

# **NON-SERIAL CRITERIA IN THE PITCH ORGANIZATION OF WEBERN'S TWELVE-NOTE WORKS**

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## **A study with special reference to the Concerto Op.24**

The discovery of the different versions and transpositions of the row, with their pivot notes etc. is too often regarded as sufficient in analysing the pitch structure of a twelve-note work. In serial music, it is not common to hear talk of pitch criteria that are not serial; one rarely hears any talk of the recognisability of pitch structures or of their expressive content.

There is no doubt that twelve-note analysis is usually exhaustive in the sense that it takes account all notes without exception, while other criteria are usually more vague and only indicate general tendencies. This gives the impression that it is a more complete analysis. On the other hand, while the discovery of a system shows how the work was consciously constructed, certain non-systematic criteria reflect less conscious modes of thought that may well characterise the work more markedly for the listener.

To begin with, we must ask the question as to whether the series is supposed to be an element by which the ear orientates its perception and appreciation of a work of this kind.

Historically, the basic principles of the new twelve-note system merely respected and organised the techniques already in use in previous works by the same composers. An expressionist and progressively more succinct aesthetic called for a more concentrated music. Against a background of exaggeratedly chromatic tonality, this evolution was to produce a highly unstable musical language, without moments of relaxation, without tonal definition, without points of reference to orientate the listener. This resulted in the loss of attributable tonal functions. The inability to classify vertical groups of notes or harmonic fields as single entities led naturally to musical happenings being perceived in a more linear or contrapuntal way. The listener finds himself relating note to note rather than chord to chord: aural perception is more horizontal than vertical.

Paradoxically, though logically, pantonality was a language that constantly overflowed its own boundaries. But, in spite of this contradiction, we can distinguish certain clear tendencies that are characteristic of this exceptional musical language:

- Tension and concentration were created by constant contrasts that avoid points of rest or aural clarity.
- Greater expressiveness and concentration of the musical language led to the use of a high degree of chromaticism (...panchromaticism)
- The complexity of the music obliterates the identity of harmonic fields, causing our perception to become horizontal or note-to-note.

It is precisely these tendencies that the new twelve-note technique recognised and codified:

- It prohibited repetition, to create constant contrast.
- It conferred equal importance on all twelve semitones of the chromatic scale, to preserve the panchromatic character of the music.
- It organised the twelve notes in a horizontal sequence, making what had already become a perceptual criterion also a structural one.

In this way, we see how the principles that governed twelve-note technique were no more than a codification of the already existing tendencies of Pantonality. The twelve-note technique came into existence in order to guarantee consistency in an already existing musical language and in an attempt to define it in its own positive terms rather than terms of constant exception to the norms of a previous language.

Apart from the technical principles, however, the twelve-note technique also implies the existence of a specific series. We could argue that, if the technical principles guarantee linguistic consistency, then the series itself should secure the characterisation of the music. In practice, however, the myriad number of ways in which the series can be realised effectively eliminates its characterising function. At best, the series can act as a unifying agent, defining the general harmonic and melodic flavour of a particular work (e.g. Berg, Violin Concerto). It is the way the series is realised that characterises the music from moment to moment and creates the musical discourse.

It is fundamental to discover what aurally perceptible criteria define contrasting sections, moments of development, etc and it is especially interesting to observe what criteria characterise different realisations of the same twelve-note row. This sort of analysis not only records what the ear has already distinguished; but, by developing it along the same lines, the analysis can bring the listener to new levels of perception. Equally, this sort of analysis can open new understanding to the performer, allowing him to deepen his interpretative faculties.

Before studying specific examples, it must be stressed that this type of aural analysis is no substitute for serial analysis. We are only investigating some of the

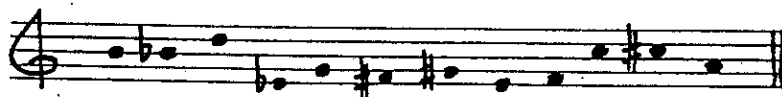
less conscious aspects of the composer's thought process. Without suggesting that it is useless or irrelevant to analyse the composer's conscious thought process (the compositorial process), we shall try to establish an analysis based on the listener's perception, which is generally the unconscious part of the composition and perhaps the part that most characterises the composer's musicality and style. Rather than to understand the intention that existed at the moment of composition, this analysis aims to observe the resultant phenomenon.

