

# *What is Referential ('Motivic') Tonality, and How Does It Differ from Functional Tonality ?*

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Many of my compositions of recent years are characterised by a particular treatment of melodic and harmonic materials, and a particular way of linking these materials to rhythmic, textural and other factors, for which I have proposed the term 'post-tonal tonality'. Works exemplifying this idea include my *Twelve Transcendental Concert Studies on Themes from the Australian Poets* for piano solo, my *Octet with Voices* for string quartet and four women's voices, and my song-cycle *O Venezia*, for four women's voices and harp. All of these compositions are in some broad sense tonal compositions, but the tonality which they exemplify is of a particular kind: quite different from that form of tonality exemplified by what we often call the 'common practice' tradition ('from Bach to Brahms'), but also quite different from the various forms of tonality encountered in traditional and popular musics of various cultures of the present and past.

Since the term 'post-tonal tonality' seems to me to be a charismatic description of (in particular) the harmonic practice of many composers in recent decades, I expected to find extensive usage of it in the musicological literature, so recently I went searching for such examples. To my great surprise, a trawl through the online repository of musicological journals held in the database JSTOR reveals only a single use of this phrase in the whole of the recent musicological literature, as far as I have been able to ascertain. It is used by Arnold Whittall in an article entitled 'Tonality in Britten's Song Cycles with Piano' (cf Whittall 1971).

However, Whittall's article describes forms of tonality – exemplified by the music of Benjamin Britten – which persisted through the post-war period despite the hegemony of serialism at that time, and thus could perhaps be considered to be the continuation of an older tradition during the time of the rise of a new one. I take the phrase more literally, to mean forms of tonality which emerged more recently, in the aftermath of (perhaps because of) atonal hegemony, and which I would therefore consider to exemplify the rise of a new tradition. Examples of 'post-tonal tonality' in this sense might include Minimalism, the so-called 'New Romanticism' and 'Appropriationism' (the use of collage and other devices for creating new music by 'cutting, pasting and re-assembling' elements from musics of the past). The music of Terry Riley, George Rochberg and Alfred Schnittke might be considered as examples of this new practice.

Nevertheless, Whittall identifies, in several Britten song-cycles, traits common to both interpretations, eg Mahlerian 'progressive tonality': by which I mean to describe works in which the tonality moves, over the course of a work, via a tonal trajectory (or a series of interlocking tonal trajectories), from a given starting-point to a different final goal. Examples of this procedure include five of Mahler's nine symphonies: the Fourth (which begins in G major and ends in E major), the Fifth (which begins in C# minor and ends in D major), the Seventh (which begins in B minor and ends in C major) and the Ninth (which begins in D major and ends in D<sub>b</sub> major). Mahler applied the principle of tonal progression to both sequences of movements (as in the

Graham Hair: *What is Referential ('Motivic') Tonality,  
and How Does It Differ from Functional Tonality ?*

symphonies) and to tonal trajectories *within* movements. His song cycle *Lieder eines fahrenden Gesellen* is an example of the latter. Each of the songs begins in one key and ends in another: D minor to G minor, D major to F# major, D minor to E $\flat$  minor and E minor to F minor, respectively. The term is not usually applied, however, to shifts from minor to major or vice-versa where the key-note remains unchanged (as for example, in Beethoven's Fifth Symphony, which begins in C minor and ends in C major).

These sorts of tonal procedures are clearly continuations of an older, 'pre-atonal' compositional tradition, albeit it one that came into being towards the end of the period of the hegemony of that tradition in the late nineteenth century. Schoenberg's concepts of *schwebende* (fluctuating) and *aufgehobene* (suspended) tonality, bring us even closer to the 'atonal and serial era' just before and after the First World War. But, I would argue, we should expect a truly 'post-atonal tonality' to carry within itself signs of the compositional procedures associated with the atonal and serial era, and perhaps to give evidence of having drawn upon, modified or developed something of such procedures in its 'compositional genes' (so to speak). Otherwise, we might do better to describe such approaches as 'revivalism': reactionary throwbacks to the practices of former times.

