**The Secrets Of Orchestration**

**Part One – Chord Voicing**

**Chapter 1. Woodwind section**

**Lecture 1g. Bassoon and Flute**

Hello!

I’m so glad to welcome you to our new lecture.

In this lecture, I will show you how to share harmony between bassoon and flute.

The modern concert flute in C is a non-reed instrument, which has a professional player’s range from **B3** to **D7.**

The flute is a non-transposing instrument.

Its written and sounding range is the same.

Only the treble clef is used.

There are two kinds of flute models: American and European.

The European model has a range from **C4** to **D7**.

But an American model’s range starts from **B3,** due to its extended key.

As you don’t know what kind of flute is used in the orchestra, don’t write **B3** in the flute parts.

Hence, the safe range for the common orchestral writing is from **C4** to **C7.**

Abovethe **C7,** all notes are difficult to play and risky for orchestral writing.

Only professional players can play these high notes.

The top note of this instrument is indefinite.

Let’s start analyzing the flute registers.

Here is the list of the flute registers in various books by master instructors.

As I said, each instructor has his own approach to the flute registers.

My lectures are based on Korsakov’s registers. Because it’s very easy to learn.

A graphical scheme is adapted from Korsakov’s book.

The blue line shows the thickness of the flute sound quality.

The flute’s low register, which I show this as “1”, is from **B3** to **G#4** or from **C4** to **G#4**, depending on the flute model.

This register has a very thick and warm sound quality.

Unlike other woodwind instruments, its 1st register is also soft like the 2nd one.

As it ascends, the thickness is gradually lost.

The middle register is from **A4** to **G#5**.

The number “2” indicates the middle register.

Here the tones are soft and sweet.

This is one of the most effective registers for chord voicing.

The number “3” indicates the high register of the flute, which is from **A5** to **G#6**.

In this register, the quality of the tones gradually becomes thinner than the middle register.

But, here the tones are not penetrating, like oboe and bassoon.

That’s why I don’t show this with a sharp arrow.

The very high register of the flute from **A6** to **C7**, indicated by the number “4”, has a quite thinner and whistling sound quality.

But this instrument is not piercing like the very high registers of reed instruments.

Depending on the instrument and player's skills, the top note of this instrument is indefinite.

As I said, in writing for the orchestra, it is dangerous to exceed the upper **C7.**

The gray line shows the natural power of the sound.

As the flute moves towards the end of the range, it gains strength.

The bottom 5th of the flute is quite weak.

It is nicely balanced if all other instruments are played with soft dynamics.

I will explain it in examples.

Ascending from **B3** to high, every note sounds stronger than the previous one.

This a native character of the flute, regardless of the player and dynamic marking.

Let’s discuss how to write “true” dynamic markings for this instrument.

The “true” ***f***  is possible approximately from **G4** to **C7.**

Because, the flute cannot produce loud dynamics in the low register.

You should be aware that if these notes are written at ***f*** dynamic, the actual performance will be softer than the indicated dynamics.

Of course, this dynamic can be found in many scores. But, they are just the “relative” dynamics, which means players should play as loud as possible.

Any notes between **G4** and **A6** can be played at ‘’true’’ ***mf*** dynamic.

But the notes below the **G4** and above the **A6** are quite difficult to produce at ***mf.*** Only top players can play it. Hence I showed it with dashed lines.

“True” ***pp***;***p;mp*** dynamics are possible from **B3** to **A6.**

Because, above the **A6** all notes are difficult to attack and sustain at soft dynamics. That’s why I am calling them as “relative” dynamics.

I will explain all possibilities at “true” and “relative” dynamics.

Now you know where the flute is weak and where is strong.

Let’s share the triad between flute and bassoon.

**F major** chord in close position.

The 2nd bassoon takes the **F** in the 2nd register, which has a soft timbre.

The 1st bassoon plays the **A** in the 2nd register.

So, both instruments are equal to each other and quite soft.

The 1st flute plays the **C** at the beginning of the 1st register, which is rather thick and soft.

One question! What do you think?

Does the thick sound of the flute make this chord unbalanced?

Not, of course.

