The Unity of Opposites: Jonathan Harvey's *Advaya* for cello and electronics

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Abstract

In his book *In Quest of Spirit*, Harvey describes the impact of his philosophical beliefs, in particular the Buddhist idea of the unity of opposites, on his musical thought. This paper explores links between Harvey's philosophical ideas and his compositional techniques for combining traditional and electronic instruments in *Advaya* for cello and electronics. The idea of the unity of opposites is explicit in the title of the work: *advaya* is a first-century Buddhist word that means not two. This paper examines the various musical manifestations of the idea of the unity of opposites in *Advaya* through the analysis of musical materials (including timbral elements, pitch-class collections, and motivic materials) and form. As a result of the nature and characteristics of the musical materials and their organization within the formal structure, the borderline between the spectral and melodic qualities of music, between its vertical and horizontal dimensions, is blurred, suggesting a musical shape that is both yet neither, simultaneously in motion and static. The idea of the unity of opposites is manifested in the very conceptual foundation of the piece: the temporal unfolding of the entire work derives from a single vertical conception, the atemporal spectrum of a single musical note.

Introduction

The music of Jonathan Harvey has frequently been described as spiritual and spectral (Whittall, 1999, 2013; Harvey, 1999). Harvey believed in Buddhism and he often mentioned Buddhist ideas in connection with his music. In his book *In Quest of Spirit* (1999), he discusses relationships between his spiritual beliefs and his music, emphasizing the Buddhist idea of the unity of opposites. He explains that, according to this Buddhist conception, nothing can exist by itself, but only in the context of its opposite or dual complement, and highlights the ability of music to unify contrasts. He draws connections between the idea of united contrasts and musical forms and idioms from different periods, and recognizes such idea as the inspiration for many of his compositions. He states that "complex unity is a paradigm of Western music" and that it is something still present in post-tonal music (Harvey, 1999, p. 26).

Spectral music emphasizes the sonographic and acoustic properties of sound as it uses them as the basis for the compositional techniques (Anderson, 2013). Within the realm of electronic instruments, spectral music offers a totally new sonic experience for the listener. Composed in 1994, *Advaya* is exemplary in terms of its spiritual richness and spectral techniques of composition. This paper explores links between Harvey's philosophical ideas and his

compositional techniques, proposing a theoretical interpretation of the piece guided by the idea of the unity of opposites.

Advaya's United Opposites: Analytical Insights

In *Advaya*, the idea of united opposites is most explicitly and immediately manifested at an extra-musical level, in the title of the piece. As Harvey points out in the program notes, the word *advaya* is a first-century Buddhist word that means not two, in reference to the transcendence of duality (Harvey, 2001). Beyond this evident literary reference, the notion of unity of contrasts appears to be present at a structural level, in the musical materials and form.

Musical Materials

In terms of the musical materials, the dual Buddhist conception is manifested, at an elementary level, in the timbral features of the work as well as the raw musical elements, and, at a more abstract level, in the pitch collections as well as in the motivic materials.

The instrumentation of the work, cello and electronics, already poses an opposition. The use of conventional and unconventional sounds suggests an additional timbral contrast. The conventional sounds are those traditionally produced by the cello, whereas the unconventional timbres result from the electronic process and the use of extended techniques. Yet another conflict results from the juxtaposition of harmonic and inharmonic sounds. For example, traditional cello musical notes are opposed to a sound that evokes a creaky door opening near the beginning of the piece (m. 21[1]). A fourth duality is created between timbres that evoke clear extra-musical references, and pure musical sounds. Examples of timbres with extra-musical connotations are the creaky door mentioned above and percussive sounds evoking an Indian tabla (m. 42/r. H). All these timbral contrasts are only superficial: as indicated by Harvey, the electronic part is derived from the cello solo (Harvey, 2001).