In order to show something of how a 'post-atonal tonality' with such characteristics might be developed, I would like to refer to some compositional procedures located in a few particular well-known atonal and twelve-tone works, and move on to show some examples from my *Twelve Transcendental Concert Studies on Themes from the Australian Poets* and certain other of my works which indeed carry within their physiognomy evidence of precisely those atonal and serial procedures, and then show how these procedures have been modified to co-exist with, indeed to create, the sense of 'post-atonal tonality' which I have in mind.

I want first of all to refer to the source and fountain-head of atonal and serial practice, Arnold Schoenberg. Examples 1 and 2 show the theme from one of Schoenberg's most celebrated compositions, the *Variations for Orchestra*, in two distinctly different versions. Example 1 is my 'short score' version of the theme as it actually appears in the edition published by Universal Edition.

Example 1: Arnold Schoenberg: Theme from *Variations for Orchestra Op 31*  
in the composer's actual (twelve-tone) harmonisation

This theme appears a half-minute or so into the work, and is preceded by an introduction, so that in context it has an 'epiphanic' character: something revealed and emphasised, with important implications for the

Graham Hair: *What is Referential ('Motivic') Tonality,  
and How Does It Differ from Functional Tonality ?*

character of the piece and its compositional processes. The theme is, of course, a twelve-tone one, and the first phrase is built from all 12 pitchclasses. The many analyses of this work which have appeared over the past 70 years, going back at least as far as Leibowitz's (cf Leibowitz 1949, 1981), and which discuss the twelve-tone structure, usually give this version of the series as the work's 'basic' one. The theme consists of three sub-phrase elements: of 5, 4 and 3 notes respectively. We could call these 'motivic' elements. The aspect of this excerpt which is relevant to our present discussion is that the accompaniment is derived not only from versions of the series, as one might expect in a twelve-tone composition, but also from the theme's 'triple-motivic' arrangement of elements in its initial phrase, ie the harmony too consists of a 5-note group, a 4-note group and a 3-note group: in terms of pitchclass content, inversions of the theme's three 'motivic' elements. Thus the harmony too is 'motivic', not just the theme. I use the more general term 'referential' harmony to describe an approach to harmony, whereby harmonic materials and procedures are defined and deployed in a particular way specifically for an individual work, rather than for a repertoire, a general practice or a culture. The 'motivic' harmony of Schoenberg's theme is a particular example. The term 'contextual' harmony is used by some American writers, such as Milton Babbitt for such a 'referential' approach.

Example 2 is quite different, although it too consists of a harmonisation of the theme from Schoenberg's *Variations for Orchestra*. This version is also by Schoenberg, though it never appeared in the final score. It was used by Schoenberg as a musical example in the course of a broadcast talk about his *Variations* on German radio in 1931. In the course of the talk he indicated that he *could* have chosen to harmonise his theme in this way, but decided not to do so.

This harmonisation is obviously a tonal one, though the treatment of tonality is rather 'advanced', having much in common with the *schwebende* (fluctuating) tonality of the tonal compositions which Schoenberg wrote in the years immediately preceding his adoption of atonality in the early years of the twentieth century. Particularly noticeable is Schoenberg's use of fluctuation between tonalities a semitone apart – a favourite 'Schoenbergian' device: in this case fluctuation between the tonalities of F major and F# minor. Nevertheless the harmony can be considered to be functional in a (relatively) traditional way. A sketchy account of this process might go as follows: the dominant chord on C (bars 1 and 3), juxtaposed with its upper and lower chromatic neighbour-chords on D $\flat$  and C $\flat$  (bars 2 and 4) resolves to F major in bar 5. The seventh-chord on D (bar 5) then resolves ('augmented-sixth' fashion) outwards onto the F# minor triad (bar 7), following which the harmony returns to F major, though the movement of parts continues over the D $\flat$  > C > F progression in the bass, which proceeds to the dominant (bar 12) via the stepwise bass-progression D $\sharp$  > D $\flat$  > C (bars 10-12).

