see a "sus" chord ("sus" meaning "suspended"), it means that **the 3rd of the chord becomes a Perfect 4th above the root**. This note – the Perfect 4th – is literally "suspended" and held there for a short time before "*resolving*" back to the 3rd on the next chord.



"You Are My All in All" Used by permission. CCLI Licence #764943.

Did you notice at the end of the piece that the C chord pickup to the last bar doesn't go immediately to an F chord? Instead, it goes first to an F^{sus} chord, with the normal 3rd changed to a Perfect 4th. It then resolves to an F chord on the third beat.

BONUS: If you have access to a piano keyboard, play the above example to hear how it sounds.



"Be Still For the Presence of the Lord" Used by permission. CCLI Licence #764943.

In the example above, notice in the last two bars that the Em chord doesn't go immediately to an A chord. It first goes to an A^{sus} chord.



"Lord, I Lift Your Name on High" Used by permission. CCLI Licence #764943.

Notice how in the second and fourth bars, the D^{sus} chord resolves to D each time? Again, if you have access to a piano keyboard, play the above example to hear how it sounds.

Here are some other examples of "sus" chords and how they might be written:



EXERCISE

1. Write the chord symbols for the following chords.





2. Write chords that fit the symbols given.





EXERCISE

Look at the following piece. The melody (vocal line) is shown on a separate staff at the top with a Grand Staff underneath for the piano part.

Note the chord symbols above the piano part and write the chords listed, based on the rhythm of the melody as indicated. The first bar is done for you.



In Moments Like These

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SUMMARY

- ✓ A number in a chord symbol tells you to add an interval of that type (usually major) above the root in addition to the type of chord. For instance, Cm² tells you to play a Cm chord *plus* a major 2nd above the root.
- ✓ "Sus" chords change the 3rd of the chord to a perfect 4th above the root. This note is suspended. It can resolve to the 3rd of the chord.

<u> Lesson 8.5 – Complex Time Signatures</u>

We have learned about many different time signatures, both simple and compound. There are some time signatures that don't fall into either category.

Theoretically, any time signature is possible as long as the bottom number is always 1 or a power of 2 (i.e. 1, 2, 4, 8, 16, 32, 64). This is because the different types of notes in music are whole notes, half notes, eighth notes, etc. (you can keep defining different types of shorter and shorter notes). For example, you may see a time signature such as 6/16, a compound time signature with six 16th notes per bar.

Here are some of the more common examples of complex time signatures:



Since there is no strict way of dividing five or seven beats in a bar, often the bars in these time signatures are grouped into two or more sections.

For example, 5/8 may consist of a group of three followed by a group of two or vice versa. See the example below.



^{5/8} could be 3+2 or 2+3.

Similarly, 7/8 may be 4+3 or 3+4 ... 2+2+3 ... or 3+2+2.

Finally, 10/8 is usually grouped into two sections, effectively one 6/8 bar and then one 2/4 bar. So the whole bar is 3+3+4 ... or 3+3+2+2 ... or 4+3+3 ... or 2+2+3+3, etc.

One other thing you might come across is two time signatures written back to back at the beginning of a piece. This means that the piece consists of alternating bars of these two time signatures. For example, instead of putting 10/8, a composer might write at the beginning of this piece: 6/8, 2/4.



When counting in complex time signatures, the most important thing is to remember the basics. The top number tells you how many beats are in a bar, and the bottom number tells you what kind of note gets one beat. You can then combine beats into larger groups for counting purposes. Study the examples below.







EXERCISE

Write in the counts below and **beat groupings** above (complex time signatures only) for the following examples.

BONUS: Clap the rhythms of the pieces out loud while saying the counts.





2) Euphony (Robert Redhead, 1977)



3) Quintessence (Robert Redhead, 1978)



4) *Gaudete!* (Kevin Norbury, F.S. 544, 1998)





(b)





SUMMARY

- ✓ Certain time signatures fall into neither the category of simple or compound.
- ✓ Any time signature can be possible as long as the bottom number is 1 or a power of 2 (2, 4, 8, 16, 32, 64, etc.) because of the different types of notes in music.
- \checkmark Any number can be on the top but some common ones are 5, 7 and 10.
- ✓ When counting pieces with complex time signatures, look to see how the individual beats are grouped (which may change frequently).

<u>Musical Terms</u>

Along with the tempo, composers sometimes tell us the *style*. Below are some more style terms that you might see, in addition to the ones we have previously learned.

| Italian Term | English Translation |
|--------------|--|
| Amoroso | Affectionate, loving |
| Giocoso | Joyfully, humorous |
| Grandioso | Grand |
| Morendo | Dying away (slowing down and getting softer) |
| Pesante | Heavy |
| Semplice | Simple |
| Sempre | Always |
| Con sord. | With a mute/muted |
| Senza sord. | Without mute/unmuted |

