Hello!

This file is a collection of individual sheets covering a bunch of lessons on music theory.

It's not a book... yet. It might be someday! But as of right now, it's incomplete.

The truth is, they weren't intended to be a single volume when I started making them... they were just review sheets for my own theory students.

But the more I made, the more I realized they could be collected into a textbook of sorts... eventually!

I still have a lot of work to do, but I've collected the ones I've made so far into a single document to make it easier for the folks who wanted them all... but didn't want to download every file individually!

So if you've been sent this file by someone, know that there might be a newer version—or more pages—at tobyrush.com.

But if you like this, or find it useful, great! Feel free to share it, copy it, and use it*

Just don't sell it, change it, or tell others you made it!* Now let's learn some music theory!

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**Notation: Pitch**

**Music Notation** is the art of recording music in written form.

Modern music notation is a product of centuries of transformation... and it is neither efficient nor intuitive!

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**Pitch** is the highness or lowness of a sound.

For example, a flute has a high pitch, while a tuba has a low pitch.

A **note** is a written representation of a particular pitch.

Notation is based on the **piano keyboard**: lines and spaces on the staff represent the white notes on the keyboard.

**Time**

The system of musical notation we use is essentially a stylized graph of pitch versus time.

---

The five lines on which notes appear is called a **staff**.

---

**Pitch**

The five lines on which notes appear is called a staff.

---

The white notes on the keyboard are labeled with letters from A to G.

---

**Clef** determines what notes each staff line corresponds to. The **four modern clefs** are shown here; the note displayed on each staff corresponds to **middle C**.

---

**Accidentals** alter the note by one or two half steps.

A half step is the distance between two adjacent keys on the piano keyboard, regardless of what color the keys are.

**Double Sharp** raises the note by two half steps.

**Sharp** raises the note by one half step.

**Natural** cancels out any previous accidental.

**Flat** lowers the note by one half step.

**Double Flat** lowers the note by two half steps.

**Enharmonics**

Two notes which have the same pitch (for example, F Sharp and G Flat) are called enharmonics.

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To display notes outside the staff, we use shortened staff lines called **ledger lines**.

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**Middle C** is the C that is closest to the middle of the piano keyboard.

---

**Liz Phair**

"What Makes You Happy"

WhiteChocolatespaceegg (1998)

Music Theory for Musicians and Normal People

by Toby W. Rush

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**Notation: Rhythm**

While pitch is pretty clearly notated on a vertical axis, note length is indicated using a somewhat arcane system involving noteheads, stems and flags.

<table>
<thead>
<tr>
<th>Note Length</th>
<th>Note Length</th>
<th>Note Length</th>
<th>Note Length</th>
<th>Note Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole Note</td>
<td>Half Note</td>
<td>Quarter Note</td>
<td>Eighth Note</td>
<td>Sixteenth Note</td>
</tr>
<tr>
<td>Whole Rest</td>
<td>Half Rest</td>
<td>Quarter Rest</td>
<td>Eighth Rest</td>
<td>Sixteenth Rest</td>
</tr>
</tbody>
</table>

In this chart, each successive type of note is half as long as the note to its left. None of these notes has a standard length: a half note in one piece may be the same length as an eighth note in a different piece.

Note lengths in a piece are indicated by the tempo marking at the beginning of a piece or section.

A rest is a period of silence that a length which corresponds to a particular note.

Usually rests are placed on the staff at a particular vertical position as shown here.

The augmentation dot is a dot placed to the right of a notehead. Though small, this dot wields some serious power: it changes the length of the note by 150%. In other words, it makes the note half again as long!

Multiple dots can also be added, each one adding half of the previously added value.

Multiple dots can also be added, each one adding half of the previously added value.

Ties are curved marks which connect two notes together to create a single, extended sound.

To tie more than two notes together, draw ties between each note; do not use a single, extended tie.

A triplet is any non-standard division of a note. These are usually written as a group of notes delimited with a bracket and a number showing the division being made.

Most triplets are simple divisions, like the triplets to the left. But anything is possible! Chopin, for example, would often go to town with these things.

For example, these aren't exactly quarter notes! They are each a third as long as a half note.

---

**Music Theory for Musicians and Normal People**

by Toby W. Rush

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A fundamental feature of most pieces of music is a consistent rhythmic pulse. This pulse is called the **beat**, and a single pulse is called a **beat unit**.

There are **two types of beat units**: those containing **two divisions**, called **simple beat units**... and those containing **three divisions**, called **compound beat units**.

In music, beats are organized into patterns of **accented and unaccented beat units**. In fact, if you listen to a sequence of repeated notes, your brain will probably start to perceive the notes as groups of **two, three, or four**, even if no accents are present!

These groups are called **measures**, and they are delineated with **barlines**.

The organization of beat units and measures in a piece is called **meter**. Meter is described by two numbers placed at the beginning of the piece: the **time signature**.

### Simple Time Signatures are Easy.

The top number indicates the number of beats in a measure. The bottom number indicates the type of note which serves as the beat unit.

Simple time signatures are easy. The code for the bottom note is pretty easy: 1 refers to a quarter note, 8 to an eighth note, and so on.

### Compound Time Signatures are Stupidly Complicated.

The top number indicates the number of divisions in a measure. To get the number of beats, divide it by three.

The bottom number indicates the type of note which serves as the division. To get the beat unit, use the note that is equal to three of these notes. In a compound meter, the beat unit is always a dotted note!

In fact, wouldn’t this be an easier way to notate compound meters?

By looking at the top number of the time signature, you can tell **two things** about the meter: whether it’s **simple** or **compound**, and how many beats are in a measure.

<table>
<thead>
<tr>
<th>Beats per Measure</th>
<th>Simple</th>
<th>Compound</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>12</td>
</tr>
</tbody>
</table>

Notes that have flags can be grouped together by using **beams** in place of flags.

However, beaming is only used to group notes **within beats**. For the most part, you shouldn’t **beam** notes **between beats**, nor should you **tie** notes **within beats**.
Dear Sparky:

I understand that we’re supposed to beam rhythms to show the organization of beats in the measure, but is there an easy way to beam complex rhythms?

--A.Y., Owatonna, MN

*TRANSLATION:* Notes should be beamed in groups that illustrate the meter. For simple rhythms, this is pretty easy to do; simply group any notes that can be beamed (eighth notes and smaller) into groups that are equal to the beat unit of the current meter.

For complex rhythms, however, things can get complicated... when a rhythm includes things like syncopations or other off-beat figures, illustrating the meter may involve dividing notes across beat units with ties. Fortunately, there is a step-by-step system for correctly beaming these complicated rhythms!

**STEP 1:** Find the smallest note value used, and fill a complete measure with this type of note, beamed in groups that are equal to a beat unit in the current meter.

**STEP 2:** Add ties between individual notes to recreate the original rhythm. Make sure that each tied group corresponds to a note in the rhythm you started with!

**STEP 3:** Find every group of two or more notes that are both tied together and beamed together, and replace them with a single note of equivalent value.

A correctly beamed rhythm may include ties, but it will very clearly show the beats in the measure... which, in turn, makes it easier for the performer to read!

*Hey, it's kids!*
One of the reasons that a particular piece of music sounds the way it does has to do with the group of notes the composer decided to use.

Take this melody, for example. Let’s first remove all the duplicate notes, regardless of which octave they’re in.

Next, let’s put the notes in alphabetical order, starting on the note that the melody sounded like it was centering on.

What we end up with is the “palette” for this particular piece...

Like the board on which a painter holds the bits of paint being used in the painting being created.

In music, this “palette” is called a scale. Though we usually write scales from low to high, the order is actually unimportant; it’s the notes contained in the scale that help make a piece sound the way it does.

This particular arrangement, where half steps occur between steps three and four and between steps seven and eight (or between seven and one, since eight and one are the same note), is called the major scale.

Knowing this formula, you can create a major scale on any note!

A half step is the distance between two adjacent keys on the piano keyboard, regardless of color.

A whole step is the equivalent of two half steps.

But remember... with great power comes great responsibility!
Key Signatures

If you start writing major scales and pay attention to the accidentals that occur, you are going to start noticing a pattern...

For example, look at the flat keys, starting with the key that has one flat, all the way through the key with seven flats: the flats accrue in a specific order. Same with the sharp keys!

So if you look for a key that has only a D flat, you won’t find it! If a key has a D flat, it must also have a B flat, an E flat, and an A flat!

Since writing an entire piece in C sharp major would have been a sure-fire way to get carpal tunnel syndrome with all the sharps involved, composers pretty quickly came up with a way to simplify things: key signatures.

A key signature is a group of accidentals placed at the beginning of every line of music, just to the right of the clef, that instructs the performer to apply those accidentals to every corresponding note in the piece unless specified otherwise.

For example, this key signature indicates that every F, C, and G in the piece should be sharped, regardless of octave!

Oh, and another thing: the accidentals have to be placed in the correct order, and they need to follow a particular pattern of placement that varies slightly depending on the clef being used! If you deviate from this, you, as a composer, will be mocked!

Tenor clef sharps! What’s your problem? You need to conform!

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The Circle of Fifths

Theorists find it convenient to organize all the possible key signatures into a chart that shows their relationship to one another. We'll return to this chart as we continue learning about how composers use keys.

This chart, called the Circle of Fifths, displays each key as a spoke on the circle, beginning with C major at the top and adding accidentals, one at a time, to the key signatures around the perimeter.

