**The Secrets Of Orchestration**

**Part One – Chord Voicing**

**Chapter 1. Woodwind section**

**Lecture 1a. Bassoon**

Hello and welcome to the chord voicing lecture. Our today’s lecture is about the chord voicing in three-part harmony when woodwinds in three’s.

You can ask me, why it is so important to learn chord voicing.

Because, after learning chord voicing techniques, you can orchestrate 3,4 parts of choral music, main melody and secondary melody, harmonic background, and so on.

Let’s start to learn some basic information:

What is the three-part harmony in close and open positions?

Thickness of sound. Power of the registers?

And how to use dynamic markings in chord voicing.

**Triad**

Triads can be voiced in both open and closed positions.

A closed position voicing is defined as a distribution of notes, whose span from top to bottom does not exceed one octave.

Open positions of triads have a distribution of notes, whose span from top to bottom exceeds one octave.

These rules also belong to the 1st and 2nd inversion of the chords.

**Lecture 1a. *Bassoon***

In this lecture, we will learn how to share harmony between 3 bassoons.

The bassoon is a double-reed instrument that has a professional range from **Bb1** to **F5**.

This is a non-transposing instrument and is written as sounding.

Depending on registers, three kinds of clefs (bass; tenor; treble) can be used.

In orchestral writing, the safe range is from **Bb1** to **Bb4**.

It is dangerous to exceed above the **Bb4.** Because it is difficult to produce the highest notes.

Only professional players can handle these highest notes: **B4, C5, C#5, D5, D#5, E5, F5.**

Therefore, the safe range for the bassoon is from **Bb1** to **Bb4.**

Let’s start to analyze the bassoon registers.

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

As you see, each instructor has his approach to the bassoon registers.

But I prefer to explain chord voicing lectures on Korsakov’s registers. Because it’s very easy to remember.

For clarity, I made a graphical scheme, which is based on two books: “The Principles of Orchestration” book by Rimsky-Korsakov and “Instrumentation and Orchestration” book by Alfred Blatter.

The purple line shows the thickness of the bassoon sound quality.

The bassoon’s low register, which I show as “1”, is around **Bb1** to **C3**.

This register has a very thick sound quality. It is rich in audible harmonics.

As it ascends, the thickness is gradually lost.

The middle register is from **C3** to **C4**. The number “2” indicates the middle register.

Here the tones are smoother and the intensity of the tones is less than the lower register. This is a very soft register of the bassoon.

The number “3” indicates the high register of the bassoon, which is around **C4** to **A4**. In this area, the quality of the tones gradually becomes more tense and penetrating. That’s why I show it as a “sharp arrow”.

These tones are thin and nasal.

The very high register of the bassoon from **A4**, indicated by the number “4”, has a quite piercing and more subtle sound quality. 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 **Bb4.**

Only professional players can handle the high **F5**. Therefore, the safe range for the bassoon is from **Bb1** to **Bb4.**

This register is not effective in the chord voicing, due to its piercing quality.

The second reason is that only professional players can play in tune in a very high register.

The gray line shows the natural power of the richness of the sound. As the bassoon moves towards the end of the range, the power of the richness is lost.

Be careful! This gray line is not to be mistaken for crescendo and diminuendo. This a native character of the bassoon, regardless of the player and dynamic marking.

For example, if compare ***mf*** both in low and high registers, so **D2** will be richer than **D4.** These power differences also create a problem in while chord voicing between different instruments, such as bassoon and flute, bassoon and clarinet, and so on.

Because dynamic marking doesn’t show only the decibel of the tone. Markings indicate both volume and expression.

Ascending from **Bb1**, every note sounds weaker than the previous one.

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

From **Bb1** to **F5,** all notes can be played at ***mf*** and ***f*** dynamics.

True ***p*** and ***mp*** dynamics are approximately possible from **D2** to **F5**.

True ***pp*** is possible from **G2** to **F5**. Because it is not easy to produce very softly below the **G2.**

Now you know the strengths and weaknesses of this instrument.

Let’s share the triad chord within 3 bassoons and discuss it.

Bassoon has a warm tone color, that’s why I showed it as purple color.

Since three bassoons are used in the chord, we will get a warm timbre.

Let’s start to do it!

**F minor** chord in close position.

The 3rd bassoon plays the **F** notein the 1st register, which has a thick and powerful timbre.

The 2nd bassoon takes the **Ab** in the 1st register, like the 3rd bassoon. They have the same power and thickness.

The 1st bassoon plays the **C** at the beginning of the 2nd register.

This chord is well-balanced.

Because, any grouping of three instruments of the same timbre is sure sound well, as Korsakov said.

Let me remind you that this rule belongs only to the close part of harmony, not to the open one.

In addition, since 3 bassoons play a chord in adjacent registers, they have almost the same thickness and power.

This chord works with all dynamics, except the ***pp.*** Because below the **G2** true ***pp*** is not possible.