A more abstract aspect of the musical materials that evokes the idea of the unity of opposites is the use of two different kinds of pitch collections that are derived from a single harmonic series. As Harvey explains in the program notes, the pitch material is based on a series of compressed spectra that are derived from the harmonic (natural) spectrum of the first string of the cello, or the A that is at 220 Hz. As a result there are passages that use pitch collections derived from the natural spectrum and other passages that employ pitch collections derived from different distorted or compressed versions of the spectrum. Naturally, the passages based on the natural spectrum sound more consonant than those that use distorted versions of the spectrum, creating an opposition between harmonicity and inharmonicity. This paper proposes that *Advaya* uses, in addition to the natural spectrum, three distorted versions of it: plus one half of the fundamental (+1/2*f*), plus one fourth of the fundamental (+1/4*f*), and plus one and a half of the fundamental (+1 1/2*f*) (Figure 1). The distorting method used in this paper is the one that Harvey mentions the most in his writings, which basically consists of adding or subtracting a ratio of the fundamental frequency to the fundamental tone and each of the partials. As a result, each version of the spectrum comprises a different pitch-class collection that is more or less consonant depending on the intonation of each pitch-class and the intervals between those pitch-classes. A harmonic spectrum has the partials quite spread out, mostly in tune, and with several partials falling on the same pitch class. When the

[1] Measure numbers refer to the cello part. When available, rehearsal letters are also cited.

spectrum is compressed by adding, for instance, one fourth of the fundamental to every partial, there are no repeated tones, many out-of-tune notes, and several versions of the same pitch class with different intonations. In reference to the unity of opposites, all pitch-class collections, harmonic and inharmonic, are derived the natural spectrum of A 220 Hz.

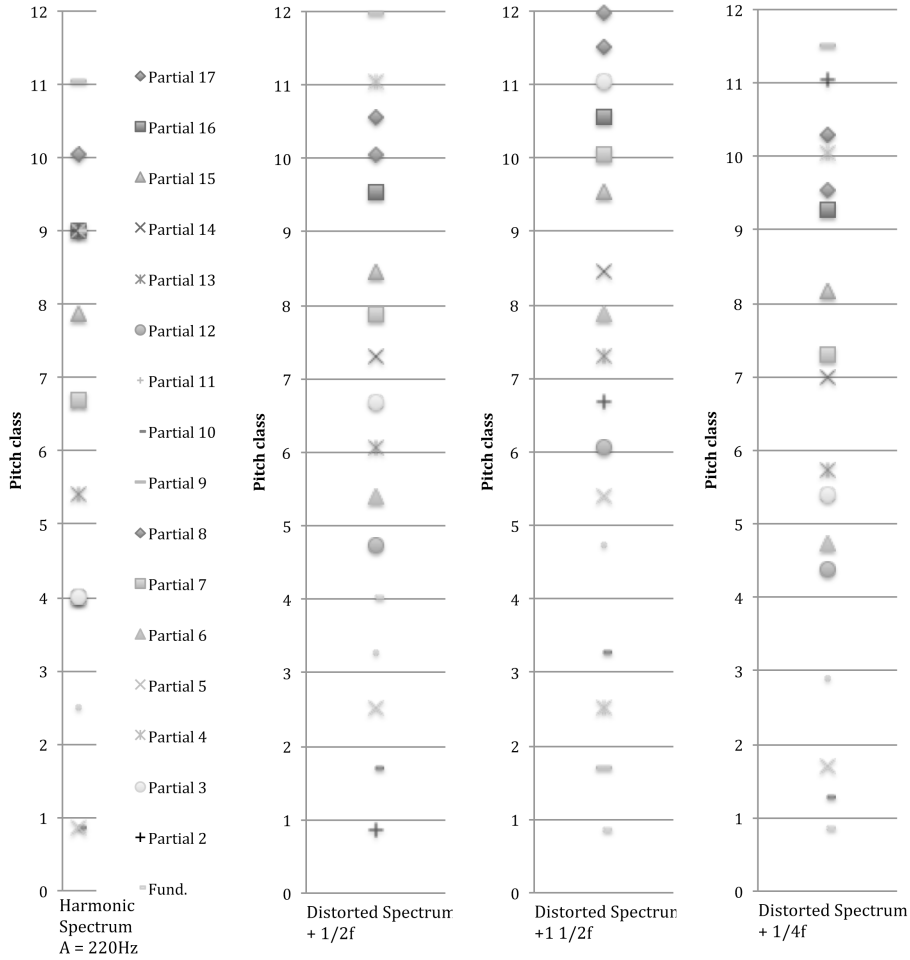

Figure 1: Spectra

Moving on to the motivic materials, the notion of united opposites can illuminate three analytical aspects of the piece: (1) the association of motivic materials with one version of the spectrum, natural or distorted; (2) the classification of the materials according to their spectral or melodic profile (spectral-melodic continuum of musical materials); and (3) the categorization of the materials with respect to their rhythmic and melodic features (melodic-rhythmic continuum of musical materials).