As you move clockwise around the circle, you add sharps to the key signature.

As you move counterclockwise around, you add flats to the key signature.

Notice how that Beadgcf pattern pops up all over the circle of fifths? Weird!

To determine the key signature for a key, look to see which "spoke" of the circle it's on to determine how many flats or sharps it has, and add accidentals to the key signature appropriately.

When adding flats to a key signature, add them in this order: Beadgcf.

When adding sharps, use the reverse of the order above.

The keys down here line up enharmonically... for example, the key of D flat major will sound just like the key of C sharp major.

So could you continue the enharmonic deal and have the key of F flat major? Yes, if you want a double flat in your key signature: Nooooo!
AN INTERVAL IS THE DISTANCE IN PITCH BETWEEN TWO NOTES.

THE MOST BASIC WAY WHICH WE IDENTIFY DIFFERENT INTERVALS IS BY COUNTING THE STEPS BETWEEN THE TWO NOTES.

SPECIFICALLY, WE COUNT SCALE DEGREES, BUT THE EASIEST WAY TO DO IT IS TO COUNT LINES AND SPACES ON THE STAFF.

WHEN COUNTING THE LINES AND SPACES, WE CAN SAFELY IGNORE ANY ACCIDENTALS.

WHEN COUNTING, BEGIN WITH THE BOTTOM NOTE AS ONE AND COUNT UNTIL YOU REACH THE TOP NOTE.

THE FACT THAT EACH OF THESE PAIRS ADD UP TO NINE IS KNOWN TO THEORISTS AS "THE RULE OF NINES."

WHEN WE ARE TALKING ABOUT INTERVALS WE SOMETIMES DISCUSS HARMONIC INTERVALS AND MELODIC INTERVALS.

A HARMONIC INTERVAL IS SIMPLY TWO NOTES PLAYED SIMULTANEOUSLY;
A MELODIC INTERVAL IS ONE NOTE PLAYED AFTER THE OTHER.

THE DISTANCE FROM A NOTE TO THE NEXT CLOSEST NOTE WITH THE SAME LETTER NAME IS CALLED AN OCTAVE.

A HARMONIC INTERVAL IS SIMPLY TWO NOTES PLAYED SIMULTANEOUSLY;
A MELODIC INTERVAL IS ONE NOTE PLAYED AFTER THE OTHER.

AND WHEN YOU SWAP THE TWO NOTES (MOVE THE LOWER NOTE UP BY AN OCTAVE SO IT BECOMES THE HIGHER NOTE), THAT IS CALLED INVERTING THE INTERVAL.

TWO NOTES ON THE SAME LINE OR SPACE IS CALLED A UNISON.

THAT'S LATIN FOR "ONE SOUND"!

AND THAT'S LATIN FOR "EIGHT"!

THE RULE

2ND ←→ 7TH
3RD ←→ 6TH
4TH ←→ 5TH
5TH ←→ 4TH
6TH ←→ 3RD
7TH ←→ 2ND

Diatonic Intervals

UNISON  SECOND  THIRD  FOURTH  FIFTH  SIXTH  SEVENTH  OCTAVE
THE DISTANCE OF AN INTERVAL IS THE FIRST PART OF ITS NAME, BUT THERE’S MORE: EVERY INTERVAL HAS ANOTHER QUALITY TO IT, WHICH WE’LL CALL ITS INFLECTION.

INFLECTION IS A BIT HARDER TO UNDERSTAND, PARTLY BECAUSE IT DEPENDS ON THE TYPE OF INTERVAL. SO LET’S START BY LOOKING AT UNISONS, FOURTHS, FIFTHS AND OCTAVES.

UNISONS AND OCTAVES ARE THE EASIEST TO LABEL: IF THE TWO NOTES ARE THE SAME (FOR EXAMPLE, B FLAT AND B FLAT), THEN THE INFLECTION IS PERFECT: SUCH AN INTERVAL IS CALLED A PERFECT UNISON OR A PERFECT OCTAVE.

FOURTHS AND FIFTHS REQUIRE A LITTLE MORE EXPLAINING.

IF YOU LOOK AT ALL THE FOURTHS AND FIFTHS YOU CAN CREATE USING ONLY THE WHITE NOTES ON THE PIANO KEYBOARD (IN OTHER WORDS, USING ONLY NOTES WITHOUT ACCIDENTALS):

EACH ONE IS PERFECT EXCEPT FOR THOSE WHICH USE F AND B!

WAIT... WHY ARE THE B TO F INTERVALS DIFFERENT?

WELL, IF YOU WERE TO COUNT THE HALF-STEPS THAT MAKE UP EACH INTERVAL, YOU’D NOTICE THAT ALL THE OTHER ONES ARE EQUAL IN SIZE, BUT THE B TO F INTERVALS ARE NOT: F TO B IS A HALF-STEP LARGER THAN A PERFECT FOURTH, AND B TO F IS A HALF-STEP SMALLER THAN A PERFECT FIFTH.

 WHICH RAISES THE QUESTION: IF THE INTERVAL IS NOT PERFECT, THAN WHAT IS IT?

AN INTERVAL THAT IS A HALF-STEP LARGER THAN PERFECT IS CALLED AN AUGMENTED INTERVAL.

AND THERE’S NO SUCH THING AS A DIMINISHED UNISON...

JUST LIKE TWO THINGS CAN’T BE NEGATIVE TWO FEET AWAY FROM EACH OTHER!

AN INTERVAL THAT IS A HALF-STEP SMALLER THAN PERFECT IS CALLED A DIMINISHED INTERVAL.

YOU CAN GO FURTHER, TO DOUBLY AUGMENTED AND DOUBLY DIMINISHED INTERVALS, BUT... DO YOU REALLY WANT TO?

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Imperfect Intervals

We've talked about unisons, fourths, fifths and octaves, but what about the rest? Are these other intervals somehow imperfect?

Well, yes, but not because they are somehow inferior to perfect intervals... seconds, thirds, sixths and sevenths just work a little differently!

For one thing, the inflection for these intervals is never perfect; it will be either major or minor. Minor intervals are a half-step smaller than major intervals. Like perfect intervals, though, they can also be augmented or diminished; augmented intervals are a half-step larger than major, and diminished intervals are a half-step smaller than minor.

How do we know if an interval is major or minor? We can actually use the major scale to find out. Notice that, in the major scale, intervals from the tonic up to another scale degree are major.

Likewise, intervals from the tonic down to another scale degree are minor.

Knowing this, when you are confronted with a second, third, sixth or seventh, you can find its inflection by thinking about the key signature of the top and/or bottom note.

We know this is a major sixth because D, the top note, is in the key of F major (the bottom note).

And this is a minor seventh because B, bottom note, is in the key of A major (the top note).

If the top note is in the major key of the bottom note, the interval is major.

If the bottom note is in the major key of the top note, the interval is minor.

When the notes of the interval have accidentals, the associated key signatures can be more complicated... so it's easiest to temporarily ignore the accidentals, determine the interval, and then add the accidentals back one at a time and track how the interval changes!

E is in the key of G, so we know this is a major sixth.

Adding back the flat makes the interval smaller, so it's now a minor sixth...

Adding back the sharp makes it even smaller... a diminished sixth!

Ack! What is that? Let's first hide the accidentals...
The following chart shows an approach for identifying any interval. A similar approach can be used when you need to write a particular interval above or below a given note: First, add a note above or below the given note at the correct distance, then follow steps 2 through 4 of this chart to identify it. Then, if necessary, alter the note you added with an accidental to create the interval called for.

**STEP 1:** Determine the distance of the interval by counting lines and spaces.

**STEP 2:** Cover up all accidentals.

**STEP 3:** Determine the inflection of the interval currently shown as follows:

- **If it is a unison or octave:**
  - The interval shown is a perfect unison or perfect octave.
  - Really. It just is.

- **If it is a fourth or fifth:**
  - If the interval uses the notes F and B, it is either an augmented fourth or a diminished fifth.
  - Otherwise, the interval is perfect.

- **If it is a second, third, sixth or seventh:**
  - If the top note is in the major key of the bottom note, the interval is major.
  - If the bottom note is in the major key of the top note, the interval is minor.

**STEP 4:** Add the original accidentals back, one at a time, and track how the interval changes inflection.

Remember: Accidentals can never affect the distance of an interval... distance is determined solely by the number of lines and spaces between the two notes!

This method may seem complicated at first, but as you use it, you'll internalize it and become faster... so get out there and identify some intervals!

---

**TRANSLATION:**

Dear Sparky:

Since we are supposed to use different approaches for identifying perfect and imperfect intervals, can you summarize them all into one system?

--I.M., Staten Island, NY
There are actually two things that define a key: the key signature is the most obvious one, but another important part of a key is the tonic—the note around which the key centers.

But what if we change the tonic? What if we use the same notes for the key signature, but change the note that the key is centered around?

If we center the key around the sixth scale degree of the major scale, we get a new scale: the minor scale.

The thing is, common practice period composers weren't all that crazy about this scale, because it lacks something the major scale has: a half-step from seven to one.

This scale is great for building chords, so we refer to it as the harmonic minor scale. However, composers didn't use it for writing melodies, because it had a problem: an augmented second between the sixth and seventh scale degrees.

So, for melodies, they made another change: they added another accidental to raise the sixth scale degree by a half-step.

