

# **Diatonic Pitch Organisation in the 21<sup>st</sup> Century**

## **The 'Five-Flat' Key Signature**

On the subject of diatonic pitch organisation and the composer's evolving concept of  
Modal Sfumato ... <sup>1</sup>

An almost imperceptible modulation between colours and tones offering the potential for pseudo modulation within keys, an alternative route to using elements of traditional functioning harmony for modulation across keys and (in this instance) helping to navigate almost imperceptible semi-tone modulations and whole-tone pitch schemes.

This paper is a useful reference for any composer looking to extend their available palette for preconceiving and pre-composing pitch organisation or as a potential catalyst for analytical and musicological discourse:

The 21<sup>st</sup> century composer is no longer frightened of tonality and modality, nor intimidated by twelve-tone and pitch-class process; they are 'informed eclectics'.

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<sup>1</sup> Sfumato: Technique used by Leonardo Da Vinci for softening the transition between colours: Imperceptible transitions between colours and tones ...

## Diatonic Pitch Organisation in the 21<sup>st</sup> Century

### The 'Five-Flat' Key Signature

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On the subject of diatonic pitch organisation and the composer's evolving concept of Modal Sfumato ...

The 'five-flat' key signature (D<sup>b</sup> Major/B<sup>b</sup> minor) used as an abstract collection of notes and rotating modes rather than a fixed parent scale, is of particular interest to the composer at this time (especially when writing for the piano), due to the fact it contains the most perfect, perfect-fourth (in equal temperament): C/F, surrounded by the notes of G<sup>b</sup> Major Pentatonic: G<sup>b</sup> – A<sup>b</sup> – B<sup>b</sup> – D<sup>b</sup> – E<sup>b</sup> – G<sup>b</sup>.

These five notes account for all of the **black** keys on the piano and produce rotating modes of G<sup>b</sup> Major Pentatonic, with the mode depending upon the order in which the notes are voiced and which note the phrases resolve to (modal centre can of course be further enforced through vertical harmony and texture).

Incidentally, the 'five-flat' scale also accounts for the first seven steps of the cycle of fourths: C – F – B<sup>b</sup> – E<sup>b</sup> – A<sup>b</sup> – D<sup>b</sup> – G<sup>b</sup>.

The seven-note diatonic scale can be quite naturally extended to a more chromatic nine-note scale through utilising alternate versions of the relative minor (in this case the relative B<sup>b</sup> melodic and harmonic minor scales) to introduce the notes G and A natural: C – D<sup>b</sup> – E<sup>b</sup> – F – G<sup>b</sup> – G – A<sup>b</sup> – A – B<sup>b</sup> – C (Nonachord 9-7).

Alternatively, resolving to a C (C/F) within D<sup>b</sup> Major means one is in C Locrian mode. Resolving to G<sup>b</sup> (G<sup>b</sup> Major Pentatonic) within D<sup>b</sup> Major means one is in G<sup>b</sup> Lydian mode. The tonal centre (home-tone) is therefore blurred (modal sfumato) and the key signature has been organised into separate musical components that are no longer governed by the traditional rules of functioning harmony.

In addition, D<sup>b</sup> Major (or any Major scale) and its six modes can be referred to in 12-tone theory as Heptachord 7-35. The complement to 7-35 is the Pentachord 5-35, which is also recognised as the Major Pentatonic Scale, therefore, all Major scales in the diatonic system subsume a direct transposition of its own complement: The actual pitch complement to the D<sup>b</sup> Major scale is G Major Pentatonic, which offers the potential for an almost imperceptible semi-tone modulation from G<sup>b</sup> to G natural (modal sfumato).

## **Visual Aid of the Piano Keys:**

This is (of course) transposable through all twelve keys, but the black and white keys of the piano offer a valuable visual aid whilst working with the 'five-flat' key signature. This same visual aid can also be used to help navigate alternate semi-tone modulations and perhaps even shape overarching whole-tone pitch schemes:

## **The 'Five-Sharp' Key Signature:**

The 'five-sharp' key signature (B Major/G<sup>#</sup> minor) contains the two 'white' keys: B/E surrounded by the 'black' notes of F<sup>#</sup> Major Pentatonic: F<sup>#</sup> – G<sup>#</sup> – A<sup>#</sup> – C<sup>#</sup> – D<sup>#</sup> (cycle of fifths: E – B – F<sup>#</sup> – C<sup>#</sup> – G<sup>#</sup> – D<sup>#</sup> – A<sup>#</sup>). The key has clearly modulated a whole tone from C<sup>#</sup>/D<sup>b</sup> Major to B Major, but the Major Pentatonic spelling remains the same (in enharmonic equivalents). However, all of the internal modal relationships have changed.

This can be seen as another example of the composer's evolving concept of Modal Sfumato: An almost imperceptible modulation between colours and tones, offering the potential for pseudo modulation within keys (modal modulation), an alternative route to using elements of traditional functioning harmony for modulation across keys and (in this instance) helping to navigate almost imperceptible semi-tone modulations and whole-tone pitch schemes.

## **A further footnote of interest (perhaps) ...**

The composer has also used the visual separation of pitch and piano key colour to shape modal and diatonic clusters (see *Mystics* duo for two pianos). If one plays a cluster of all the black keys, one is essentially creating a modal cluster, or more accurately a Pentacluster, because (no matter how complex) the cluster will only ever contain the five notes of the G<sup>b</sup>/F<sup>#</sup> Major Pentatonic Scale. If one plays a cluster of all the white piano keys, one is essentially creating a seven-note diatonic cluster (C Major).

This can create a clear dialogue between the two pitch-timbres, which can be combined to increase the levels of dissonance and tension and engage with the total chromatic or dissected further to work with the five-flat or five-sharp scales and reduce the levels of dissonance and tension.

The five-flat key signature spells the first seven steps of the cycle of fourths and in doing so offers the composer another avenue for pitch development and an alternative route for navigating to and from the total chromatic within these connected processes. The cycle of fourths could be described as a linear equidistant 'all-interval' 12-tone consonance scale.

Dr Ian Percy (2019)