**The Secrets of Orchestration**

**Part One. Orchestral Chord Voicings**

**Chapter 4. String section**

**Lecture 16a.**

**Violin**

Hello and nice to see you.

Today, you will learn how to share harmony on the violin.

The violin is the highest-pitched instrument of the string section.

It provides both the soprano and the alto parts in string ensemble writing.

The violin is played by means of a bow held in the right hand of the performer or by plucking the strings with the right or left hand.

Due to its small size, the violin is both the most responsive and agile of all the strings.

The four strings of the violin are tuned as shown.

**E, A, D,** and **G.** The highest string, **E**, is the first string. The lowest string, **G** is the fourth.

This instrument is played with the fingers of the left hand.

The index finger is the first and the little finger is the fourth.

Open strings (without fingering) are indicated by the number 0.

Let’s talk about the range and dynamic levels of the strings on the violin.

The violin has a huge range.

The possible playing range (not using harmonics) of this instrument is from **G3** to **B7** or even higher.

But the practical orchestral range extends from **G3** to **E7**.

The extremely high range on this instrument is not comfortable since the fingering at the top of the fingerboard is difficult because of the smallness of the intervals and the extended position of the hand.

The very high range is also impractical because the strings are spaced further apart at the bridge than at the nut, to facilitate bowing.

Therefore, the **E7** may be recommended as a good practical upper limit, exclusive of harmonics, for orchestral violin parts.

The lowest string, **G**, is rich and dark in tone quality.

This string has a range from **G3** to **G5** or even higher.

The **D** string is very calm and even “fuzzy” in quality.

It has a range of around **D4** and **D6** or even higher.

The **A** string has a unique expressive tone quality, that is more mellow than the first **E** string when played in the same range.

This string has a range from **A4** to **A6** or even higher.

The 1st **E** string is rather thinner than the others.

This is most brightest string and has the best carrying power of the four strings.

This string has a range from **E5** to **E7** or even higher.

Let me remind you that this graphic shows the ranges of strings without harmonics.

Each string has an even wider range with *harmonic technique*.

I will explain it in future lessons.

What about the dynamic levels of each string?

The outer – **G** and **E** strings have a wide dynamic spectrum from ***pp*** to ***ff***.

But the 2nd and 3rd strings are not comfortable playing at strong dynamics, since they are in the middle.

Now, let's talk about how to share harmony on the violin.

The violin is an instrument that can play 2,3,4-parts harmony.

It is so hard to get equal balance while sharing the harmony between the strings section.

When the short chord is needed balance will be less noticeable.

But in long sustain chord is more difficult to find equal balance.

There are two ways how to increase the number of harmonic parts: Stops and divisi.

Let’s start with stops.

There are three kinds of stops: double, triple, and quadruple.

Stops can be bowed, played pizzicato, or strummed for guitar-like effects.

Chords of two notes are called “double stops”.

**Double stops** are possible only on two adjacent strings: IV and III, III and II, II and I strings.

A player cannot produce the double stop on the IV and II strings, as there is an open III string between these.

The same should be considered on the IV and I, III and I strings.

In the execution of double stop notes on the strings, balance, perfect distribution of tone, and correct progression of parts are of minor importance.

There is important matter is to find chords that can be played.

And you should know, that it is not possible to share long sustained harmony with triple and quadruple stops.

Now I will show you why!

As you see, there are four strings and they are of different heights.

Only adjacent strings can play smoothly.

Otherwise player should fast-ride on strings to get long sounding.

But double stops are a little easier for long harmony.

A player could play plucked, bowed, or sustained.

For the player to perform the double stops, the hand must stretch over two strings to do fingering.

Thus, the largest practical stretch on the violin is a minor 9th across two strings.

You should write easily playable stops for the instrument, as much as possible.

Because every impractical writing takes time to play and correct in rehearsal.

And symphony orchestras have no time.

Most symphony orchestras perform a live concert after 2-3 times rehearsals.

This should be taken into account, especially in film scoring stages, since the studio costs are very high.

To save on the budget, you should think about easily playable notes in the score.

However, it doesn't matter if the solo parts can be easy or difficult to play.

Because the soloist always prepares before performing with an orchestra.

You can find a list of all playable double, triple, and quadruple stops in orchestration textbooks.

But this is so hard to remember all the possibilities.

It would be better to imagine the harmony on the violin fingerboard.

Hence, I will show you how to easily do it, If you haven’t the violin.

Let’s check why some intervals are easy and some are not.

**Major** and **minor sixth** intervalsare very easy to play.

For example, the **F** and **D**.

The **F** note will be played on the *D string*, while the **D** note on the *A string*.

The same chord, for instance, is also possible as follows.

The **F** note will be played on the *G string* and the **D** note on the *D string*.

The 2nd and 3rd fingers will be used.

As you can see, the same chord is effective on both *D* and *A*, or *G* and *D* strings.

Depending on the chord succession, a player will choose comfortable strings.

Of course, when the stopped note attains a certain degree of nearness to the bridge, the sound becomes less resonant.

All types of the **seventh** interval are also easy to play on the violin.