Now we only have whole steps and half-steps!

So here's what they did: they raised the leading-tone by a half-step with an accidental. This gave them the tension they were looking for!

The whole step here didn't have the tension they liked going into the tonic!

This key is defined by a key signature of no sharps and flats, but also by the fact that it centers around C.

The Minor Scales

The natural minor scale

The harmonic minor scale

The melodic minor scale

Now, remember... the reason we raised the leading tone in the first place was to create tension from the seventh scale degree to tonic. But in a melody, if the seventh scale degree is followed by the sixth scale degree, we don't need that tension, so we don't need to raise the leading-tone at all.

The way we illustrate this is by differentiating between ascending melodic minor and descending melodic minor: for descending melodic minor, we don't raise anything!
Although a chord is technically any combination of notes played simultaneously, in music theory we usually define chords as the combination of three or more notes.

- **Secundal Harmony**: Chords built from seconds form tone clusters, which are not harmonic so much as timbral.
- **Tertial Harmony**: Chords built from thirds (more specifically, from major thirds and minor thirds) form the basis of most harmony in the common practice period.
- **Quartal Harmony**: Chords built from perfect fourths create a different sound, used in compositions from the early 1900s and onward.
- **Quintal Harmony**: Chords built from perfect fifths can be respelled as quartal chords, and as such they do not create a separate system of harmony.

**Secundal Harmony** vs. **Tertial Harmony** vs. **Quartal Harmony**

A triad is defined as a three-note chord, but in practice it is almost always used to refer to tertial three-note chords.

- **The Diminished Triad**: Two minor thirds stacked together
- **The Minor Triad**: A major third on top, a minor third on bottom
- **The Major Triad**: A minor third on top, a major third on bottom
- **The Augmented Triad**: Two major thirds stacked together

We label triads using their root ("a C minor triad"). The abbreviations shown above, which use upper case, lower case, and symbols to show chord type, are called macro-analysis.

Let’s get started on tertial harmony with the smallest chord possible: the triad.

Is the chord still tertial if it is built from diminished thirds or augmented thirds?

Well, diminished thirds sound just like major seconds, and augmented thirds sound just like perfect fourths, so...

The lowest note in the chord when the chord is in simple form is called the root. The names of the other notes are based on their interval above the root.

There are four ways to create a triad using major and minor thirds:

- **Diminished Triad**: Two minor thirds stacked together
- **Minor Triad**: A major third on top, a minor third on bottom
- **Major Triad**: A minor third on top, a major third on bottom
- **Augmented Triad**: Two major thirds stacked together

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LADIES AND GENTLEMEN, IT’S FRANZ JOSEPH HAYDN!

AND HE’S BROUGHT A MOVEMENT FROM HIS 1767 SONATA IN G MAJOR.

THANK YOU FOR HAVING ME. IN THIS PIECE I USE QUITE A FEW TRIADS.

HERE’S ONE: IT HAS THE NOTES C, E AND G. IT’S A C MAJOR TRIAD! VERY NICE.

THANK YOU. SEE HOW THE NOTES ARE SPREAD OUT, AND NOT JUST STACKED IN THIRDS? IT’S STILL A TRIAD, THOUGH.

OOH! LET’S SEE ’EM!

THIS ONE IS G, B, AND D... A G MAJOR TRIAD! BUT IT SOUNDS DIFFERENT, SOMEHOW.

THAT’S BECAUSE THE THIRD OF THE CHORD IS IN THE BASS... WHEN THAT HAPPENS, WE SAY THE CHORD IS IN FIRST INVERSION.

FIRST INVERSION? WHAT IS IT CALLED WHEN THE ROOT IS IN THE BASS, LIKE THE FIRST CHORD WE LOOKED AT?

THAT’S CALLED ROOT POSITION.

SO THIS ONE WITH D, F, AND A IS A D MINOR TRIAD... IN SECOND INVERSION!

EXACTLY! BECAUSE THE FIFTH IS IN THE BASS.

SO THE THING THAT MAKES A TRIAD ROOT POSITION, FIRST INVERSION OR SECOND INVERSION IS SIMPLY WHICH NOTE IS IN THE BASS?

IT’S HARD TO BELIEVE THAT THE SOUND OF THE CHORD CAN CHANGE SO MUCH JUST BECAUSE OF THE BASS NOTE.

THAT’S RIGHT! AND EACH ONE HAS ITS OWN CHARACTER.

I KNOW, RIGHT? IT’S AWESOME.
Musical works written in the Baroque era would often include a part called the *Basso Continuo* which would consist of a single bass clef melodic line with various numbers and accidentals printed beneath the notes.

**Figure 1. The Basso Continuo**

The numbers and symbols printed below the basso continuo part are called the **figured bass**. So how do you turn figured bass into chords?

**First of all,** it’s important to know that the *note* given on the bass clef part is always the bass note of the chord, and remember: the bass is not necessarily the root!

**Second,** the numbers represent intervals above the bass, even though some numbers are usually left out. Note that the intervals are always diatonic. Don’t worry about inflection... just use the notes from the key signature!

**Third,** accidentals are applied to the interval they appear with. If you have an accidental by itself, it applies to the third above the bass. If it were a flat, we would write a C flat.

By the time the Classical period got going, composers stopped including a basso continuo part, and so figured bass fell out of use... with only one exception: music theory classes!

Realizing figured bass (writing chords given a figured bass line) makes for an excellent exercise for students to learn how to write in the Common Practice Period style! Wooo!
Now that we’re familiar with how triads work, it’s time to put them into the context of a key.

Since writing music in a particular key means using the notes in that key signature, it stands to reason that most of the chords will be built from those same notes! Chords which use notes from a particular key signature are said to be diatonic to that key. Diatonic means “from the key.” That means no accidentals!

We can quickly show all the diatonic triads in a particular key by writing a scale in that key and building triads on each note, using only the notes in that key.

We refer to these chords with Roman numerals as shown here.

Notice how chord type is shown by capitals or lower case?

These chords are also sometimes referred to by their official names!

This pattern of major, minor and diminished triads is the same in every major key! The subdominant triad is always major, and the leading-tone triad is always diminished, whether you’re in C major or F sharp major!

Why is the sixth chord called the submediant?

Well, just as the mediant chord is halfway between the tonic and dominant chords, the submediant chord is halfway between the tonic... and the subdominant a fifth below!

Because the dominant and leading-tone triads both have a strong tendency to resolve to tonic, we say they have a “dominant function.” The subdominant and supertonic chords both tend to resolve to the dominant, so we say they both have a “subdominant function.”

The diatonic triads in minor work the same way... since we’re dealing with chords, we use the harmonic minor scale. However, it’s important to note that common practice period composers raised the leading tone only over dominant function harmony: the dominant and leading-tone triads!

Same names and Roman numerals... different capitalization!
INTRODUCTION TO PART-WRITING

As we look ahead, we're confronted with an ugly truth:

There is a lot of music in the history of the world that is worth studying...

Much more than we can hope to cover in the span of a few semesters.

Since we can't cover it all, we have to choose a specific musical language to study in depth.

Let's start by narrowing things down to the common practice period.

The common practice period is the music of the Baroque, Classical and Romantic eras in Europe and America. The name comes from the fact that most composers used a common musical language during this time.

It's especially worth studying because most of the pieces commonly performed in concert are from this period...

...and the language forms the basis for the most popular musical styles today.

Four-voice chorale writing is a good style to study for several reasons:

- Chorales have a fast harmonic rhythm, allowing for a larger number of chords per exercise.
- A large percentage of common practice period music can be easily reduced to four-voice counterpoint.
- The cantatas of J.S. Bach provide us with a tremendous amount of consistently-written four-voice chorales.

One of the changes to the Catholic Church proposed by Martin Luther was to allow members of the congregation to participate in the singing of the liturgy.

Of course, Luther was branded a heretic for his proposals, and began his own church in which to implement his ideas.

More than two hundred years later, J.S. Bach was appointed musical director at the St. Thomas Church in Leipzig, Germany and, in the spirit of Luther, wrote five years' worth of liturgical music.

Each of these works, called cantatas, were built around a hymn melody harmonized in four parts for congregational singing.

By analyzing Bach's cantatas, we can construct a set of "rules" for writing in four-voice common practice period musical style, allowing us to study it in depth.
Part-Writing: The Vertical Rules

To best understand how common practice period composers wrote music, we are going to learn how to write music using their musical style.

So the patterns we see in their music, the things they consistently did or didn’t do, are going to become “rules” for us in our writing.

It’s wrong to think these were “rules” for the composers... they were just writing what sounded good to them.

Nor should we treat these as rules for writing music in general... each style of writing has its own set of patterns, and thus it’s own “rulebook.” As a composer, you get to write your own rules for your own style!

We’re going to start with the vertical rules... that is, the rules that pertain to building a single chord in four-voice harmony.

First, the distance between soprano and alto and between alto and tenor must be an octave or less.

The tenor and bass can be as far apart as you want!

Second, the voices must be kept in their proper order; for example, the tenor shouldn’t be higher than the alto. (Bach did this now and then, but it was only when he wanted to incorporate some special melodic shapes.)

Third, since we have four voices and only three notes in a triad, one of the notes should be doubled. For triads in root position, we typically double the root of the chord unless forced (by other rules) to do otherwise.

Lastly, each voice should stay in its range. These are conservative ranges for modern singers, but remember that Bach’s chorales were really written for amateurs: the common people who attended church in Leipzig!