My concept of a 'post-atonal tonality' calls for a synthesis of the approaches outlined in these examples: a sense of progressive and fluctuating tonality, combined with a referential approach to harmony. Let me begin on the specifics of this approach by comparing Example 1 with Example 3: a much later, and even more radical, example of self-similarity, from Milton Babbitt's *Woodwind Quartet*. The work from which it comes is a twelve-tone composition, composed, like all of Babbitt's compositions, with a thorough-going compositional logic which relates all the facets of the quartet to a single basic underlying 'idea'. I have divided the passage into four chunks, as indicated by the wavy lines drawn across the score. Each chunk presents an 'aggregate', of course, but setting aside for a moment consideration of the pitchclasses, consider purely the *shapes* which are presented in each chunk.

Graham Hair: *What is Referential ('Motivic') Tonality, and How Does It Differ from Functional Tonality ?*

♩ = MM 72

*f*

*mp*

*p*

Example 2: Arnold Schoenberg: Theme from *Variations for Orchestra Op 31* in the composer's hypothetical tonal harmonisation

Graham Hair: *What is Referential ('Motivic') Tonality, and How Does It Differ from Functional Tonality ?*

There are four shapes in fact. To summarise what happens in schematic form:

flute shape = rise > fall; oboe shape = fall > fall; clarinet shape = rise > rise; bassoon shape = fall > rise.

In the second, third and fourth chunks these same four shapes are combined in different permutations:

(ii) flute shape = fall > rise; oboe shape = rise > rise; clarinet shape = fall > fall; bassoon shape = rise > fall

(iii) flute shape = fall > fall; oboe shape = rise > fall; clarinet shape = fall > rise; bassoon shape = rise > rise

(iv) flute shape = rise > rise; oboe shape = fall > rise; clarinet shape = rise > fall; bassoon shape = fall > fall

It will be clear from this account that each instrument outlines all four components of the shape-combination in some permutation or other.

The image shows a musical score for a woodwind quartet, specifically bars 4 through 10 of Milton Babbitt's *Woodwind Quartet*. The score is arranged in four staves, corresponding to the flute, oboe, clarinet, and bassoon. The time signature is 4/4. The music is characterized by complex rhythmic patterns and melodic lines that illustrate the 'shape-combination' discussed in the text. The score is divided into two systems, with bar numbers 4, 5, 6, 7, 8, 9, and 10 indicated. The notation includes various rhythmic values, accidentals, and articulation marks, demonstrating the intricate interplay of the four instruments.

Example 3: Milton Babbitt: *Woodwind Quartet* (bars 4–10)

There are many forms of postmodernism in which tonality has played a part, but to consider them as 'post-tonal tonality' should surely require that they carry within themselves some sense of having engaged with atonality and produced a form of tonality which bears the marks of that engagement in its approach. Otherwise, we might do better to describe such approaches as 'revivalism': reactionary throwbacks to the practices of former times.

So let me now refer to the Babbitt *Woodwind Quartet* in this connection. Although I have read its rhetorical approach in terms of mono-motivicism and compared it to the mono-motivicity of the technique of étude

Graham Hair: *What is Referential ('Motivic') Tonality,  
and How Does It Differ from Functional Tonality ?*

composition, the form which mono-motivicism takes in this work has some very particular characteristics. For a start the four shape-components which appear in Example 3 exhaust the repertoire of shapes which are available to a three-note pattern, as do each of the four 'chunks' which are marked out by the wavy lines I have drawn in on the music. Thus one may reasonably speak of 'completing the set' of such patterns four times. Moreover each of the four lines of counterpoint in Example 3 do likewise. So the set of possible shapes is completed both vertically and horizontally.