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More specifically, what is really the subject of this article is the way in which the composer distributes the notes that the twelve-note series has provided. The fact that there are many different criteria, that change from work to work and from composer to composer, and the fact that we are analysing the unconscious choices of the composer, mean that we can never hope to create a complete analysis. In this study, there is no attempt to produce an exhaustive analysis: rather we shall concentrate on certain observations regarding pitch organisation.

Webern wrote some fifteen works using the twelve-note technique, all of which present interesting aspects for analysis of this nature. Because of the reduced size of this study, however, we shall limit ourselves to examples from the Concerto Op.24. This work is especially suitable since it does not conform to any of the more rigid pre-existent formal schemes that are so common in Webern's later music (i.e. canon and variations), but rather follows a freer and more individual form. Furthermore, the regularity of the series and the consequent reduction of variety accentuate the importance of this analysis:

Ex.1



In accordance with normal twelve-note practice, the series defines the note (one of the twelve notes of the chromatic scale) that is to be used, but not the octave in which it is placed. However, every note creates characteristic intervals and melodic contours which would be fundamentally altered if it were to change octave. Twelve-note and pitch-class analysis, however, do not take the dimension of register into account and reduce different realisations to the same analytical phenomenon.

Let us give an example. With the first three notes alone of the series of Op.24 (B,Bb,D), various types of realisation can be produced:

Ex.2



Although each of these versions maintains the same notes of the chromatic scale, they present us with quite different contours and melodic intervals. In fact, the contours that result from the relative differences of pitch (high, medium, low) may be represented thus:

Ex.3



A large variety of intervals also results from the relationship between specific pitches:

Ex.4 *1,4; 1,8; 11,8; 11,4; 13,4; 11,20.*

The interval is classified by the number of semitones it spans. This terminology (as opposed to traditional tonal interval terminology) is used for certain very clear objective reasons:

- a) in a panchromatic world (implicit in twelve-note technique) all semitones are of equal importance;
- b) intervals have lost their tonal function; only the size of the interval is relevant. So the different terms that existed for intervals of the same size (e.g. Augmented 4<sup>th</sup> and Diminished 5<sup>th</sup>), that reflect different tonal functions merge into a single classification as a number (6).

N.B. It is the interval that interests us more than the notes themselves. The ear pays more attention to the relationship between notes than to the notes themselves. Music is a world of relativities: however, these notes have to be fixed in space for the relativities to be heard.

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The first bars of the Concerto Op.24, present an especially interesting phenomenon:

Ex.5

All the melodic cells have been realised to produce the same intervals (*13,4*). In bars 4-5, the piano plays the same cells in retrograde form and in a different order, but the same intervals are heard and the harmonic field is maintained.

More interesting still is the way in which the intervals of the cells gradually change: in bars 6-7, we hear twice each *13,4* (strings) and *4,11* (woodwind); in bars 7-8, we have a more complete change with *11,8* four times. There is a gradual change from *13,4* to *11,8*. Of course, the fact that *13* is the classical inversion of *11* and *4* the inversion of *8* is derived from the twelve-note technique behind the music.

Ex.6

Let us now compare bars 1-5 (as shown in Ex.5) with bars 63-67 (end of the movement, Ex.7). At the beginning, the composer distributed the notes of the row so as to characterise the music with intervals *13, 4*; at the end, he kept exactly the same rhythmic patterns and the same sequence of contours changing the character to intervals *11, 8*.

Ex.7

When the same rhythmic pattern returns in the middle of the movement (bars 45-47), the phrase is less complete and the characterisation, although basically *11, 8*, is less regular:

## Ex.8

This comparison allows us to conclude that the interval structure has a direct influence on the function of each respective passage in the movement as a whole: opening, transition, conclusion.

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The second movement shows the way in which the intervals used can affect the structure at various levels.

Firstly, let us look at the piano part. It is clearly based on constant dyads all of which form one of two intervals: *4* or *11*. We can even go so far as to separate a central section (bars 29-45) that only uses interval *11*, thus defining a clear tripartite A-B-A structure.

A study of the other instruments that together form a single melodic line with variety of timbre (Klangfarbenmelodie at its best), brings us to the same conclusion. Two sets of intervals are defined (*8, 11* and *4, 13*) whose contrasting characteristics are alternated: bars 1-11 (*8, 11*); bars 12-18 (*4, 13*); bars 18-23 (*8, 11*); bars 23-28 (*4, 13*). This subdivision corresponds in a certain sense to a repeated Sonata Form exposition. It is interesting how the intervals of the melodic line of the central section (bars 29-45) are freer and less systematic, suggesting the character of a development.

