

1. Why music is linear.

We begin with the original instrument, the voice. The voice can only express itself in a linear manner. The oldest instruments discovered thus far are flutes that date back 60,000 years. Flutes play single notes and therefore can only follow a line. Now let us go forward about 57,000 years, a rather rapid jump, to the 6th century BC. That was the time of the discovery of the Pythagorean scale, based on the precise mathematical relationship between musical intervals. Interestingly enough, the Pythagorean system was not specifically musical, but part of a philosophical and religious movement. Now for another improbable jump in time to the early church music and the first superposition of voices in the 10th century AD. Up till then church music consisted of Gregorian chant, which was monophonic, meaning music containing only one line. Now we fast forward another 5 centuries and arrive at Thomas Tallis, an English composer, who, in the 16th century, writes a 40 voice Motet, a work of extraordinary beauty and complexity, true to the rules of counterpoint as it had developed over the previous 5 centuries. When one contemplates the extraordinary process that took place over 2000 years, it is impossible not to be affected by human ingenuity, just as the scientific revolution of the last 300 years impresses us.

One must add that Tallis' work owes its beauty in part to his remarkable, almost demonic, skill in integrating the 40 voices. During the previous 5 centuries the rules of counterpoint had developed into a sophisticated system.

There is no point just repeating that this work is of supreme beauty without asking what are, perhaps, the elements that allow it to be beautiful.

Even if an analysis, or a deconstruction, of the work would never reveal all the reasons for its beauty, for at that point any one could then write an equally beautiful work based on the same criteria, we must try to understand what we mean by beauty.

There is little doubt that the rules of counterpoint developed as a means of limiting ugliness, whatever ugliness might have meant to composers of the centuries after the introduction of two voice polyphony. As soon as you superpose two voices you have all sorts of possibilities: the augmented 4ths, parallel 5ths and octaves, that were considered unpleasant.

The earliest examples of two voice writing show that the rules of counterpoint, that is to say, how one or more voices exist in relation to others, only developed after this experimentation. The first piece of polyphonic writing discovered so far, dating from the 10th century AD, contains consecutive 4ths and 2nds, but surprisingly, no 5ths. Nevertheless, the rule against parallel 5ths appeared only in 1300. As polyphonic music progressed in complexity, the linearity of the music is interfered with by the appearance of 5ths and octaves. These intervals are the most stable and the most likely to dominate what is heard. By the word 'dominate' I mean that

two parallel 5ths would undermine the horizontal in favour of the vertical. One would hear the 5th rather than the movement of the voices. One would find oneself hearing the intervals in favour of the voice lines. This begins me back to the linearity of music. Our ancestors did not question its primacy. If the 5th or the octave accentuated the vertical, then parallel 5ths and octaves should be eliminated.

Early ecclesiastical music was based on the natural origins of the intervals as discovered by Pythagoras during the 6th century BC. This natural order, reflected in the exact mathematical divisions of the intervals, is what gave us the hierarchy of intervals and the subsequent rules that govern counterpoint in the high middle ages. As the polyphony grew ever more complex, a system of rules was developed, based on an aesthetic evaluation of the sounds.

Eventually, during the second half of the 16th century, the well tempered scale was adopted. Its purpose was to allow for modulation, of which Bach took full advantage in his 48 preludes and fugues. Thus the modal forms were reduced to two, the major and the minor.

I should add that the modal forms or scales existed since ancient Greece, although they eventually allowed for some polyphony, or the superposition of voices, but much much later. They could not however allow for modulation, as only the arrival of the well-tempered scale permitted modulation to take place. All that remained after the introduction of the well-tempered scale were the major and minor modes.

The reason I have gone back in history is to emphasise the importance of linearity in our musical heritage.

We have, during the last 100 plus years, abandoned linear writing and therefore linear listening, preferring the crude and ugly over the refined and aesthetically pleasing. There are of course plenty of examples of composers who continued to use counterpoint during the 20th century, for instance Bartok, Stravinsky, Shostakovich and Prokofiev, to name but a few. But the vast majority of what is written now is blind to the beauties of voice-led music, preferring the heavy, undifferentiated harmony that comes from vertical hearing.

This brings me to the end of my first podcast, about the history of linearity in music.

The example of 2 voice polyphony was performed by the Hilliard Ensemble, and the Tallis Motet by the Tallis Scholars. The two movements of Jeremy Menuhin's Suite were played by the Menuhin Duo.