With respect to the first of these aspects, each material is associated with a pitch-class collection, that is to say, a version of the spectrum of A (natural or distorted). In this way, the use of different spectra allows for contrast in the motivic domain. This opposition is created through the juxtaposition of passages that are entirely derived from the harmonic spectrum of A3 and those based on the modified, less stable versions of the spectrum. The materials employed at the beginning and end of the work use almost exclusively the pitch-class content of the natural spectrum, providing a frame for the middle sections, where the musical content is based on pitch-classes that belong to distorted versions of the spectrum. In addition, since

the piece is polyphonic, this contrast between pitch-class collections is not only created in succession but also in simultaneity. For instance, in m. 16 (r. B), the sampler melody is based on the modified spectrum +1/4 of the fundamental, whereas the sustained and repeated A3 in the cello suggests the harmonic spectrum.

With regard to the second analytical aspect, the idea of the united opposites can also be connected to Harvey's conception of the musical materials as either spectral or melodic, contributing to our understanding of the use of the materials and their function. According to Harvey, "the fascination of spectral thinking is that it can easily shift into the realm of linear time, into melodic thinking: there is a large borderland of ambiguity to exploit […] and it is in this ambiguity that much of the richness in the approach lies" (Harvey, 1999, p. 40). Consistently with the polarities of spectral and melodic thinking, the composer distinguishes between a vertical and horizontal listening mode: "although all music has a dynamic, a sense of tension, it is occasionally possible to nudge music out of its context and hear it vertically, rather than as a horizontal line" (Harvey, 1999, p. 35). He bases this differentiation on music's dynamism or sense of motion, which he directly links to musical tension, suggesting a connection between vertical, static, and consonant, on one hand, and horizontal, dynamic, and dissonant, on the other hand. This distinction between vertical and horizontal ways of listening is essential to understand Harvey's statement about the shift between spectral and melodic thinking. Spectra and melodies are kinds of pitch structures. Because a spectrum represents the simultaneous frequency components (or partials) that form a sound, it is vertically defined. This is precisely the reason why the temporal evolution of the spectrum of a sound can only be represented as a succession of time windows (which is basically what an spectrogram does). In music, the simultaneous presentation of the pitch components of a given spectrum certainly emphasizes its vertical quality. A melody, on the other hand, is an organization of pitches in time. Both pitch and temporal dimensions are essential to the definition of a melody. The successive order of the pitches is, indeed, a determinant factor: a simultaneity of pitches is not a melody simply because it lacks linear or temporal definition. Given that a spectrum can be conceived as a vertical distribution of frequencies and a melody can be defined as a temporal distribution of pitches, it is possible to think of a melody as a horizontalization of a spectrum. In this sense, a temporal display of the frequency components of a given spectrum constitutes a shift from spectral to melodic thinking. Keeping these ideas in mind, spectral and melodic thinking can be regarded as the opposite sides of a continuum in which pitch structures can be classified according to their proximity to either the spectral or melodic end. In light of this, motivic materials can be organized according to how spectral or melodic they sound, ranging from a chord made of the pitches of the natural spectrum to a melodic line whose pitch collection is either entirely or partially based on the partials of a spectrum. In addition, because the spectral dimension is vertically defined, whereas the definition of the melodic dimension must have a horizontal component, motion within the spectral-melodic continuum suggests, at least abstractly, shift between the vertical and horizontal listening modes suggested by Harvey.