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Part-Writing: The Horizontal Rules

The supreme goal of part-writing is good voice leading... making each individual voice part easy to sing by avoiding awkward intervals or large leaps!

Before we get to the specific dos and don’ts, let’s take a look at some important characteristics of four-voice part-writing:

Note how each voice moves as little as possible, going to the nearest chord tone in each subsequent chord!

In some cases, the voice can simply stay on the same note. This is called keeping the common tone, and it’s always cool!

The bass line, since it provides the foundation of the harmony in each chord, tends to include larger leaps than the other three voices, but that’s okay.

It’s common for the bass to move in the opposite direction of the upper three voices. This is called contrary motion and it helps maintain voice independence.

There are also a few other rules that apply to this style:

When you have the leading tone in an outer voice (soprano or bass) it must resolve to the tonic in the next chord.

You may not move any voice by an interval of an augmented second or an augmented fourth.

Four-voice harmony is a form of counterpoint, which is the combination of more than one melody played simultaneously. In counterpoint, each voice is equally important; no voice is given a role of accompaniment to another voice.

In counterpoint, it is important for each voice to be independent; that is, no two voices should be doing the exact same thing. If two (or more) voices were moving in parallel, the richness of the texture would be reduced.

As a result, common practice composers were very consistent in avoiding two or more voices that moved in parallel perfect octaves, parallel perfect fifths, or parallel perfect unisons!

The good news: you can avoid all three of these by doing the following whenever possible:

1. Keep the common tone!
2. Move to the nearest chord tone!
3. Use contrary motion!

Voice independence?
Part-Writing: Using Inversions

When common practice composers used inverted chords in four-voice writing, they followed some general patterns regarding which note of the chord should be doubled.

<table>
<thead>
<tr>
<th>Root Position</th>
<th>First Inversion</th>
<th>Second Inversion</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In root position triads</strong>, composers usually doubled the root, which is in the <strong>bass</strong> of the chord.</td>
<td><strong>The doubling of first inversion triads depends on the type of the chord being written.</strong></td>
<td><strong>In second inversion triads</strong>, composers usually doubled the fifth, which is in the <strong>bass</strong> of the chord.</td>
</tr>
<tr>
<td><strong>In major first inversion triads</strong>, composers doubled the <strong>soprano</strong> of the chord.</td>
<td><strong>In minor first inversion triads</strong>, composers doubled the <strong>bass</strong> of the chord.</td>
<td><strong>In diminished first inversion triads</strong>, they doubled the <strong>soprano</strong> of the chord.</td>
</tr>
<tr>
<td><strong>In the cadential 6 chord</strong>, a tonic triad in second inversion followed by a root-position dominant chord at a cadence.</td>
<td><strong>The passing 6 chord</strong>, a chord placed in second inversion where the bass is treated like a passing tone.</td>
<td><strong>The pedal 6 chord</strong>, a second inversion chord where the bass is treated like a pedal tone.</td>
</tr>
</tbody>
</table>

Here's another way to think of it: the only time you can't double the bass is in first inversion major triads, where you should double the soprano instead.

Okay, we know how to use inversions in four-part writing... but when can we use them?

The only "rule" regarding root position triads and first inversion triads is that diminished triads are always placed in first inversion.

Other than that, you can use root position and first inversion essentially whenever you want! It's second inversion triads that have the big restrictions.

The composers of the style just didn't use these chords willy-nilly.

If you write a second inversion triad and it's not one of these three situations, then you are not writing in the common practice period style! The composers of the style just didn't use these chords willy-nilly.
what seems to be the problem, sir?

well, I thought I'd transpose to minor, you know, to surprise the family... so I did, and then I raised all my leading tones, because I'm a common practice period progression, right?

okay, sure. so what's wrong?

I've got augmented seconds!

attention! attention! we need assistance with a new patient in emergency treatment room 3B... stat!

doctor, what can we do?

for this case of ascending augmented seconds, I prescribe a raised sixth scale degree!

and for these descending augmented seconds, we're going to use an unraised seventh!

my augmented seconds... they're cured!

all in a day's work, my good man. now let's turn to the unpleasant matter of the bill...

in the common practice period, composers used harmonic minor by default. but when augmented seconds occurred, they turned to a hero for help: melodic minor!
The Harmonic Cadences

A cadence is generally considered to be the last two chords of a phrase, section or piece. There are four types of cadences, each with their own specific requirements and variations.

**An Authentic Cadence** consists of a dominant function chord (V or VII) moving to tonic.

To be considered a perfect authentic cadence, a cadence must meet all of the following criteria:

- It must use a V chord (not a VII)
- Both chords must be in root position
- The soprano must end on the tonic
- The soprano must move by step

If the cadence doesn’t meet all of those criteria, it’s considered to be an imperfect authentic cadence!

**A Plagal Cadence** consists of a subdominant function chord (IV or II) moving to tonic.

To be considered a perfect plagal cadence, a cadence must meet all of the following criteria:

- It must use a IV chord (not a II)
- Both chords must be in root position
- The soprano must end on the tonic
- The soprano must keep the common tone

If the cadence doesn’t meet all of those criteria, it’s considered to be an imperfect authentic cadence!

**A Half Cadence** is any cadence that ends on the dominant chord (V).

A specific type of half cadence is the phrygian cadence, which must meet the following criteria:

- It occurs only in minor
- It uses a IV chord moving to V
- The soprano and bass move by step in contrary motion
- The soprano and bass both end on the fifth scale degree

**A Deceptive Cadence** is a cadence where the dominant chord (V) resolves to something other than tonic... almost always the submediant chord (VI).

Really, it’s the psych-out cadence, in that you expect it to resolve to tonic, but it doesn’t.

And, in fact, it’s more common to see this in the middle of the phrase rather than the end... where you might call it a "cadence-like structure"!
As a matter of fact, there are certain chord progressions that appear more frequently, and there are others that are avoided pretty consistently. While the choices were always based on what sounded good to the composer, as theorists there is a pattern in their choices that we can use to easily remember which chord progressions work and which ones don't.

To understand this pattern, we need to think in terms of root movements. A root movement is the basic interval between the root of one chord and the root of the next chord. You don't have to worry about the interval's inflection, just its distance and direction.

For example, to determine the root movement here, we look at the root (not bass) of each chord and figure the interval between them. It's down a seventh, but since octaves don't matter, we invert it to up a second.

So here's the pattern: common practice period composers generally used root movements of up a second, down a third, and down a fifth!

Remember... since inflection doesn't matter, we can ignore accidentals when we figure the root movements.

That's not say that they never used other root movements, but it didn't happen very often.

Sequences of chords that don't follow this pattern are called retrogressions, and they are considered unstylistic.

So, for example, a G chord to an E chord is down a third, but so is G to E flat, and G sharp to E flat!

There are also four simple exceptions to this pattern:

- Any chord can move to tonic,
- Tonic can move to any chord,
- Any chord can move to dominant,
- And the leading-tone triad must move to tonic.

Let's try it... say you have a supertonic chord and you are trying to decide what chord to use to follow it.

You can move up a second to a mediant chord...

You can move down a third to a leading-tone chord...

You can move down a fifth to a dominant chord...

Or you can use the first exception and go to a tonic chord!

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Diatonic Common Chord Modulation

Modulation is the process of changing to a different key within a piece of music.

There are several different ways to modulate; perhaps the simplest is the unprepared modulation, where the music pauses and suddenly changes key, often up a half-step.

Common practice period composers, however, preferred a particular type of modulation that required a little more planning: the diatonic common chord modulation. As the name suggests, this uses a chord which is diatonic in both the outgoing key and the new key.

Let's say we're starting off in C major... Here is a list of all the keys which have chords in common with C major (the specific chords are highlighted):

<table>
<thead>
<tr>
<th>Key</th>
<th>Chords in Common</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>I ii iii IV V vi vii°</td>
</tr>
<tr>
<td>A</td>
<td>i ii° III iv V VI vii°</td>
</tr>
<tr>
<td>F</td>
<td>I ii iii IV V vi vii°</td>
</tr>
<tr>
<td>E</td>
<td>i ii° III iv V VI vii°</td>
</tr>
<tr>
<td>D</td>
<td>I ii iii IV V vi vii°</td>
</tr>
<tr>
<td>B♭</td>
<td>i ii° III iv V VI vii°</td>
</tr>
</tbody>
</table>

Notice how these keys are all close to one another on the circle of fifths.

To use this type of modulation, a composer would pivot the harmony around the chord that fit into both keys. As theorists, we show this pivot chord by analyzing the chord in both keys.

Note that the pivot chord is always the last chord that can be analyzed in the old key... The first accidentals will always occur in the chord immediately following the pivot chord!
# Non-Harmonic Tones

A **Non-Harmonic Tone** is a note that doesn’t fit into a chord. We classify non-harmonic tones by how they are **approached** and **resolved**!