Of course, you can write ***pp*** in the low register,but the actual bassoon sound will be **p.** These kinds of problems can be handled by the conductor at rehearsal. When the conductor looks at the score, he realizes that the composer needs the softest dynamic as possible.

Most probably, to achieve an equal balance between 3 bassoons, the conductor will point out to players to increase the volume of the 1st and 2nd bassoons.

In the score, 3 bassoons dynamic will be shown as ***pp,*** but in live sounding will be ***p.***

So, don’t be afraid to make mistakes.

90% correct writing will be enough. 10% will be edited in live performance.

Therefore, you should know that the dynamic markings do not always show the true dynamic level.

Hence I am dividing the dynamics into two groups: “true” and “relative”

“True” dynamics means that the instrument is available to play the notes at that dynamic level.

On the contrary, “relative” dynamics means that the instrument cannot produce it at these dynamics. This means that the composer needs the softest dynamic as possible.

So, ***pp*** dynamic which is written below the 3rd bassoon will be “relative”.

However, 1st and 2nd bassoons can play this dynamic. Hence, we can call it a “true” dynamic.

Don’t write different dynamics for each instrument.

I want to remind you one more point the close part harmony in the low register is unwished, as they have a more chaotic sound. Composers use it to create darker, more mysterious orchestral effects.

How to write the correct notation?

Notation for the 1st and 2nd bassoon should be written on the first staff. Don’t write three notes at the same time!!!

The 3rd bassoon should be written on the second staff. Don’t write more than one note, as there is only 3rd bassoon is indicated on the score. Otherwise, the player may assume that this is a mistake or a "multi-phonics" technique.

The “Multi-phonics” technique describes a modern fingering and blowing technique that makes it possible to play two or more notes at the same time. But this is a high-level technique in modern music that only top players can do it.

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

We have done this chord! Let’s move to the next one!

The **C major** triad is in a close position.

The 3rd bassoon plays the **C**, 2nd and 1st bassoons take **E** and **G.**

All three instruments play in the same register. It means that their thickness and power are roughly equal to each other. This triad is well-balanced and works with all “true” and “relative” dynamics***.***

In general, the bassoon’s 2nd register is more suitable and useful than the other registers, due to its soft and smooth sound. Players can achieve true ***pp, p, mp, mf, and f*** dynamics, which are useful for the harmonization of the melody taken by other instruments. This register of the bassoon well blends with other woodwind instruments and doesn’t overshadow them. But it doesn’t mean that you shouldn’t use other bassoon registers in chord voicing.

Let’s have a look at the next high register, which is indicated number “3”.

**B augmented** chord in close position.

The **B** note will be played by the 3rd player at the end of the 2nd register. This is a quite soft sound, due to its register.

**D#** and **G** are in the 3rd register. They have a little bit of penetrating qualities. But, nevertheless, since the 3 notes **(B, D#, G)** are in close position and will be played in adjacent registers, this chord is well balanced.

All dynamic markings are possible.

**E-flat** **major** chord.

The last register is the 4th, which is written in tenor clef. The **Bb4** is the last practicable note in orchestral writing. Because only professional soloists can play in tune around **Bb4** and **Eb5 or** **F5.** You can see this register in Stravinsky and Ravel's works.

In general, the 4th register is not effective for voicing, due to its more piercing quality.

This chord has a quite piercing timbre.

All “true” and “relative” dynamic markings are possible.

If you have noticed I didn’t share an open three-part harmony between 3 bassoons.

The reason for this, as registers are far away, they have different power and thickness. Hence, finding a good balance between remote registers is not always easy. In the first example, the low **C2** and **G2** are quite strong, which can overshadow the **E3**, due to its weakness.

The second example is more suitable than the previous one. Because the low **G2** and **D3** are less risky against **B3.**

Also, the open three-part harmony doesn’t sound well, due to the bassoon having a distinctive timbre in each register. In this case, each note of the chord will sound more differently.

This kind of problem occurs also with 3 clarinets; 3 oboes; and 3 flutes. Therefore, the distribution of open three-part harmony for three same kinds of instruments should be avoided.

This problem can be handled if given to two instruments of the same timbre and a third instrument of another timbre. For example, 2 bassoons and 1 contrabassoon; 2 bassoons and 1 bass clarinet; 2 bassoons and 1 clarinet; or 2 clarinets and 1 bassoon; 2 bassoons and 1 English horn; and so on.

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

1. The bassoon loses its thickness and the power of the richness, ascending from low to very high register.

2. All three bassoon’s registers (low, middle, high) except the 4th (very high) are effective in chord voicing.

3. Any distribution of the chords in close three-part harmony, played by 3 bassoons, gives equal balance in while sounding.

4. Distribution of open three-part harmony for 3 bassoons should be avoided.

5. All dynamic markings (***pp,p,mp,mf,f***) are possible beginning from **G2**.

So, we have done our lecture. Thanks for watching! Bye for now!