Because, you should also consider the size of the instruments while voicing.

Since the bassoon is a larger instrument than the flute, it can be considered that the 2nd (soft) register of the bassoon is equal to the 1st (thick) register of the flute.

They have the same soft sounding.

Now, look at the gray lines.

As you can see, bassoons have medium power.

They are roughly equal to each other.

But, the flute is in the weak register.

Be careful. This chord will sound balanced if soft dynamics are used.

Don’t write strong dynamics, like ***f, ff.*** Otherwise, bassoons will prevail over the flute and you will get poor and unbalanced voicing.

Why bassoons will dominate?

Let’s write ***f*** dynamic for this chord and see what happens.

Two bassoons will play at “true” ***f*** dynamic.

As you know from our previous lessons notes are in the bassoon’s 2nd register can be played with dynamics such as ***- pp;p;mp;mf;f.***

So, the dynamic ***f*** shown below the bassoon part is “true”.

What about the flute?

The flute cannot play at ***f*** dynamic in the 1st register!! This is impossible!

The maximum dynamic a player can achieve can only be a little bit stronger than ***mp***.

So, bassoons are “true”, but the flute is “false”.

Hence this chord is unbalanced at ***f*** dynamic and should be avoided.

Let’s discuss the ***mf.***

Since the bassoons can achieve ***mf***, it will be true dynamic.

But, the flute cannot play at “true” ***mf*** dynamic in the low register!!

Because the maximum dynamics a player can achieve can only be slightly stronger than ***mp***.

So, bassoons play at “true”, but the flute at “relative” dynamic.

Hence this chord is poorly balanced at ***mf*** dynamic.

This problem can be solved by the conductor as follows.

To achieve equal balance in live performance, the conductor will reduce the dynamics on all instruments.

The flute and 2 bassoons will play around the ***mp.***

Consequently, the ***mf*** dynamics, which is written at the score can be called as “relative” dynamics.

If this chord is written at soft dynamics, a nice balance can be achieved.

For example, ***mp*** dynamic.

Since all instruments can play at ***mp***, these dynamics can be called as “true”.

Hence this chord is nicely balanced.

Of course, you can also write ***p*** and ***pp***, as both instruments can achieve these dynamics.

At the end of this topic, we can come to this conclusion!

If the flute is in 1st register, soft dynamics should be used in voicing. Don’t write loud dynamics, such as ***f;ff***.

***mf*** will be “relative”.

The next chord is **A minor** in the open position.

The **A** noteis roughly equal to the **E** note since it is at the end of the 1st register.

The **E** note will be played by the 1st bassoon in the soft and medium power register.

The **C** note is in the thick and weak register of the flute.

If you want to get the balance, don’t write the loudest dynamics!

Otherwise, strong partials coming from the lower notes can easily cover the flute part.

Let’s remind excellent words by master instructor Walter Piston.

“The tones of the first half-octave, especially the foot joint notes, have a warm velvety quality of their own.

The sound is deceptively heavy when heard alone, but it is easily covered by other instruments and by strong overtones from low bass notes.

This is due, no doubt, to the weakness of the upper partials in the formant of the low register of the flute.”

Let's understand what the master teacher means.

The blue notes are the fundamental tones of the low register played by the performer.

When the performer starts playing, you hear the fundamental tone first.

But, as I talked in the “Introduction to chord voicing” lecture, there are a lot of partials that appear above the fundamental, which sound simultaneously.

Thus, these partials reinforce the fundamental tone.

But, because of the flute’s construction, these partials are less audible.

This is why the low register sounds weaker than the other registers of the flute. Especially the foot joint notes – **B3, C4, C#4** are quite weak against the other notes of the flute.

Now you know why the low register sounds weaker than the other register.

When the flute register is used together with lower instruments, it is easily covered by strong harmonics (or overtones) from the low bass notes.

For examples. Let’s compare two different notes played on different instruments.

Flute playsthe **C4.**

**C2** will be played on the lower instrument. It can be either Bassoon or contrabassoon or contrabass.

As we know, the harmonics of the flute that appear above the **C4** are rather weak.