This development also sees the introduction of a new pattern, that always uses the same interval (*4*):

## Ex.9

The introduction of a new figure had been typical of Sonata Form development sections<sup>1</sup>. This material is then only used again in the coda (bar 64), having been absent from the recapitulation.

It is also interesting to observe the importance given to the contours of the melodies of this development section (divided by the pattern in Ex.9):

Ex.10



All phrases end with a falling figure of interval 1 or 2, which reflects their cadential character and clarifies the subdivisions of the section.

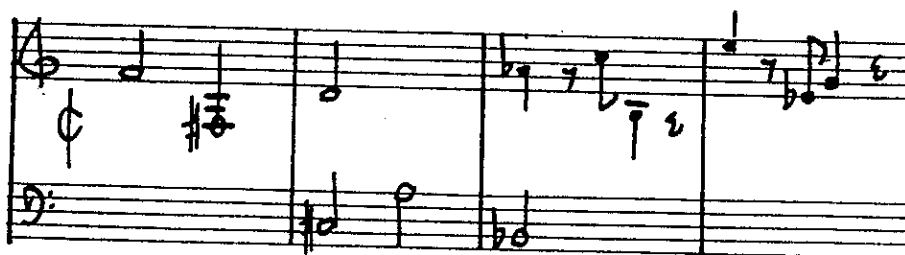
It is also worth noting the way in which the indications of *rit.* and *tempo* coincide with the interval structure and the melodic contours more frequently than they do with the twelve-note structure.

It would perhaps be an exaggeration to say that the second movement is in Sonata Form but there is no doubt that the Sonata principle has influenced structural thought here.

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After the observations made in relation to the first two movements, it is hardly necessary to draw attention to the contrasts that exist in the first bars of the third movement. There is a direct relationship between the intervals used and the rhythmic cell.

Ex.11



In the rest of the movement, it is not only the rhythm, texture and speed that define the different sections. The interval structure is also important:

bars 1-13 – predominant intervals are 8, 11 with some initial use of 4, 13

<sup>1</sup> Outstanding examples are Beethoven, Eroica Symphony or Mendelssohn, Italian Symphony.

- bars 14-27 – vertical intervals 4, 9, 13; horizontal intervals 8, 11  
 bars 28-41 – principally, horizontal interval 11 (piano) and vertical intervals 4, 9, 13 (instruments)  
 bars 41-55 – vertical intervals 3, 8, 11 (piano); various horizontal intervals.  
 bars 56-70 – always intervals 3, 8, 11 (horizontal and vertical convergence).

As in the other movements, the indications of expression coincide more frequently with the interval structure than with the twelve-note structure.

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These few observations made from the Concerto Op.24 show how characterisation and structure can depend on intervals. This analysis is based on the interval itself rather than interval class that reduces everything to a single octave.

Such interval analysis can be applied quite logically to many other works. As is the case with the Concerto Op.24, the twelve-note (and other) works of Webern reveal a logical interval structure that is frequently left unanalysed or put down vaguely to innate musicality. Structural qualities in the works of many other 20th century composers can also be uncovered by interval analysis where pitch class or interval class analysis is powerless. Particularly, certain works of Boulez – *Marteau sans Maître*, *Éclat*, *Rituel*, *Dérive* – seem to be bound by this logic, probably quite consciously.

Interval analysis of this kind can only be applied to works that do not give harmonic functions to any of their chords or notes. Functional harmony gives a collective identity to harmonic fields in which each note has its hierarchically defined function. Since tonality is based on a scale that reproduces its interval structure at the octave, these functions are reproducible at the octave, giving rise to octave equivalence. On the other hand, in an atonal context in which harmonic fields have no collective identity and where the actual interval is important, there can be no octave equivalence (e.g. intervals 6 and 18 have quite different meanings and characters). Thus we can deduce that interval analysis can only be used in music where all semitones are absolutely equal.

This musical language could be called “Isobematic”, that is, a music in which all steps are equal<sup>2</sup>. This new term is intended to classify the musical language in positive terms by dwelling on its inherent qualities. “Atonality” defines musical language negatively, in terms of what it is not. Isobematic music can be seen as one of various atonal languages.

The analysis of Isobematic music explores the fundamental characteristics of the language. In the field of pitch organisation, the equality of all semitones leads to the quantification of the size of the interval and, without denying the acoustic ties that exist between notes, to the abolition of octave equivalence.

<sup>2</sup> ἴσος = equal; βήμα = step.