Finally, concerning the third analytical aspect, while some motivic materials can be regarded as being more spectral or melodic, some others appear to be highly rhythmic. As pointed out above, the essential difference between the spectral and melodic realms is the temporal quality of the latter. The temporal distribution of the pitch components, which is essential to the definition of a melody, is nothing but the rhythmic features of a melodic line. Indeed, it is quite common to talk about more or less rhythmic melodies. The degree of rhythmicity of a melody seems to be at least partly determined by a complex interaction among three factors:

(1) the degree of predictability of the rhythm: the more predictable, regular and directional the rhythm of a melody, the more rhythmic the melody; (2) the speed of the melody: slow-moving melodies are generally not described as rhythmic; and (3) the variety in the pitch domain: given certain speed and rhythmic predictability, it seems reasonable to propose that a melody based on one or two pitches is more rhythmic than one based on the entire diatonic collection. These three factors permit classification of the motivic materials according to how melodic or rhythmic they sound. The materials can then be sorted within a melodic-rhythmic continuum in which different melodic or rhythmic types of materials taken from the piece represent different stages – or levels of melodicism or rhythmicity – within the continuum (Table 1). For example, the arpeggiation of the spectrum – which is particularly prominent at the beginning and end of the piece – is located in the melodic extreme of the continuum, because it is very vague in terms of its rhythmic qualities. Similarly, a motif that consists of a repeated rhythmic pattern on a single pitch or noise, like the Indian-tabla effects in m. 42 (r. H), represents the rhythmic end of the melodic-rhythmic continuum. In between the extremes, materials are categorized according to their degree of melodic and rhythmic definition.

This melodic-rhythmic continuum is evidently connected with the spectral-melodic continuum presented earlier: in effect, the first melodic/rhythmic material is nothing but the horizontalization of the harmonic spectrum.

Melodic ↕ Rhythmic	**Type**	**General Description**	**Rhythmic Features**	**Musical Example**
	Type 1: Harmonic Glissando	Arpeggiation of harmonic spectrum	Rhythm not defined	m. 1
	Type 2: Harmonics Melody	High and soft pitches (like harmonics)	Slow, long rhythmic values	cello, r. W
	Type 3: Free-rhythm Melody	Variety of pitches from a distorted spectrum	Irregular, hard-to-predict rhythm	cello, m. 25
	Type 4: Percussive Melody	Percussive, relatively un-pitched melody	Variable, but not totally unpredictably rhythm	sampler, r. B
	Type 5: Regular-rhythm Melody	Variety of pitches taken from distorted sp.	Regular, highly predictable rhythm	cello, m. 78
	Type 6: Single-pitch Melody	Indian-tabla effects	Repetitive, fast, and highly predictive rhythm	cello, m. 42

Table 1: Classification of musical materials according to a melodic-rhythmic continuum

As a result, the two continua, spectral-melodic and melodic-rhythmic, can be combined into a single, unified spectral-rhythmic continuum, providing a sense of unification at a structural level of the piece. Accordingly, Harvey's idea of vertical and horizontal listening modes can be extended to this spectral-rhythmic continuum. Since both pitches and durations are defining features of a melody and pitches are often associated with the vertical dimension, it seems reasonable to propose that melodies are defined in a two-dimensional, vertical and horizontal space. Rhythms, on the other hand, are purely horizontally defined in the sense that they cannot be conceived, in any way, outside the temporal dimension. Following this, the spectral-rhythmic continuum can be linked to a vertical-horizontal continuum in the listening-mode domain, so that the most spectral motivic materials are likely to invite to a more vertical or, in Jonathan Kramer's terms, static listening mode, whereas the most rhythmic materials

induce a more horizontal or linear listening mode. The unification of the motivic materials as a whole is given by their conceptualization from a single pitch.

Form

The concept of united opposites is reflected in the formal organization of the work through the disposition of the motivic materials in the horizontal and vertical dimensions. *Advaya* can be divided in eight contrasting sections (Table 2).