But, the harmonics of the lower instrument which comes from the lower **C2** are quite strong.

Since the harmonics of **C4** are quite weak, harmonics coming from **C2** will cover them.

If replaced with an oboe, since the harmonics of the **C4** are quite strong, harmonics that come from the **C2** don’t cover them.

Now! Do you understand what the master teacher means?

This problem does not occur only in chord voicing.

Composers also faced this problem when writing for the flute solo.

The same principles should be followed for the flute’s solo writing.

Let's see what is the approach of master instructor Peter Alexander Lawrence.

“For the flute to be heard, the supporting orchestral ensembles are usually written two dynamic levels below the flute part.

So if the flute solo is at ***f,*** the supporting ensembles will either be written at ***mf*** (one dynamic level less) or ***mp*** (two dynamic levels less).”

“When the flute is written in lower registers for a live performance, the bass line in traditional symphonic literature is usually handled by the cellos, since the overtones from the basses tend to cover the flute in the lower register.

Note, however, that this situation is avoided all the time in modern recording since the flute can be isolated on tape.”

These are valuable information in orchestration.

Let’s check how these rules work in the scores.

This example is from the solo flute passage in N. Rimsky-Korsakov's Scheherazade.

The 3rd movement.

The melody is played by the flute player at ***mf*** dynamic.

The supporting ensembles (contrabasses, cellos, violas, violins, and 2 clarinets) take the harmony at three dynamic levels below the flute part.

As you can see, for the flute to be heard, the supporting orchestral ensembles are written three dynamic levels below the flute part.

Now we know, how to write dynamics if the flute is in low register.

So, back to our lesson!

In our case, bassoons are not dangerous as they are around the soft register.

Thus, this chord will be balanced since the soft dynamics are used.

Don’t write strong dynamics!

The ***mf*** will be relative, as all instruments will play at ***mp.***

Let’s move to the next chord.

**B-flat major** is in close position.

The 2nd bassoon takes the **Bb** at the end of the 2nd register.

This tone has a delicate timbre and medium power.

The 1st bassoon plays the **D** noteat the beginning of the 3rd register.

This tone also has a delicate timbre and weak power.

1st flute plays the **F** note in the 1st register. This is a thick and soft sound.

If we compare the thickness and power level of these instruments, we can see that only the **D** note can be dominant due to its thin quality.

To get the well balance, would be better to replace it with the 2nd flute.

No doubt, this voicing is better than the first one. Let’s analyze!

Since the thin sound was replaced by the thick one, we got the same thickness between the three instruments.

Now all tones are about the same thickness.

There are no thin or powerful instruments.

Thus, all instruments are roughly equal to each other and are quite soft.

Let’s check how these rules work in the scores.

This example is from the “Mother Goose” suite by Maurice Ravel.

The melody is presented as a chordal texture by the 1st bassoon and two flutes.

The dynamics marking is ***pp.***

To getequal balance and soft sound, Ravel used one bassoon and 2 flutes at the softest dynamic.

So, back to our lesson!

The **B-flat** major chord is nicely balanced and works with all “true” and “relative” dynamics.

Don’t write the loudest dynamics!

Let’s check the other chords.

The **C major** chord in a close position.

The **G** note is soft and weak, due to its weak partials.

The **C** note is also soft and weak.

The **E** note played by the 1st bassoon is also weak.

But this note is problematic due to its piercing quality.

The bassoon’s piercing sound dominates from **D#4** to **F5**.

As I said, the flute is weak in the low register due to its poor harmonics.

Since the **E** note has thin and piercing harmonics, it can easily cover the flute's weak partials.

I want to show you a simple method, how to quickly share the chord either between 2 bassoons and 1 flute, or 1 bassoon and 2 flutes.

Hope this helps you understand clearly.

Open and close three-part harmony can be played by either 2 bassoons and 1 flute, or 1 bassoon and 2 flutes, with the exception of some situations.

When at least two of the following three situations occur at the same time, 1 bassoon and 2 flutes must be used in voicing:

If the top note of the chord is in the 1st register of the flute.

If the middle note of the chord is in the 3rd or 4th register of the bassoon.