<table>
<thead>
<tr>
<th>Name</th>
<th>Abbreviation</th>
<th>Approach</th>
<th>Resolution</th>
<th>Notes</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Passing Tone</strong></td>
<td>PT</td>
<td>Step</td>
<td>Step</td>
<td>Resolves by continuing in the same direction as the approach.</td>
<td></td>
</tr>
<tr>
<td><strong>Neighboring Tone</strong></td>
<td>NT</td>
<td>Step</td>
<td>Step</td>
<td>Resolves by returning to the note preceding the non-harmonic tone.</td>
<td></td>
</tr>
<tr>
<td><strong>Appoggiatura</strong></td>
<td>APP</td>
<td>Leap</td>
<td>Step</td>
<td>Resolves in opposite direction from approach.</td>
<td></td>
</tr>
<tr>
<td><strong>Escape Tone</strong></td>
<td>ET</td>
<td>Step</td>
<td>Leap</td>
<td>Resolves in opposite direction from approach.</td>
<td></td>
</tr>
<tr>
<td><strong>Changing Tones</strong></td>
<td>CT</td>
<td>Any</td>
<td>Step</td>
<td>Two non-harmonic tones on either side of the note of resolution.</td>
<td></td>
</tr>
<tr>
<td><strong>Anticipation</strong></td>
<td>ANT</td>
<td>Any</td>
<td>Common Tone</td>
<td>A chord tone played before the rest of the chord arrives.</td>
<td></td>
</tr>
<tr>
<td><strong>Suspension</strong></td>
<td>SUS</td>
<td>Common Tone</td>
<td>Step</td>
<td>A note held over from a previous chord and resolved down.</td>
<td></td>
</tr>
<tr>
<td><strong>Retardation</strong></td>
<td>RET</td>
<td>Common Tone</td>
<td>Step</td>
<td>A note held over from a previous chord and resolved up.</td>
<td></td>
</tr>
<tr>
<td><strong>Pedal Tone</strong></td>
<td>PED</td>
<td>Common Tone</td>
<td>Common Tone</td>
<td>A chord tone which temporarily becomes a non-harmonic tone.</td>
<td></td>
</tr>
</tbody>
</table>

**Suspensions** are typically further identified by number. The first number represents the interval between the **note of suspension** and the **bass**. The second number represents the interval between the **note of resolution** and the **bass**.

The exception to this rule is the 2-3 or **bass suspension**, where the numbers represent the intervals between the **bass** (where the suspension occurs) and whichever voice has the note which is a **second** (not counting octaves) above the bass.

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Dear Sparky:

Can you elaborate on why suspensions are identified by numbers? Also, what should one watch out for when writing suspensions in four-part harmony?

--S.S., Detroit, MI

**Q:***

Can you elaborate on why suspensions are identified by numbers? Also, what should one watch out for when writing suspensions in four-part harmony?

--S.S., Detroit, MI

**A:***

WOOF!*

When analyzing suspensions, it is important to identify both the note of suspension (the non-harmonic tone itself) and the note of resolution (the note that comes right after the non-harmonic tone in the same voice).

When writing an example which includes a suspension, it is very often useful to begin by writing the chord that is going to contain the suspension, then adding the suspension, and finishing by writing the chord of approach.

The real trick, though, is to plan ahead... if you are planning to write a particular type of suspension, you need to think about the interval that needs to be present in the chord that includes your suspension.

For the 9-8 suspension, the suspension resolves to an octave above the bass... that's easy, since any chord can include an octave.

For the 7-6 suspension, the suspension resolves to a sixth above the bass... that means you can't use a chord in root position, because they have a fifth and a third above the bass. You need a first or second inversion triad!

For the 4-3 suspension and 2-3 suspension, you need a chord with a third above the bass... which means you can use anything except a second inversion triad.

**TRANSLATION:**

When analyzing suspensions, it is important to identify both the note of suspension (the non-harmonic tone itself) and the note of resolution (the note that comes right after the non-harmonic tone in the same voice).

In almost every case, the suspension is then labeled using two intervals: the interval between the note of suspension and the bass, and the interval between the note of resolution and the bass.

The only exception to this is the 2-3 suspension, where the suspension occurs in the bass. For this one, we look at the interval between the notes of suspension and resolution and the nearest chord tone, whichever voice it may be in.

**DOING STUFF THE SPARKY WAY IS ALWAYS FUN!**

*Translation:

Hey, kids!

It's Sparky the Music Theory Dog!

DOING STUFF THE SPARKY WAY IS ALWAYS FUN!

*Hey, it's kids! SPARKY THE MUSIC THEORY DOG!*

**Q:**

Can you elaborate on why suspensions are identified by numbers? Also, what should one watch out for when writing suspensions in four-part harmony?

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**A:**

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Motivic Development

We're going to take a little break from the usual stuff and... Hey, it's Ludwig van Beethoven!

What's going on, maestro?

Hey, it's cool, Mr. B... we can use these notes as a motive, and create a ton more music based on them. Watch!

Original Motive

The simplest form of motivic development: repeating a phrase immediately gives you twice as much music!

Repetition

Repeating a motive at a higher or lower level pitch. As with all of these, the intervals don't have to match exactly.

Sequence

Flipping the motive upside-down: if the original motive leaps downward, an inversion will leap upward.

Inversion

Making the intervals within the motive smaller (contraction) or larger (expansion).

Interval Contraction

Interval Expansion

Changing the speed of the motive so it is played faster (diminution) or slower (augmentation).

Diminution

Augmentation

Any change of the motive's rhythm (other than just changing the tempo, as described above)

Rhythmic Metamorphosis

An "echo" effect between different voices (between instruments in an ensemble, for example, or between registers on the piano)

Imitation

So, heh heh... that gets us to 253 measures...

Wait... we are in 4/4 time, right?

Uh, yeah...

So let's use 2/4 time instead!

You sly fox... 506 measures!

Woooot! Read it and weep, Rudy!

I'll tell you what's going on: I'm grumpy! I bet Archduke Rudolph 20 gulden that I could write 500 measures of music this week and so far I've only come up with four stinkin' notes!
**Binary Form**

One of the simplest forms is **binary form**, which consists of two contrasting sections. We refer to these two sections as A and B.

The sections might be contrasting in mood, tempo, key, or even in a combination of these characteristics.

**Binary Form** is used in **baroque dance suites** in a very specific way. In these pieces, both sections are repeated. The A section begins in the primary key and modulates to the key of the dominant, and the B section begins in that key and modulates back to the original key. Performers of the time would typically improvise ornamentation when repeating each section.

**Baroque dance suites** were written for varying instrumentation; many were written for keyboard (usually harpsichord or clavichord), others were written for chamber groups, and some were even written for full orchestra.

Each movement of these suites would be written in the style of a particular baroque dance: allemande, gavotte, bourree, courante, sarabande, loure, gigue, and others, each of which had a specific character.

Because baroque dance form is so common in baroque instrumental music, when theorists and musicologists are talking about baroque music and say "binary form," they are actually referring to **baroque dance form**.

Another somewhat rare variation of binary form is **rounded binary form**, where the A section returns after the end of the B section. This reprise of the A section, however, is shortened, so we refer to it as "A prime."
**Ternary Form**

IN TERNARY FORM, THE A SECTION APPEARS BOTH AT THE BEGINNING AND AT THE END; LIKE BINARY FORM, THE B SECTION IS CONTRASTING IN CHARACTER.

THE REPRISED A SECTION MAY BE AN EXACT REPEAT OF THE FIRST A, OR IT MAY BE SLIGHTLY DIFFERENT, BUT THE LENGTH OF THE A SECTIONS SHOULD BE SIMILAR.

THIS IS DIFFERENT FROM ROUNDED BINARY, WHERE THE REPRISED A SECTION (WHICH WE CALLED A PRIME) IS SIGNIFICANTLY SHORTER THAN THE FIRST A SECTION.

THE MINUET AND TRIO IS A VARIATION ON TERNARY FORM USED FOR INSTRUMENTAL MUSIC. INSTEAD OF WRITING OUT THE REPRISED A SECTION, THE SCORE WILL PLACE THE INSTRUCTION “DA CAPO AL FINE” AFTER THE B SECTION, WHICH MEANS TO RETURN TO THE BEGINNING, PLAY THROUGH THE A SECTION, AND END THE PIECE.

THIS SAME FORM IS COMMONLY USED IN BAROQUE AND CLASSICAL OPERA, WHERE IT IS CALLED A DA CAPO ARIA. IN BOTH MINUET & TRIO AND DA CAPO ARIA, ANY REPEATS ARE IGNORED WHEN PLAYING THROUGH THE REPRISED A SECTION.

IT’S WORTH MENTIONING THAT THERE IS A COMMON FORM THAT IS DESCENDED FROM MINUET AND TRIO FORM: THE MILITARY MARCH FORM FAVORDED BY JOHN PHILIP SOUSA AND OTHER AMERICAN MARCH COMPOSERS.

IN THE MILITARY MARCH FORM, THE A SECTION IS SPLIT INTO TWO SUBSECTIONS, CALLED THE FIRST STRAIN AND SECOND STRAIN. THE TRIO ADDS A FLAT (OR REMOVES A SHARP) FROM THE KEY SIGNATURE, MODULATING TO THE KEY OF THE SUBDOMINANT. MOST MARCHES BEGIN WITH A SHORT FANFARE, AND REPEAT THE TRIO, PLACING A SHORT, INTENSELY DRAMATIC PASSAGE BETWEEN REPETITIONS CALLED THE DOGFIGHT OR BREAKSTRAIN.
Sonata Allegro Form

The form itself is based from ternary form, in that the first large section is reprised at the end of the form, it was eventually adopted by other composers of the classical and early romantic eras.

