Lesson 4 - The Range And The Isomorphic Layout Of The Elise Hayden Duet Concertina

I'll get to the "isomorphic" bit later in the tutorial.

Let's take a look at this "All The Notes" chart first of all:

Chart on Page 1

Here are all the notes available on the Elise on the left side of the instrument. I have put the name and my code under each note. Notice how the steady climb in pitch is interrupted by the fact that you have to keep swapping rows. In this chart I have changed to the treble clef from the D onwards but this is by no means a hard and fast rule. It very much depends on the piece you are playing.

Here's the same thing for the right hand:

Chart on Page 2

Here's a chart which shows the actual notes on each row for the left hand:

Chart on Page 3

The notes climb by two semitones or a whole tone as you move along the rows with a "reset" at the start of the next row.

And the same thing for the right hand:

Chart on Page 4

If an instrument is said to be "fully chromatic" you are provided with every single note within the range of the instrument. To understand this better, imagine you are sitting at a piano keyboard and you played every note from left to right (including all the black notes) from the C below Middle C (C3) up to and including the A which is above the C which is an octave above Middle C (A5). If the Elise provided all these notes we would have a total of 34 different notes. It doesn't!

Taking into consideration the lowest note of the instrument *{which is the C below Middle C on the left hand side (R1B1) and the highest note which is the A above the C which is an octave above Middle C on the right hand side (R4B3)}* - let's see how many notes we are provided with and how many are missing on the Elise:
Chart on Page 5

On the left hand side there are three exclusive notes missing (the C#3 just above the C an octave below Middle C, the next D#(3) up and the next G#(3) up from there.

Then we get to the overlap - in other words, the notes we find on both sides of the instrument. Within these we don't have the first D#(4) up from Middle C and the G#(4) above that.

Chart on Page 6

On the right hand side there are the same two sharps missing as were missing on the left hand side i.e. the first D#(4) up from Middle C and the G#(4) above that.

In addition we also don't have the C#(4) just above Middle C (which we *do* have on the left hand side), the D#(5) above the C which is an octave above Middle C and the G#(5) above that.

So taking both hands into account, *{including the overlap of notes that exist on both sides of the instrument}*, out of a possible 34 notes we have only 27 - so there are 7 notes missing:

C#3 D#3 G#3 D#4 G#4 D#5 G#5

Here is a chart which shows all the possible notes between C3 and A5 and where they are available on the Elise.

Chart on Page 7

So to sum up, on the Elise there are no D#(Eb) and G# (Ab) notes which means playing in all keys is not possible.

The Troubadour Duet concertina (also from Concertina Connection) has G#4 D#5 and G#5 notes in the right hand. The A5 in the left hand has been replaced by an air button on this instrument.

Let’s deal with this word **isomorphic** now:

“**Isomorphic**” means that the intervals (or gaps between the notes) have the same

“shape” across the entire layout of buttons. It’s actually very clever and amazingly useful when forming chord shapes which we will do in a later lesson.

Let me explain:

Intervals are gaps in the pitch between two notes.

From one note up to the note which is a semitone higher is called a minor 2nd or a semitone. e.g. F + F#

We tend to avoid playing this interval as it makes a rather unpleasant clash! These notes can follow each other in a tune but should not be played simultaneously!

I have created a chart to help explain this - {follow the arrows!!}. Obviously some of the “shapes” are so stretched out that the sheer shortage of buttons will constrict the amount of available intervals, especially where the major sevenths are concerned.

I am using the right side of the instrument in all the following examples. If you are using the left side, read “upwards” every time I say “downwards”.

The major second interval (up two semitones or one tone {whole-tone} can be found along the rows of the instrument. Simply move downwards from one button to the next on the same row and you have a major second interval e.g. C to D/D to E. Play all the buttons downwards on any row and you have a part of a "whole tone scale".
Row 1 = C whole-tone scale (4 notes)
Row 2 = F whole-tone scale (5 notes)
Row 3 = Bb whole-tone scale (5 notes)
Row 4 = F whole-tone scale (3 notes)

Again, avoid playing this interval as the notes will clash. e.g. C + D. Once again, these notes can follow each other in a tune but should not be played simultaneously!

The minor third interval (up one tone and one semitone) can be found by going upwards diagonally to the next row and along two buttons in an upward movement
e.g. D to F/E to G.
This will be very important later on when we start to form minor chords.
This is obviously unavailable to notes on the upper ends of rows like the C on R1B1.

The major third interval (up two tones) can be found by going downwards along the row but missing one button out - so buttons 1 and 3,2 and 4 etc, e.g. C to E/D to F#.

Obviously you need at least three buttons in a row for this to work. This will be very important later on when we start to form major chords.

Fourth intervals can be found by going upwards diagonally in a straight line from one row to another. This is similar to the minor third intervals shape but not so stretched out. e.g. C to F/D to G.
This will be very important later on when we start to form sus4 chords like Csus4. This interval is also known as a perfect 4th.

Fifth intervals can be found by going downwards diagonally in a straight line from one row to another. This is exactly the same as the fourth interval shape but going the other way. e.g. C to G/D to A.
Fifth intervals are used in both major and minor chords as well as "5" chords which are sometimes known as "power" chords. This interval is also known as a perfect 5th.

Sixth intervals can be found by going downwards diagonally to the next row and along two buttons. This is exactly the same as the minor third interval shape but going the other way.e.g. C to A/D to B.
Sixth intervals are used in 6th chords like C6.

Flattened seventh intervals can be found by going upwards diagonally in a straight line across two rows *(miss one button!)*. e.g. C to Bb/D to C.

Flattened seventh intervals are used in 7th chords like C7 and D7.

Major seventh intervals can be found by by going downwards diagonally to the next row and then along three buttons
e.g. C to B/D to C#.
These sound a bit discordant on their own - try adding the major third to sweeten the sound a bit
e.g. C + E + B = a chord of C major 7th so this where the major seventh interval is used!

Octave intervals can be found by going straight across two rows e.g. F to F/C to C. Octaves are often used to double up the root note *(or tonic)* in major and minor chords as well as others.

Major Scale Shapes

Chart on Page 9

The major scales of C,D,F & G can all be played using the same shape i.e.

Finger 1 2 3 /1 2 3 4/ 2

Each time you change row, move up one button diagonally.

Summary

Learning and grasping this concept of how the notes are laid out on the Hayden Duet is key to understanding **chord** shapes which we will need in songs deeper into this course.

Two notes played together can be thought of as a chord but more widely, a chord is generally at least three simultaneous notes.

I will, of course, be teaching you lots of chords in later lessons although we have already touched on two of these in the Drunken Sailor song (D minor and C major).