If the low note of the chord is between the D#4 and F5 range of the bassoon.

Otherwise, the middle note of the chord played by the 1st bassoon will dominate over the flute soft sound due to its penetrating quality.

This graphical scheme is based on books and my own experience, which I have learned from a variety of scores.

I will show this as an example.

Let’s voice the **B augmented** chord.

The top note of the chord always should be played on the flute.

The top note - **G** is in the 1st register of the flute.

The middle note - **D#** is in the 3rd register of the bassoon.

The **B** which is the low note of the chord is not between the D#4 and F5 range of the bassoon.

As you can see, at least two of the following three situations occur at the same time.

So, I should use just one voicing:

1 bassoon and 2 flutes.

This chord should be voiced at soft dynamics.

As you know, the flute cannot play at the loudest dynamics in the low register.

Hence, don’t write strong dynamics.

Let’s make one more chord.

**Csus2.**

The **G** note is in the 1st register of the flute.

The **D,** which is the middle note of the chord, is in the 3rd register of the bassoon.

The **C** which is the low note of the chord is not between the D#4 and F5 range of the bassoon.

Since at least two of the following three situations occur at the same time, I should use just 1 bassoon and 2 flutes

This chord should also be voiced at soft dynamics.

Don’t write strong dynamics.

The next chord is **G5/D** in the root.

The **D** note is in the 2nd register of the flute.

The middle note - **G** is in the 3rd register of the bassoon.

The **D** which is the low note of the chord is below the D#4 and F5 range of the bassoon.

Since, only one of the following three situations occurs in the chord, you can use either 2 bassoons and 1 flute, or 1 bassoon and 2 flutes.

Did you understand why we can use both types of voicing?

Because, the top note of the chord is far away from the 1st register of the flute.

Since the **D** note is in the strong register of the flute, 2 bassoons cannot prevail over the it.

What about the dynamics?

Since all instruments are suitable, we can use ***pp,p,mp,mf*** and ***f*** dynamics.

If comparing both voicings, the second will be more soft, as all instruments are approximately in a soft register.

The **D diminished** chord.

The **A-flat** is in the 1st register of the flute.

The **F note** is in 3rd register of the bassoon.

The **D** which is the low note of the chord is below the D#4 and F5 range of the bassoon.

Since at least two of the following three situations occur at the same time, I should use just 1 bassoon and 2 flutes.

This chord should be voiced at soft dynamics.

Because the middle note of the chord cannot be played at the loudest dynamics.

So, don’t write strong dynamics.

Let’s make one more chord.

The next chord is **G minor** in the open position.

The **B-flat** is in the 2nd register of the flute.

The middle note - **D** is in the 3rd register of the bassoon.

The **G** which is the low note of the chord is out of the D#4 and F5 range of the bassoon.

Since, only one of the following three situations occurs in the chord, you can use either 2 bassoons and 1 flute, or 1 bassoon and 2 flutes.

Both types of voicing are quite soft, and work well!

What about the dynamics?

The first voicing can be used at ***pp,p,mp,mf*** and ***f*** dynamics.

The second one should be used with soft dynamics since **D4** cannot achieve strong dynamics.

One more chord.

**F major** is in close position.

The top note - **C** is out of the 1st register of the flute.

The middle note - **A** is in the 3rd register of the bassoon.

The **F** which is the low note of the chord is between the D#4 and F5 range of the bassoon.

As you can see, at least two of the following three situations occur at the same time.

So, I should use just one voicing:

1 bassoon and 2 flutes.

This chord can be voiced with either soft or strong dynamics.

I hope this graphic will help you how to voice the next chords.

So, let's back to the **C major** chord! After this one, I will ask you one question.

Hope, you can find it!

Thus, this chord will be nicely balanced, if the soft dynamics are used.

Let’s make one more chord.

The **D minor** chord is in the close position.

What do you think?

Which of these voicings is more suitable?

Let’s look at the pdf file and try to find it!

Both ones can be used!

In the first example, **D** and **A** notes are in the soft and sweet registers.

But the **F** note played by the 1st bassoon is quite piercing against the soft registers.