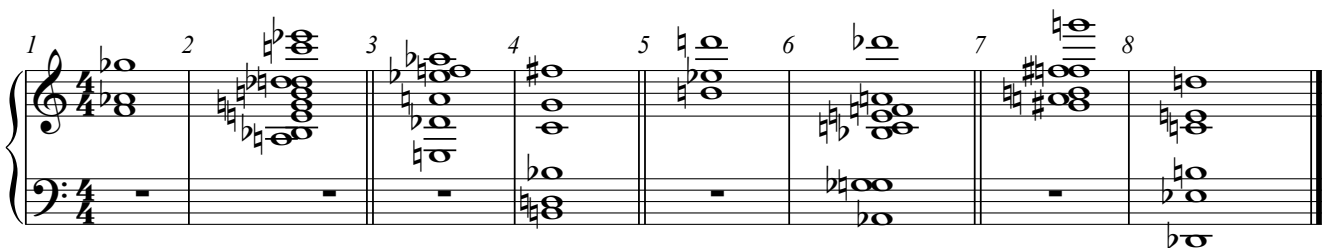
To this point I have deliberately mentioned the twelve-tone aspects of this passage only in passing, but I will mention them briefly now. Each of the four chunks, and each of the four lines of counterpoint articulate the complete set of twelve pitch-classes, ie they 'complete the aggregate'. Actually there is an additional form of set-completion as well: each of the four lines completes the four varieties of a particular trichord (S, I, R and IR) to form a 'derived set'. To summarise in tabular form, noting the intervalclasses of the four lines in trichordal groups, and bracketing the inter-trichord intervalclasses:

- (i) flute = 11-4 (3) 4-11 (6) 1-9 (11) 8-1
- (ii) oboe = 11-9 (11) 9-11 (6) 1-3 (3) 3-1
- (iii) clarinet = 3-10 (9) 10-3 (6) 9-2 (3) 2-9
- (iv) bassoon = 2-1 (1) 1-2 (6) 10-11 (11) 11-10

It's not my purpose to consider here the twelve-tone structure of this passage in detail, let alone the way in which that notion of the 'thorough-going compositional logic which relates all the facets of the quartet to a single basic underlying 'idea'' encompasses the structure of this passage in the context of the whole of the quartet. Suffice it to note that the four aggregates which are presented in this passage can be further subdivided into what I will call 'sub-aggregate' units. To summarise what happens in schematic form:

- (i) Aggregate 1 = 3 notes (clarinet) followed by 9 notes (flute + oboe + bassoon)
- (ii) Aggregate 2 = 6 notes (flute + clarinet) followed by 6 notes (oboe + bassoon)
- (iii) Aggregate 3 = 3 notes (flute) followed by 9 notes (oboe + clarinet + bassoon)
- (iv) Aggregate 4 = 6 notes (flute + oboe) followed by 6 notes (clarinet + bassoon)

Example 4 summarises the characteristics of this passage as *harmonic* collections in terms of these groups of 3, 6 and 9 notes:



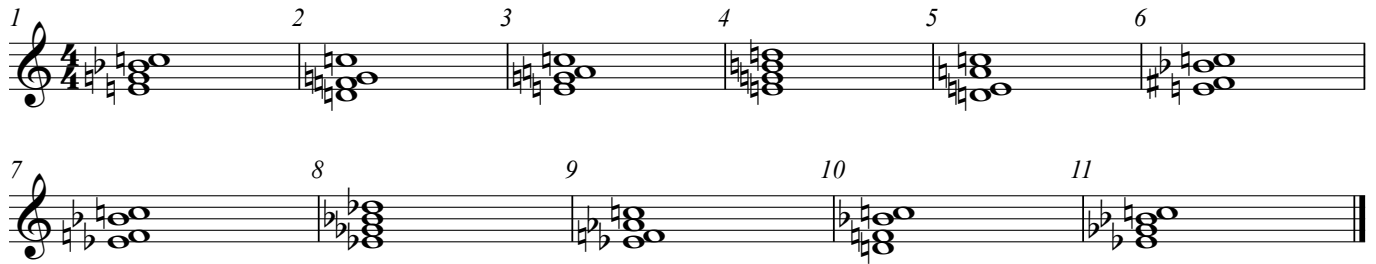
Example 4: Babbitt, *Woodwind Quartet*, bars 4-10, *harmonic* structures

Note that the twelve pitchclasses of each aggregate are stated *once and once only*, and (concomitantly) the sub-aggregates divide the aggregate into two *discrete* parts, whether of 3+9 notes or 6+6.