For example, a major seventh.

The **E** is on the *D string*, while the **D#** is on the *A string*.

As shown in the picture, the 1st and 3rd fingers will be used.

The same chord is also possible on the *G* and *D strings*.

A player will use the 1st and 3rd fingers.

**Major** and **minor thirds** are also comfortable to use.

Let’s check the **F** and **A-flat**.

The **F** note is on the *A string* and the **A-flat** is on the *E string*.

The 1st and 3rd fingers will be used.

I want to remind you that not all thirds are possible.

For example, **A** and **C**.

The **A** note will be played on the *G string*.

What about the **C** note?

The **C** is only available on the *G string*.

If the player touches on the **C** note, he loses the sound of the lower **A**.

Because two notes cannot be played on the same string at the same time.

So, this chord is not possible on a single violin.

If there is a need for this harmony, it can be obtained in the orchestra only by dividing the violins, that one set may play the high part, and the other the lower.

This division is indicated by the Italian word ***divisi.*** or with the short name - ***div.***

So, in conclusion.

All chords from the open **G3** to **C#4,** and then from **B6** up, the pitches are available on one string only.

And you should avoid writing double stops as they are evidently impossible.

So, we have explored all comfortable intervals which are shown in blue color.

The following intervals are playable but not as easy as the above.

**Perfect** and **augmented fourth**.

For example, the **B** and **E**. This is a perfect fourth.

The **B** will be played on the *G string* with the 2nd finger.

The **E** will be played on the *D string* with the 1st finger.

But, the extremely high range is not comfortable since the fingering at the top of the fingerboard is difficult because of the smallness of the intervals and the extended position of the hand.

Let’s check the **diminished, perfect,** and **augmented fifths.**

Any interval will be easy if at least one note is on the open (*G, D, A,* and *E*) string of the violin.

For example, the **D** and **A**. This is a perfect fifth.

Both the **D** and **A** are on the open strings and will be played without fingering.

The double stops that use one or more open strings are very easy to perform and may be asked of even very inexperienced players.

The combination an open and fingered strings are also very easy to play.

For example, the **D** and **E**.

The **D** will be played on the *A string* with the 2nd finger.

The **E** is on the open *E string* and will be played without fingering.

Of course, this is very comfortable.

But, one important thing to keep in mind is that open strings have a more distinctive sound than fingered strings.

They have greater vibrating potential since they are not under the controlling.

In a fast passage, the combination of open and stopped strings may not sound jarring, but in slow, expressive passages, one usually wants all the tones to have the same timbre, otherwise, the notes that are played on the open strings can stand out peculiarly.

The intervals of a **ninth** and a **tenth** are feasible, but it is much better not to write for the orchestra, unless the lower string is open, in which case there is no danger.

For example.

The lower note is on the open *A string*, while the top note is on the *E string*.

The **perfect first** or **unison** is possible if at least one of the strings is open.

If there is no open string, their execution becomes rather difficult.

The unison combinations of a stopped and an open *E, A,* or *D* are in common use for purposes of increased force.

They must always be written either with two notes or with two tails to a single note.

So, one of the **A** will be fingered on the *D string*, while the other **A** will be playedwith an open *A string*.

Let’s back to the fifth and talk about it.

As you observed, two open strings are very comfortable.

But what if the perfect fifth is played with the stopped strings?

For example, **D#** and **A#**.

The **D#** is on the *D string*, while the **A#** is on the *A string*.

But, this is not possible to play with two fingers as the **D#** is above the **A#**.

To do this, the player will touch one finger directly across the strings.

Playing the fingered fifth on the first half of the fingerboard is possible, as the strings are close together and there is little height between the strings and the fingerboard.

However, the fifth becomes more insecure as the strings are spaced further apart at the bridge than at the nut.

And the height of the strings gets bigger as they get closer to the bridge.

Any slightest sharpness or flatness, of either of the strings, precludes correct intonation.

This is why the fingered fifth should be used with great care.

The next interval is the **augmented fifth**.

The **E** will be played on the *A string* with the 2nd finger.

The **B#** will be played on the *E string* with the 3rd finger.

A **perfect octave** and **major second** are also possible to play.

For example.

The lower **F** is on the *A string*, while the high **F** is on the *E string*.

This chord will be played by the 1st and 4th fingers.

The next interval is the **B** and **C#**.

The **B** will be played on the *D string* with the 4th finger.

The **C#** will be played on the *A string* with the 1st finger.

What if a **minor second** is needed in the harmony?

This interval is risky as the fingers are more stretched.

Let’s check it on the example.

The **B** will be played on the *D string* with the 4th finger.

The **C** will be played on the *A string* with the 1st finger.

As you can see, the fingers are stretched. And it becomes more difficult at the end of the fingerboard.

That is why they are risky and should be avoided as much as possible.

So, to fast learning, use this graphic. It will help you to find playable chords.

If you want to get success in your scores, ask the performers.

Because they can help you mitigate issues to make your music well.

Never think that you have to know 100% of everything about the instruments.

Thanks for watching. Bye for now.