One of the most important features of Sonata Allegro Form is the two primary themes that make up the exposition. These two themes will be contrasting in character and, at least in the exposition, will be in different keys. In a major work, the second theme will be in the key of the dominant; in a minor piece, the second theme will be in the relative major. In the recapitulation, however, both themes are played in the tonic!

The diagram above shows the required elements of Sonata Form; in the diagram below, several other elements, which are optionally included, are also shown.

Bear in mind that composers did what they wanted to... some of the greatest pieces written in Sonata Allegro Form feature places where the composer artfully broke these "rules"!
Diatonic Seventh Chords

**WHAT ARE THEY?**

**DIATONIC SEVENTH CHORDS** are the seventh chords you can create using only the notes in a particular key.

There are eight possible types of seventh chords in tertial harmony, but the composers of the common practice period only used five:

- The **Major Seventh**: Major 7th above root
- The **Major Triad**: Major 7th above root
- The **Major-Minor Seventh**: Minor 7th above root
- The **Minor Seventh**: Minor 7th above root
- The **Half-Diminished Seventh**: Diminished 7th above root
- The **Fully Diminished Seventh**: Diminished 7th above root

In harmonic progressions, diatonic sevenths can be used anywhere you can use a diatonic triad with the same root.

With the diatonic seventh chords, we add a fourth root movement: the common root. However, this root movement can only be used to increase tension, so going from a seventh chord to a triad is avoided.

**Respect the Seventh!**

The seventh of the chord is always resolved down by step. Always!

No, I'm serious. Don't ever resolve the seventh of a seventh chord any other way.

Doing so will cause you certain death!

When using these chords in four-part writing - in fact, when you use any seventh chord in four-part writing, you must always, always remember to...

- When using these chords in four-part writing - in fact, when you use any seventh chord in four-part writing, you must always, always remember to...

The seventh of the chord is most often approached by the common tone.

However, it is okay to approach the seventh from below by a step or a leap, or from above by a step.

You must never approach the seventh by a leap from above!
The Dominant Seventh

The dominant seventh is the diatonic seventh chord built on the fifth scale degree. We already discussed diatonic seventh chords... why give this one all this special attention?

For one thing, the dominant seventh is, by far, the most common seventh chord used by the composers of the common practice period. But the primary reason for spending a little extra time with it is the fact that there are a few things that apply to it that don't apply to the other diatonic seventh chords.

The reason these are often confused is that in popular and jazz theory, the term "dominant" is used to label the chord type as well as the chord's role. But the primary reason for spending a little extra time with it is the fact that there are a few things that apply to it that don't apply to the other diatonic seventh chords.

First, a note on terminology:

The terms "major-minor seventh" and "dominant seventh" are not interchangeable! "Major-minor seventh" is the chord's type, and "dominant seventh" is the role the chord plays in the context of a particular key.

The other important thing to know about the dominant seventh chord is that common practice period composers would sometimes use some non-standard ways of resolving the seventh!

The Ornamental Resolution

In this resolution, the seventh is still resolved down by step, but it takes an ornamental "detour" before getting there.

The Transferred Resolution

This is the "hot potato" resolution: instead of being resolved down by step in the same voice, the seventh is passed to another voice in another dominant seventh chord.

If the bass voice gets it, he resolves it immediately, ending the fun for everyone.

The Delayed Resolution

Here, the resolution of the seventh is delayed by moving to some other chord (usually the subdominant) and having the seventh of the chord hold out until the dominant seventh returns.

After the V7 returns, the voice that has the seventh should still resolve it appropriately!

The Bass Resolution

In this resolution, the seventh of the chord is still resolved down by step, but the note it resolves to appears in the bass voice.

The voice that had the seventh resolves up, usually by step.
Extended Harmonies

So far, we've talked about two types of tertial chords: triads and seventh chords. Remember, tertial chords are chords constructed by stacking major and minor thirds!

Now, there are four types of triads and eight types of seventh chords, even though common practice period composers only used five of them.

Suddenly the possibilities increase from twelve... ...to 124!

The good news: common practice period composers only used these "extended harmonies" as diatonic chords on the dominant.

Seriously: these are the only extended harmonies used by common practice period composers. In fact, the $V^{11}$ and $V^{13}$ weren't used much before the romantic era.

So that makes for twelve chord types so far... but what if we keep going? What other chord types can we make by stacking major and minor thirds? Tertial chords with five, six and seven notes are called ninth chords, eleventh chords and thirteenth chords respectively.

Now, when we put these chords into four-part harmony, we've got a problem: they all have more than four notes. So we have to make the tough call: which ones do we cut from the team?

We need to keep the root because it defines the chord. Similarly, the third is what makes the chord tertial.

The seventh acts as a bridge to the extended harmony, preventing the chord from coming across as two separate harmonies played at the same time.

Finally, the ninth, eleventh or thirteenth of the chord is what defines it as a ninth, eleventh or thirteenth chord.

So how do you put these in four-part harmony? Omit the fifth and use only the ninth, eleventh or thirteenth as necessary.

Oh, and if you're worried about inversions: stop. In the common practice period, extended harmonies are almost always found in root position.
Altered Chords

Up to this point, all the chords we’ve been talking about have been built using only the notes in the current key.

Essentially, this means no accidentals, with the exception of the raised sixth and seventh scale degrees in minor, which we consider to be part of the key.

Now that we’ve covered all the possible diatonic chords in tertial harmony, it’s time to open the door to notes outside the key...

These “altered chords” add a certain richness to the harmony by using one or more notes that are not in the key signature and thus require accidentals.

We’ll be covering several categories of altered chords, each of which have their own unique rules for use.

However, there are a few things that they all have in common!

First, every altered chord has to have at least one accidental... if it doesn’t have any accidentals, then by definition it’s a diatonic chord!

Second, altered chords can be easily used in place of their diatonic counterparts. In other words, you can add some pizzazz to a composition by replacing a diatonic chord with an altered chord that has the same root.

Avoid cross relations. A cross relation occurs when a note appears with two different accidentals in two consecutive chords, in two different voices.

With few exceptions, altered chords can use the same basic root movements that we’ve been using.

Like the diatonic sevenths, however, the common root should only increase tension... don’t move from an altered chord to its diatonic counterpart.

Lastly, when you use these chords in part-writing, you should, whenever possible, resolve the altered notes in the direction of their alteration.

So if a note has a flat, try to resolve it down by step or by leap.

And we generally avoid doubling altered tones, since doing so would tend to cause parallel octaves.
Altered chords use notes outside the scale as a means of adding a different "color" to the chord.

For example, the following chords are diatonic chords in C minor:

\[
\begin{array}{cccc}
    & ii^6 & ii^7 & III \\
C: & b & b & b \\
\end{array}
\]

But if we use them in a major key, they require accidentals and are therefore altered chords. We call these borrowed chords because they are borrowed from the parallel minor.

And, in fact, these six chords are the six most commonly used borrowed chords in the common practice period. (One of them, the major triad on the lowered mediant, or "flat three," was not used much by composers before the Romantic era.)

Some theorists refer to the use of these chords as mode mixture.

All the usual part-writing rules apply to these chords. For example:

- The borrowed supertonic is a diminished triad, and is therefore always used in first inversion.

- The borrowed seventh chords can be used in any inversion, but the seventh must be approached and resolved properly.

- It's usually best to resolve altered notes in the direction of their alteration, but doing so in the two altered root chords won't work.

- The leading-tone fully diminished seventh is the king of dominant function. Don't even think of resolving it to anything but tonic!

How does a composer decide which altered notes to use? In a major key, one possibility is using notes and chords from the parallel minor.

Two of these chords, the "flat three" and "flat six," have altered tones as roots. We place a full-sized flat symbol before the Roman numeral itself to indicate this altered root.

Wait... Why? Since we double the root, moving both roots the same direction can often result in parallel octaves.

It's more important to avoid parallelism than to resolve the notes a certain way, so this use of contrary motion is better.

There's another chord that is often erroneously called a borrowed chord: used in minor, taken from the parallel major. It's the picardy third: a tonic chord with a raised third used as the final chord of the piece.
The Neapolitan Six

In addition to the altered root borrowed chords, there is another altered root chord that fits well with the borrowed chords, even though it is not actually borrowed from the parallel minor.

That chord is a major triad built on the lowered second scale degree.

There are a couple of interesting things about this chord. One is the fact that it is almost exclusively used in first inversion.

Seriously! Although this chord is extremely common in the common practice period, there are very few examples of it used in root position. Second inversion is even rarer.

The second interesting thing about the chord is its name: you might expect it to be called a "flat two," in keeping with the other altered root chords.

But, in fact, this is the first of a few chords that have special names. This particular one is called the Neapolitan chord.

"Neapolitan" means "from Naples," referring to the city of Naples, Italy. The chord isn't actually from Naples, though; it was just associated with the operas written by Neapolitan composers like Alessandro Scarlatti.

Funny thing is, this chord was used pretty commonly before Scarlatti's time, in compositions far from the courts of Italy.

It's also worth noting that although nearly every theorist and theory textbook calls the chord a "Neapolitan Sixth chord," it is more properly called a "Neapolitan Six chord." That's because in the rare situations where it is used in root position, it is simply called the Neapolitan chord, and when it is found in second inversion, it's called the Neapolitan Six-four.