I turn now to the opening of *O Venezia*, which is also structured in terms of aggregates and sub-aggregates.

Graham Hair: *What is Referential ('Motivic') Tonality, and How Does It Differ from Functional Tonality?*

However, *O Venezia* is a tonal composition, and looking at the (very different) aggregate and sub-aggregate structures shows how this comes about. Example 5 shows the sub-aggregate structure of the first aggregate:



Example 5: *O Venezia*, bars 4-10, harmonic structures

The keywords describing the way in which the aggregate and sub-aggregate structures are treated in *O Venezia* composition are *variability* and *open-endedness*. Whereas each aggregate in the Babbitt quartet contains precisely two sub-aggregates, the first aggregate of *O Venezia* contains eleven. And over the course of the whole composition, the number of sub-aggregates per aggregate in *O Venezia* varies considerably. In order to see how this structure drives the music, consider Example 6, the opening passage of the first movement of *O Venezia* itself. The eleven sub-aggregates of Ex 5 are distributed thus:

Agg #	1	2	3	4	5	6	7	8	9	10	11
Bar ref	1-3	4-5	6	7	8	9	10	11	12-13	14	15-16

It is obvious from this table that the sub-aggregates do not divide the aggregate into discrete parts; they share common tones. Thus what results is what may be designated as a *weighted* aggregate, in which some tones appear more than others. The weighting is indicated by the following table, which gives the number of times each pitchclass appears in a sub-aggregate of the opening aggregate of *O Venezia*.

C	D <sub>b</sub>	D	E <sub>b</sub>	E	F	F#	G	A <sub>b</sub>	A	B <sub>b</sub>	B
9	1	4	4	5	4	3	4	1	2	6	1

The weightings indicate the dominance of C, with secondary stresses on E and B<sub>b</sub>: indicating, perhaps, something of a 'mixolydian weighting' within the chromatic collection of pitchclasses. Moreover, it will be noted that, unlike Example 4, where the *actual pitches* of each sub-aggregate unit in the Babbitt passage are indicated, the sub-aggregates of Example 5 indicate only the *pitchclasses* in each sub-aggregate of the opening passage of *O Venezia*. This is because, although each *pitchclass* occurs only once within each sub-aggregate 'chunk', it may be represented by pitches in several different octave positions.

I now return to the question of motivic shapes, with which this discussion started. Whereas each aggregate of the Babbitt presents each of the four component units of the 'motivic idea' precisely once, the motivic shapes which can be discerned in the 16 bars of this passage from *O Venezia* comprise what might be described (by analogy with the idea of the aforementioned *weighted aggregate* of pitchclasses) a 'weighted' motivic profile. Consider the 7 shapes which occur in these 16 bars and their placement, again in tabular form. (In the following listing D=down, U=up and V = voice; the numbers in brackets are bar numbers).

Graham Hair: *What is Referential ('Motivic') Tonality,  
and How Does It Differ from Functional Tonality ?*

(1A) DUDU = V1(2), V3(5)

(1B) UDUD (inversion of shape 1A) = V2(3, 4)

(2A) UD = V2(1), V3(1), V4(1), V4(3), V2(5), V1(8), V2(8), V3(14)

(2B) DU (inversion of shape 2A) = V1(3), V4(4), V1(8), V2(8), V3(8), V4(8), V4(11), V2(13),

(3A) D = V1(4), V4(8), V4(12), V3(3), V1(14), V4(14), V1(16)

(3B) U (inversion of shape 3A) = V1(7), V2(7), V2(12), V1(13), V4(13), V1(15), V2(15), V3(15), V4(15),  
V2(16)

(4A) DUD = V4(7)

From this it can be seen that there is a certain progression of shapes over the course of the passage: from shapes 1 and 2 at the beginning towards shape 3 at the end.