This voicing can be used since the flute is in the safe register.

But, is less desirable.

Look at the second example.

The **D** note is in the delicate range of the bassoon.

**F** and **A** notes played by two flutes are also soft.

Since, all instruments have roughly the same thickness and power it will be more suitable.

The strong dynamics should be avoided.

The next chord is **G major** in the open position.

Now let’s look at the pdf file and find out which one of these voicing can be used.

Thetop **B** is out of the 1st register of the flute.

The middle note - **D** is in the 3rd register of the bassoon.

The **G** which is the low note of the chord is out of the D#4 and F5 range of the bassoon.

Since, only one of the following three situations occurs in the chord, you can use either 2 bassoons and 1 flute, or 1 bassoon and 2 flutes.

The **G** note will be played by the 2nd bassoon in the delicate and medium power register.

The **D** note played by the 1st bassoon also has a delicate timbre.

This is a little bit weaker than the first one.

But, both bassoons are equal to each other.

What about the flute part?

The **B** note is at the beginning of the 2nd register.

This register has a soft timbre and medium power, like the 2nd register of the bassoon.

As you see, flute gains the power starting from **A4.**

Thus, due to its medium power, 1 flute can be voiced against 2 bassoons.

As the flute is in the 2nd register, “true” – ***pp,p,mp,mf***, and ***f*** dynamics can be used.

The ***ppp*** and ***ff*** will be relative dynamics.

As I said, we can use the second voicing as well.

1 bassoon and 2 flutes.

This voicing is also well done.

Just use it with soft dynamics.

Don’t write strong dynamics!

The ***ppp*** and ***mf*** will be relative.

The next chord is **D major** in the open position.

Let’s look at the pdf file and find out which one of the voicing can be used.

Please, write your answer in the comments below the video lecture!

The **D minor** is in the 1st inversion.

Since, the **D** note is not effective due to its thin and poor quality, you should replace it by 2nd flute.

This chord can be voiced with all “true” and “relative” dynamics.

In fact, this type of open part harmony in the high range is not effective.

I showed this example just to understand the registers of both instruments.

So, I want to stop our lessons, as the bassoon’s 4th register is not effective in chord voicing.

At the end of this lecture, we can arrive at this conclusion!

1. Both flute and bassoon gradually lose their thickness ascending from low to very high register.

2. Flute gains the power as it ascends. On the contrary, bassoon loses the strength as it goes from low to very high.

3. All registers of the flute can be used in chord voicing.

4. All bassoon’s registers are useful in chord voicing, except the 4th register.

5. Depending on registers, all “true” (***pp,p,mp,mf,f***) and “relative” (***ppp;ff; etc.***) dynamics can be used.

6. Open and close three-part harmony can be played by either 2 bassoons and 1 flute, or 1 bassoon and 2 flutes, with the exception of some situations.

When at least two of the following three situations occur at the same time, 1 bassoon and 2 flutes must be used in voicing:

If the top note of the chord is in the 1st register of the flute.

If the middle note of the chord is in the 3rd or 4th register of the bassoon.

If the low note of the chord is between the D#4 and F5 range of the bassoon.

So, we have done our lecture.

If you liked this lecture, please join our orchestration course and learn more orchestration techniques.

This course consists of three parts:

Part one – Orchestral Chord Voicings

In this part, you will learn how to voice 3,4,5, and several parts of harmony between woodwinds, brass, and strings sections.

Part Two – Orchestral Texture Making

This part will include lectures about:

how to find the best registers for solo instruments?

how do use unison and octave doublings?

How to make an orchestral texture using different methods?

How to work with a small ensemble and full orchestra?

Part three – Orchestral Effects (film scoring techniques are also included)

In this part, you will learn how to make orchestral effects, chords, and melodies in a different genre, such as “comedy”, “drama”, “romantic”, “horror” story and so on.

During the course, you will get new weekly lectures, pdf files, and assignments.

If you have any questions, don’t hesitate to ask me at [secretsoforchestration@gmail.com](mailto:secretsoforchestration@gmail.com)

Thanks for watching! Bye for now!