Since we don't pronounce I\(^6\) as "one sixth," we shouldn't say "Neapolitan Sixth" for N\(^6\)!
Secondary Dominants

There is a duality at the heart of common practice period harmonic progression. Like the ancient conflict of Jedi and Sith, it consists of forces that, at one level, work against each other... but at another, higher level, work together, creating energy that drives all else.

The progression of dominant moving to tonic is so strong, it would be nice to be able to use it to provide motion to chords other than tonic.

Let's say we wanted to approach this V chord.

We could use one of the usual diatonic chords, the tonic, the subdominant, the mediant... but what if we're looking for a bit more tension and release?

If we pretend for a moment that the chord we're resolving to is a tonic chord, what would the corresponding dominant chord be? Altered, yes, but we're not afraid of those anymore.

While we might have once called this a short modulation, it is really more like borrowing another key's dominant chord.

If we think of the V chord in the key as the primary dominant, V chords of related keys are secondary dominants.

Now, we're not just limited to the V chord: there are five chords with a dominant function!

These chords often resolve to the chord "under the slash," but they can actually be approached and resolved using the basic root movements!

Yes. Yes they do.

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Augmented Sixth Chords

Like that moment of incredible tension just before the hero finally kisses the leading lady, the half-step is the go-to interval for creating tension in music of the common practice period. It drives the entire style!

If one half-step can create such strong tension, how about two half-steps sounding simultaneously? Let’s get creative here for a minute to find a cool new way to approach a diatonic chord. In this case, we’ll use them to approach the dominant triad.

First, we’ll start with the doubled root of a V chord...

...and approach that octave with a half step below the top note,

...and a half step above the bottom note...

...and, finally, add the tonic as the third note.

The result is a new chord, one we call the augmented sixth chord, after the interval created by the top and bottom notes.

Augmented sixth chords are predominate chords, meaning they are used to approach dominant chords. They are usually used to approach dominant triads, not dominant sevenths, because of the doubled roots present in dominant triads.

However, they also often approach tonic chords in second inversion, which also contain a doubled fifth scale degree.

Rarely, augmented sixth chords are found transposed down a perfect fifth, analyzed as “on flat two,” and used to approach a tonic chord in root position.

And, finally, when resolving the German augmented sixth chord to a dominant triad, you might find yourself writing parallel fifths... but it’s perfectly okay! Mozart did it all the time!

If we just use three notes and double the tonic, we get the Italian augmented sixth.

If we add the second scale degree instead of doubling the tonic, we get the French augmented sixth.

And if we replace the second scale degree with the lowered third scale degree, we get the German augmented sixth.

To approach a diatonic chord, we’ll use them to approach the dominant triad.
**Altered and Enharmonic Modulation**

**Altered Common Chord Modulation**

Is easy: remember diatonic common chord modulation, where we used a chord that was diatonic in both the old and new keys.

Now, in both diatonic modulation and altered modulation, we have **one chord that plays two different roles**, one for each key. But the chord type doesn’t change... if it was a major chord in the old key, it’s still a major chord in the new key.

...but what if the chord type **did** change?

In **enharmonic modulation**, we respell a chord **enharmonically** so the chord type itself is different in the old and new keys.

**Fully Diminished Seventh Chords** are cool for a lot of reasons, and one of them is that they are **equidistant chords**: inverting a fully diminished seventh yields another root-position fully diminished seventh chord.

Meaning that a fully diminished leading tone seventh chord **can be a pivot chord into three other possible keys**:

- **G**: I → vii°
  - Which can be respelled as
  - vii°
  - E: vii°
- **D♭**: vii°
  - Which can be respelled as
  - vii°
  - D♭: vii°
- **B♭**: vii°
  - Which can be respelled as
  - vii°
Secondary Subdominants

After learning about secondary dominants, you might wonder if it’s possible to extend the concept to other chords.

For example: if we can use a dominant function chord from a related key, what about a subdominant function chord from a related key, like IV of V?

Well, the answer is yes, and the chords that result are called secondary subdominants. But before we talk about them, you need to understand a few things.

First of all, the very existence of these chords is debatable.

What one theorist might call a secondary subdominant:

\[
\begin{align*}
\text{C:} & & \text{ii}^7 & & V & & V^6 & & I \\
\text{G:} & & \text{ii}^7 & & V^3 & & I^6 & & C: V^6 & & I
\end{align*}
\]

Another might call a short modulation.

Second, the only place we find chords that we can call secondary subdominants is in the music of the romantic era.

Lastly, since these chords are already pushing the limits of tonality, composers would only use secondary subdominants from closely related keys. In other words, secondary subdominants should only be "of IV" and "of V."

Keeping these things in mind, let’s look at the possibilities: What are all the subdominant function chords we’ve encountered?

First, there are the diatonic triads:

\[
\begin{align*}
\text{ii} & & \text{IV} \\
\text{ii}^7 & & \text{IV}^7 \\
\text{ii}^° & & \text{ii}^7 & & \text{iv}
\end{align*}
\]

So a secondary subdominant can have any subdominant function chord above the slash, and a IV or V below the slash.

However, the most commonly found secondary subdominants are those that use the half-diminished supertonic seventh.

To approach these chords, use any of the basic root movements, which are awesome.

The most common way to resolve secondary subdominants is to the corresponding secondary dominant.
The music of the Baroque, Classical, and Romantic eras share a consistent use of harmony and counterpoint, enough to cause theorists and historians to group them together as the "Common Practice Period."

However, the music of the Romantic era employed some interesting techniques that set it apart from the Baroque and Classical eras...

...and foreshadow some of the big changes coming in the twentieth century!

Another technique that is unique to the Romantic era is the resolution of an augmented sixth chord to a dominant seventh chord rather than a dominant triad, causing the interval of the augmented sixth to resolve obliquely instead of moving outward to the octave.

Finally, Romantic era composers would sometimes use a particular type of chord progression that had the effect of suspending tonality for a portion of the piece. By temporarily removing the feeling of being in a certain key, the composer could easily modulate to a distant key!

This technique is called third relations because it involves moving by root movements of a major or minor third without respect to key signature.

For example...

Here, we're in F major...

...which obscures any sense of key we had...

...and then turning the gravity back on... but in a different direction!

...and then we land in B major!
The Modern Modes

**Modern? Wait, isn't this stuff, like, 100 years old?**

Yes, but we only call them "modern" because we need to differentiate between a bunch of unrelated things across music history that, ever so inconveniently, use the same names!

The modern modes' names came from the various "keys" used in medieval church music.

Which were, in turn, named in honor of the lute ranges used in later ancient Greek music.

And those used the same names as scale tunings discussed by Plato in 380 BC!

The modern modes are used a lot... especially in folk music. As for standard western repertoire, they are first prominently featured in the post-romantic music of the early twentieth century British Isles.

And, to make matters worse, each of these things use the names to represent different concepts! Fortunately, right now, we're only worried about the modern modes.

These modes are used a lot... especially in folk music. As for standard western repertoire, they are first prominently featured in the post-romantic music of the early twentieth century British Isles.

One of the primary characteristics of these English modalists is that they tended to avoid the strong tensions of the common practice period... for example, they avoided chords that used a tritone... and avoided raising the leading tone in minor keys!

So what are they?

Well, remember when we created the natural minor scale by starting with a major scale, but using the sixth note of the scale as the tonic? It gave us a new pattern of whole steps and half steps... a new scale.

Keeping the same key signature, we use this note as our new tonic!

In fact, these are two of the seven modern modes: major is the Ionian mode, and natural minor is the Aeolian mode.

By starting on the other notes of the major scale, we get the other five modes.

Because it has a diminished tonic, Locrian is a theoretical mode... it's not used in actual practice.

The modes here all share the same key signature... they are related, like C major and A minor!

A more effective method of keeping the modes straight involves memorizing each mode's color tone: the scale degree that makes it unique from the major or minor scale with the same tonic.

音乐理论对于音乐家和普通人

**音乐理论对于音乐家和普通人**

**Toby W. Rush**

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In 1725, an Austrian composer and theorist named Johann Joseph Fux wrote a theory textbook called Gradus ad Parnassum, in which he outlined his method of teaching how to write good counterpoint.

**Counterpoint** is the combination of two or more melodies, each one as important and interesting as the other.

**Gradus ad Parnassum** means "Steps to Parnassus." Parnassus referred to the highest peak in Greece, and was used as a metaphor for perfection.

Gradus ad Parnassum was a big hit, used (or at least praised) by composers like Mozart, Beethoven, and Haydn. The system that Fux used is referred to as **species counterpoint**, because it involves going through increasing levels of rhythmic complexity which are labeled as **species I**, **species II**, and so forth.

Interestingly enough, the language Fux was advocating was not the counterpoint of the common practice period to which he belonged, but the more strict rules of counterpoint used by composers of the Renaissance more than a century earlier.

Specifically, Fux was a starry-eyed admirer of the Italian Renaissance composer Giovanni Pierluigi da Palestrina, who he considered to represent the peak of compositional artistry... something he felt was being lost or even squandered by his baroque and classical contemporaries.

Of course, it's worth pointing out that Fux didn't actually have access to much of my music!

Right. So the language Fux is teaching is really an interesting ideal: Based partly on his perceptions of Palestrina's musical language as delivered to him through Italian theorists, and partly on his own ideas of what he thought the language should be.

But let's cut Fux some slack here: As theorists, we're all guilty of this to some degree.