Graham Hair: *What is Referential ('Motivic') Tonality, and How Does It Differ from Functional Tonality?*

1

O Venezia

Introduction ("To the City of Venice")

To the City of Venice

Allegro (♩ = MM c 96 / = ♩ c 64)

Musical score for bars 1-4 of 'O Venezia'. The score is in 3/4 time and features four vocal parts (Soprano 1, Soprano 2, Mezzo-soprano 1, Mezzo-soprano 2) and a Harp. The lyrics are: Soprano 1: Ur - - - - -; Soprano 2: Ur - bi - - - - -; Mezzo-soprano 1: Ur - bi - - - - -; Mezzo-soprano 2: Ur - bi - - - - -; Harp: (Instrumental accompaniment). The harp part features a rhythmic pattern of eighth and sixteenth notes.

Musical score for bars 5-7 of 'O Venezia'. The score continues with the four vocal parts and the Harp. The lyrics are: Soprano 1: - bi - - - - -; Soprano 2: - - - - - bi - - - - -; Mezzo-soprano 1: Ur - - - - - bi - - - - - Ve - ne - ti - - - - - ae - - - - -; Mezzo-soprano 2: - bi - - - - - Ve - ne - - - - - ti - - - - -; Harp: (Instrumental accompaniment). The harp part features a rhythmic pattern of eighth and sixteenth notes, with triplets in bars 6 and 7.

*O Venezia*

Example 6 (beginning): *O Venezia* (first movement, bars 1-7)

Graham Hair: *What is Referential ('Motivic') Tonality, and How Does It Differ from Functional Tonality ?*

2

8 9 10

Soprano 1  
- ne - - ti - ae Ve - ne - - ti - ae

Soprano 2  
- ne - - ti - ae Ve - ne - - ti - ae

Mezzo-soprano 1  
Ve - - ne - - ti - ae

Mezzo-soprano 2  
ae - - - Ve - - ne - - ti - ae

Harp

Detailed description: This musical score covers bars 8, 9, and 10. It features four vocal parts (Soprano 1, Soprano 2, Mezzo-soprano 1, Mezzo-soprano 2) and a Harp. The vocal lines are in 3/4 time. Soprano 1 and Soprano 2 sing the same melody: 'ne - - ti - ae Ve - ne - - ti - ae'. Mezzo-soprano 1 enters in bar 9 with 'Ve - - ne - - ti - ae'. Mezzo-soprano 2 enters in bar 8 with 'ae - - - Ve - - ne - - ti - ae'. The Harp accompaniment consists of a rhythmic pattern of eighth notes in the right hand and chords in the left hand.

**in praise of its Patron Saint,**

11 12 13 14

Soprano 1  
in\_ lau - de\_

Soprano 2  
In\_ lau - - - - de

Mezzo-soprano 1  
in\_ lau - de\_ San - - - - cti

Mezzo-soprano 2  
In lau - de Sanc - ti In lau - de In\_ lau - -

Harp

Detailed description: This musical score covers bars 11, 12, 13, and 14. The time signature changes to 3/2. The vocal parts continue with the text 'in praise of its Patron Saint'. Soprano 1 sings 'in\_ lau - de\_'. Soprano 2 sings 'In\_ lau - - - - de'. Mezzo-soprano 1 sings 'in\_ lau - de\_ San - - - - cti'. Mezzo-soprano 2 sings 'In lau - de Sanc - ti In lau - de In\_ lau - -'. The Harp accompaniment features a more complex rhythmic pattern with sixteenth notes and chords.