A	**B**	**C**	**B'**	**D**	**A'**	**C'**	**A''**
mm. 1-23	mm. 24 (r. C)-41	mm. 41 (r. H)-49	mm. 50-73	mm.74 (r. N)-126	mm. 126 (r. W)-147	mm. 148 (r. AA)-191	mm. 192 (r. DD)-207
Glissandi of harmonics	Free-rhythm melody	Indian-tabla motif	Free-rhythm melody	Regular-rhythm melody	Harmonics-like melody	Indian-tabla motif	Glissandi of harmonics
Harmonic spectrum					Harmonic spectrum		Harmonic spectrum
Location in the spectral-rhythmic continuum (1=extremely melodic and spectral; 6=extremely rhythmic—see Table 1):							
1	3	6	3	5	2	6	1

Table 2: Form

Each section can be associated with one or two motivic types from the spectral-rhythmic continuum. In reference to the connection between the motivic types and listening modes previously made, each section as a whole seems to invite to a different, more or less linear or static listening mode. Sections A, A' and A'' feature harmonic glissandi, long durational values, and sustained sounds, conveying stasis. In addition, a general lack of rhythmic definition and motion characterizes the sections that frame the piece. In section A', the use of a melody of harmonics with rhythmic definition, suggests a slight sense of linear projection. In this respect, section A' is slightly more directional than sections A and A''. Nevertheless, and precisely due to the high, soft, and slow profile of the harmonics melody, this apparent linear projection seems to vanish into a floating state of directionless motion. The lack of direction that characterizes the three A sections is supported by the use of the harmonic, most stable spectrum. Because the harmonic spectrum constitutes the most consonant pitch collection, it is the least directional. This sense of stasis is opposed to the directional motion that characterizes sections C, C' and D. Sections C and C' are associated with the rhythmic effects evoking the Indian tabla, one of the most rhythmic materials in the melodic-rhythmic continuum (see Table 1). Section D, the middle section of the work, corresponds to melodic material with a regular rhythm. In this section, a strong sense of motion in the rhythmic domain is attenuated by a relative lack of directionality in the pitch domain and by the temporal misalignment of the cello and electronic parts. Finally, sections B and B', which feature melodies with free-like rhythm can be associated with an intermediate stage in the static-linear continuum.

In this way, the motivic materials interpreted as stages of a spectral-rhythmic continuum play an important role creating contrast between different sections. When linked to the perceptual states suggested by the characteristics of the different motivic materials, the global perceptual form of the piece appears to have a quite defined shape in which the most static moments frame the work (Figure 2). The return to the static state at the end of the piece conveys stasis at the most global level: the piece ends where it begins, the music moves only to return to its original state, as if it had not moved at all.

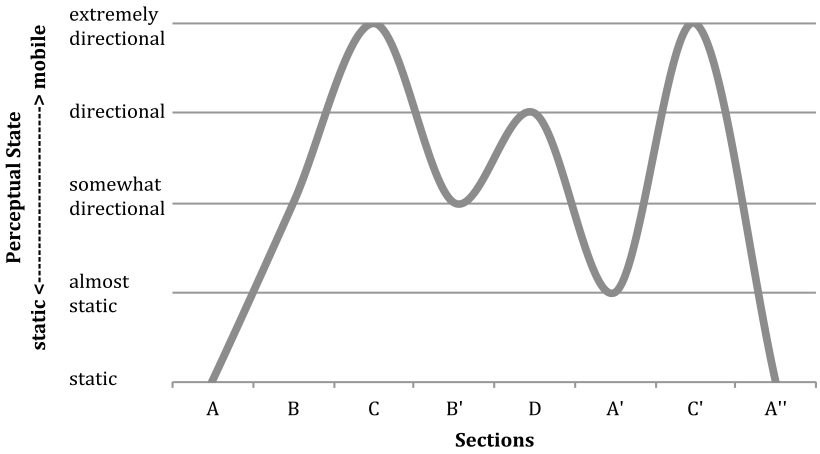

Figure 2: Perceptual shape

Concluding Remarks

As a result of the nature and distribution of the materials, the borderline between the melodic and spectral qualities of music, between its horizontal (successive) and vertical (simultaneous) dimensions, is blurred, suggesting a musical shape that is both, yet neither, in motion and static. This analytical interpretation reflects, in some sense, Harvey's notion of musical time: "I like to hear music which is creating a kind of integration between the linear music of past centuries and the global music that has characterized our own century. These types of music are really about different times, thinking about time in different ways" (Harvey in Whittall, 1999, p. 32). The idea of merging contrasts, of unity of opposites, that appears to guide *Advaya*'s structure, is manifested in the piece from its very conceptual foundation: the temporal unfolding of the entire work derives from a single vertical conception, the a-temporal spectrum of a sole musical note.

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