Anyway, let's get started! Going through Fux's steps for learning counterpoint gives us a glimpse of how the masters learned their craft and a feel for the environment in which they developed their own musical languages.

Hurray! Let's go, Giovanni, and bring the beautiful light of perfect composition to these eager students!

Yeah, Joe, about that... you do realize that your idea of perfect composition is just a blissfully awesome thing? Yes, that's just what I was thinking!

No, I mean that it's super fun? Yayyyyy!!!!!
Species Counterpoint: Melody

Before we start combining melodies, we need to understand what constitutes a good melody in the system of species counterpoint.

In general, melodies should be primarily stepwise, with a single, definite high point or low point. Effective melodies tend to progress slowly toward the high or low point and then move back toward the starting pitch.

Oh, and don’t repeat notes like this. Contrapuntal melodies need to be interesting, not boring.

As you can see above, occasional leaps are okay... but they come with a bunch of restrictions.

First, leaps should be no larger than a perfect fifth, with two exceptions: leaping by a perfect octave, and leaping upward by a minor sixth. Don’t do these very often, though!

Second, for heaven’s sake, avoid the tritone! This interval (an augmented fourth or diminished fifth) was actually considered evil to musicians of the time and was called the diabolus in musica... the “devil in music!”

Leaping by a tritone is bad, but it’s also important to avoid the tritone in other ways... for example, this pattern, where a tritone is outlined in the melodic line, would be considered inappropriate.

Third, leaps of a perfect fourth need to be preceded or followed by stepwise motion in the opposite direction, to counterbalance the leap. And if a leap is larger than a perfect fourth, it needs to be counterbalanced both before and after!

Lastly, don’t write three or more leaps in a row. You can write two leaps in a row, but they need to outline a major or minor triad. No diminished triads... they have tritones in them!
"First Species" Counterpoint is the most rhythmically simple type of counterpoint: both voices have the exact same rhythm. As a result, it's all about the intervals! And that takes us to the first rule:

**ONLY USE CONSONANT INTERVALS.**

- **No seconds!**
- **No sevenths!**
- **No fourths!**

Next rule: **Voices can't cross or overlap.**

- **Voice crossing:** Top note is lower than bottom note.
- **Voice overlap:** Top note is lower than the previous bottom note.

And then: **Thirds and sixths are fine, but no more than three in a row.** To much consonance, and the natives get restless.

The next rules have to do with **perfect intervals** (P1, P5, and P8... remember, P4 is dissonant!), which play important roles and require some special treatment.

Because they are such a strong sonority which can stop the counterpoint in its tracks, **unisons** can only be used on the first or last notes of an exercise.

All perfect intervals must be approached with care in order to preserve voice independence. First of all, **never repeat a perfect interval!**

In fact, approaching perfect intervals with both voices moving in the same direction is bad, even if it's from an imperfect interval.

Plus, it's also not okay to approach a perfect interval with leaps in both voices! So it's easiest to remember what you can do: approach perfect intervals using **contrary motion**, with at least one voice moving by step.

These are called **parallel fifths**... and they're just awful!

In fact, each exercise must begin and end with a perfect interval with the tonic in the lower voice. Wait... why is that last bit important?

For these exercises, you'll be writing a melody above or below an already-written melody, called a cantus firmus.

The cantus firmus will always start and end on the tonic note... so if you are writing counterpoint below the cantus firmus, you can't start with a perfect fifth; because you're lower voice won't be the tonic. You'll have to start with a unison or octave instead!
Second Species Counterpoint adds a touch more complexity: there are two notes against every one in the cantus firmus.

Fortunately, that doesn't make it twice as difficult: in fact, most of the previous rules still apply without any changes.

**There are only a few exceptions:**

**Species I Rule:**
- Leaps are still fine, but don't leap to a new high point on a downbeat.

**Species II Rule:**
- The A in the third measure is a new high point for the line, so leaping to it on the downbeat puts a lot of weight on that one note, making it stick out of the texture.

*Excepting, of course, ascending minor sixths and perfect octaves, but you already knew that.

Only use consonant intervals.

Still true... for downbeats. For the unaccented beats, dissonant intervals are fine, as long as they happen as passing tones: notes that fill in a third created by surrounding notes.

Oh, and notice how dissonant intervals have their numbers circled? Nice, huh. You should do it too.

Unisons can only be used on the first and last notes.

Unisons can be used on unaccented notes... just be careful about crossing or overlapping voices!

Approach perfect intervals using contrary motion with at least one voice moving by step.

This rule still applies: if you use a perfect interval on a downbeat, you need to use contrary motion from the immediately preceding notes, and at least one voice must move by step.

However, you must also be careful not to have the same perfect interval on two successive downbeats. This is called parallel perfect intervals and it's going to be a no-no for a good long time.

(In fact, it's also not okay to have parallel perfect intervals from the unaccented beat to the downbeat, but if you are approaching with contrary motion, that wouldn't happen anyway.)

Not too bad, is it? Yeah! Bring on third species!
Species Counterpoint: Species III

Third Species: As you might have guessed, involves four notes against one.

And, compared to the other species, it's easy peasy! In fact, the differences can be summed up into four rules.

**First:** Don't leap more than once in the same direction.

**Second:** All intervals larger than a third, including perfect fourths, must be counterbalanced by steps on both sides.

**Third:** As usual, the first note in each measure must be consonant. The third note in the measure is also usually consonant, but it can be dissonant... as long as it's the only dissonant note in the measure.

As for the second and fourth notes, they can be dissonant, as long as they are passing tones or neighbor tones.

A neighbor tone is a note approached by step, which resolves back to the note it came from.

**Fourth:** There are two special figures which act as exceptions to the rules above.

Hey, that makes five rules! No fair!

Well, they're kind of similar...

The double neighbor tone involves an upper neighbor and a lower neighbor played one after another, then returning to the note that approached it.

This figure can be inverted, so the upper and lower neighbors switch places.

The nota cambiata (or changing tone) follows the pattern of a step down, a third down, then two steps up. The middle note of this five-note figure must be consonant.

Can be dissonant!

Can be consonant!
Species Counterpoint: Species IV

With the fourth species, we stop using smaller note values and back up a bit to species I. But instead of having the notes move at the same time, species IV involves the voices being offset from one another.

The biggest difference with species IV is the fact that dissonances are permitted on the downbeat. But as you might expect, they have to follow certain specific rules.

Dissonances in species IV must be in the form of suspensions. A suspension is a dissonant note that is approached by being held over — suspended — from the previous note.

In this case, the suspension is the F on the downbeat of the second measure. It’s prepared by the F in the previous measure, and resolves down to the E.

Suspensions are great, by the way, but don’t use the same one more than three times in a row, or Fux will release the hounds.

Another important defining characteristic is that the suspension resolves down by step. If it doesn’t resolve down by step, it’s not a suspension!

We label suspensions by the intervals of the suspension and resolution, so this one would be called a 7-6 suspension.

In species IV, you’re dealing with a lot of limitations with melody and counterpoint, so you will sometimes get trapped in a situation where nothing will work. When this happens, you are allowed to “break species”: forget the tie and slip into species II for a couple of notes.

Similarly, in this example, the suspended note is the D, which forms a fourth with the A. It moves to a C, a third above the bass, making it a 4-3 suspension.

The 7-6 and 4-3 suspensions are the only ones Fux allows when writing counterpoint above the cantus firmus.

The only suspension Fux allows when writing counterpoint below the cantus firmus is the 2-3 suspension, in which the suspended note forms a second with the cantus firmus, then resolves down to a third. (When this suspension is written an octave lower, it is sometimes called a 9-10 suspension.)

See how we resolve to a larger interval, unlike the 7-6 or 4-3? When we’re below the cantus firmus, so we move away from it, because suspensions always resolve down!

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See how we resolve to a larger interval, unlike the 7-6 or 4-3? When we’re below the cantus firmus, so we move away from it, because suspensions always resolve down!
Species Counterpoint: Species V

Fifth species counterpoint is the culmination of all the other species, and it’s the closest Fux gets to Palestrina’s style of florid counterpoint that Fux thought was so amazingly awesome.

There aren’t a lot of new rules for this species, and they mainly deal with combining the other species.

First, aim for a good mix of different species. Don’t stay too long with any particular note value before switching to something else; so your counterpoint remains rhythmically interesting.

When you’re using a particular note value, follow the rules of the corresponding species. So when you are using half notes, make sure you’re obeying the rules of species II. If you tie two half notes together, keep the laws of fourth species.

Leave the whole notes out, though, until you get to the end of your exercise. If you go all species I in the middle, things get real boring real fast.

Next, species III and IV can be combined by using dotted half notes, which always have to start on a strong beat.

Lastly, you can include eighth notes to add more rhythmic interest, as long as you follow a few restrictions:

- They have to occur in pairs on weak beats.
- Both notes must be approached and resolved by step.
- Only one pair should be used in any given measure.

Any dissonances involved with this kind of figure have to follow the rules of fourth species counterpoint: that is, they need to be suspensions prepared and executed by the dotted half note and resolved immediately afterward.

Species V Casserole

Combine all ingredients in a grand staff and mix well. Heat through to prevent unjustified dissonances from forming. Let cool and serve on period instruments.

- 2 cups second species
- ½ cup first species
- 2 cups third species
- 3 tsp ties (fresh or frozen)
- dash eighth notes (optional)

They have to occur in pairs on weak beats.

Eighth notes? I love those guys!