*O Venezia*

Example 6 (continuation): *O Venezia* (first movement, bars 8–14)

Graham Hair: *What is Referential ('Motivic') Tonality, and How Does It Differ from Functional Tonality ?*

15 16 17 3

Soprano 1  
in lau - de

Soprano 2  
in lau - de San - cti

Mezzo-soprano 1  
su - i Sanc - cti - su - i

Mezzo-soprano 2  
de

Harp

18 19 20 21

Soprano 1  
in lau - de San - cti - su - i Pre - si - dis

Soprano 2  
su - i in lau - de

Mezzo-soprano 1  
Pre - si - dis su - i Pre - si - dis Be -

Mezzo-soprano 2  
in lau - de

Harp

*O Venezia*

Example 6 (concluded): *O Venezia* (first movement, bars 15–21)

Graham Hair: *What is Referential ('Motivic') Tonality,  
and How Does It Differ from Functional Tonality ?*

To these approaches, I add an approach which is 'post-atonal' more literally still: derived from the serial concept of 'parametricisation' (Ferneyhough 1995: 22–26, though the term, and the practice it describes, has roots a generation older). The way this goes is something like the following.....

The controversy in the 1960s (Lowinsky v Mitchell) over the musical language of Lassus's *Prophetiae* turned on very different interpretations of the co-ordination of the different components of tonal language (chromatic triad-sequences, bass movement, voice-leading, etc). This controversy suggests to me that one possible approach to the tonal idiom of PP could be that the individual elements of tonality and atonality (diatonicism, chromaticism, centricity, acentricity, consonance, dissonance, metricity, ametricity, continuity and discontinuity, etc) could be deliberately 'unpicked', re-assembled and made to overlap and interpenetrate by means of 'non-synchronous structural trajectories', eg a 'centrism/acentrism trajectory' which moves sometimes in synchrony (sometimes not) with the diatonic/chromatic trajectory, which moves sometimes in synchrony (sometimes not) with the harmonic consonance/dissonance trajectory, the continuity/discontinuity trajectory, the metrical/counter-metrical trajectory, and so on.

Through these means (inspired by the otherwise unlikely conjunction of Britten, Ferneyhough and Lassus), I propose 'reconciliation and interpenetration' of tonality and atonality as the first engine of an inclusive musical language. My *Into the Shores of Light* (BBC SSO 2001, Radio 3 2003, recorded for ERM Records by the Czech Radio Orchestra 2007) implemented such techniques in a prototypical way, which I now propose to develop.

To illuminate and reify this topical perspective on 'post-atonal tonality', consider the historical perspective. In 1982, Jacob Druckman thought that '.....not being a serialist on the East Coast of the United States in the sixties was like not being a Catholic in Rome in the thirteenth century.' (Gagne-Caras 1982:156). Although Straus (1998) has since produced statistics proving Druckman's implication (that serialism exerted intellectual tyranny) comprehensively wrong, Druckman's attitude was shared widely enough to make Rochberg's 'Concord' Quartets, juxtaposing tonal and atonal movements, seem 'transgressive' at the time.

Rochberg's works have entered the repertoire of several major quartets, so perhaps Holloway's (2001) castigations ('ersatz Mahler and late-Beethoven', 'more than a bit jejeune', 'incomplete mastery of the old rules' and 'feeble insipidity') are exaggerated. However, Frederic Rzewski's approach points in more fruitful directions: in (eg) *American Ballads*, juxtaposition of popular tunes with atonal passages based on short motifs extracted from them and subjected to quasi-Webernian rhythmic and registral procedures (eg exchange of on-beat and off-beat placement and manipulation of mensural proportions: 3:2, 3:4, 5:4 etc), ubiquitous registral dispersion and textural discontinuity (inter alia) produce a more convincing totality.

Nevertheless, there still seems plenty of room for an approach which reconciles tonal and atonal forces in a more thoroughly integrated way. I have in mind 'non-synchronous pitch trajectories' analogous to the 'non-synchronous rhythmic trajectories' captured in Roeder's analysis (1994) of Schoenberg's *Mondestrucken*, which demonstrates how Schoenberg's highly variegated rhythmic surface is nevertheless produced by periodic interacting pulse-streams.

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and How Does It Differ from Functional Tonality ?*

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