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Octatonic, Chromatic, Modal, and Symmetrical Forms that Supplant Tonality in Five Piano Preludes by Claude Debussy

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Dedication

I dedicate this Treatise to my mother, Patricia Tobin, whose continual support has made my work possible.

Octatonic, Chromatic, Modal, and Symmetrical Forms that Supplant Tonality in Five Piano Preludes by Claude Debussy

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Abstract: This treatise identifies and clarifies pitch relations that have supplanted the tonal system in selected piano preludes by Claude Debussy. Interval cycles based on the equalization of the twelve chromatic tones, octatonic, pentatonic, whole-tone, chromatic, and modal structures forge unique relationships that render each prelude a self-contained system of reflexive elements. Debussy's musical style represents an intermediary stage in the transition from purely tonal melody and accompaniment to purely abstract melodic and harmonic constructions. An important issue in each prelude is whether vestiges of tonality exist, and if so, whether the traces contain functional connotations. In addition, "hybrid" melodic/harmonic structures, rather than invoking one single pitch set, render the identity of seemingly fundamental forms ambiguous and open for interpretation.

This treatise also explores the role of proportional schemes derived from the Golden Section ratios of Ernó Lendvai and the Fibonacci number series. In many instances, the formalized schemes resulting from these symbolic number relations in Debussy's *Préludes* replace traditional formal structures. This study of the complex relations found in the *Préludes* is warranted because their means of progression and texture affected 20th-century composers and contributed to the dissolution of the tonal system.

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Chapter 1: Introduction

Elements of Folk Music and the Dissolution of Traditional Tonality

Art music in the twentieth century encompasses a wide range of expression, forms, and media. The development of mass communication and easy travel throughout the twentieth-century has linked the world into a global community that allows the collection and blending of many sources. One result of this is that diverse musical sources including folk music, Classical Indian Scales, American jazz elements, and the musical forms of Asia among others, have been assimilated into the Western Musical Tradition.

Folk music assimilation began before the end of the nineteenth century as Western thinkers explored previously remote lands and cultures. An important result of this travel was the use of folk modes, pentatonic scales, and whole tone scales derived from native music in works by composers such as Bartók, Stravinsky, and Debussy. Non-diatonic scales based on modes and seemingly abstract intervals such as the half step and whole step proved tantalizing to composers during the last part of the nineteenth, and early part of the twentieth century.

Another process occurred concurrently with the assimilation of folk music sources. Specifically, the stylized formal relations of pitch, progression, and form that defined the tonal system were beginning to break apart. In the

mid-nineteenth century composers began to exploit the octatonic scale (a symmetrical scale that alternates half steps and whole-steps) as the basis of triadic progression. An early use of the octatonic scale is found in the Chopin Mazurka, Opus 50#3 (1841). In this work an octatonic scale (D-F-F#-G#-A-B-B#) is formed by the combination of bass D-F-G#-B-D, and treble, F#-A-B#-D#-F#, interval-three cycle minor thirds in m. 161-165.[1] Chopin's contemporary Franz Liszt also experimented with octatonic constructions in his works, including the B-minor Sonata and the *Sonnetto 104 del Petrarca* from book two of the *Années de pélerinage*. In the *Sonnetto,* a series of traditional diminished and dominant seventh chords create the linear octatonic collection, B#-C#-D#-E-F#-G-A-Bb, as they prolong motion to an E-major tonic.[2]

These examples are early evidence of new scalar forms that are important in the evolution towards the breakdown of the traditional major/minor scale system. These forms of symmetrical construction foreshadowed the move toward non-functional structures as seen in the modes and pentatonicism of folk music. In later twentieth-century music, tritone dyads, symmetrical axes derived from inversionally symmetrical relations and

[1]For a discussion of equal divisions of the octave in nineteenth-century chromatic tonal music see Felix Salzer and Carl Schachter, *Counterpoint in Composition: The Study of Voice Leading* (New York: McGraw-Hill, 1969), p. 215-21.

[2]For a discussion of the Liszt see Paul Lansky and George Perle, "Atonality," *The New Grove Dictionary of Music and Musicians*, ed. Stanley Sadie, vol. 2 (6th ed., London: Macmillan, 2001), pp. 139. Successive transpositions of the initial dim-7th B#-D#-F#-A cast this chord as a referential collection with enharmonic equivalence.

recurrent interval-three cycles of the octatonic scale led to an equal or symmetrical subdivision of the octave.[3]

With the closing of the nineteenth century, the dissolution of the tonal system became more widespread in part due to the exploration and assimilation of modal folk sources. Another important reason was the endemic, often vociferous rejection of the ultra-chromaticism of the Wagner-Strauss period. These concurrent movements led to a chromatic treatment of melody and harmony that first embellished, and then began to replace traditional tonality. Antokoletz sees this evolutionary process of twelve-tone equalization as an extension of the chromatic tonality found in late nineteenth-century Romantic music:

> While symmetrical properties were to a large extent commonly derived (e.g., by Russian and French composers) from the pentatonic and modal materials of Eastern-European folk music, the concept of symmetry emerged in the works of others (e.g., German and Viennese composers) from the chromatic tonality of late nineteenth-century Romantic music. Certain types of symmetrical pitch collections became associated with certain composers: a few instances are the pentatonic and modal scales of Debussy and Stravinsky, the whole-tone (and octatonic) scale of Debussy, the octatonic scale of Rimsky-Korsakov, Scriabin, and Stravinsky, and the use of strict inversionally symmetrical procedures in the atonal works of the Viennese composers.[4]

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[3]For a fuller discussion of symmetrical structure in nineteenth-century chromatic tonal music, see Richard Taruskin, "Chernomor to Kaschei: Harmonic Sorcery; Or Stravinsky's Angle," *Journal of the American Musicological Society* 38/1 (Spring 1985): 79ff, and Elliott Antokoletz, *The Music of Béla Bartók: A Study of Tonality and Progression in Twentieth-century Music* (Berkeley and Los Angeles: University of California Press, 1984).

[4]Ibid., Antokoletz, p. 25.

Russian nationalist composers of the late nineteenth century, such as Mussorgsky and Rimsky-Korsakov, influenced composers in the early part of the twentieth-century including Stravinsky, Debussy, and Bartók. Rimsky-Korsakov in particular is celebrated for employing octatonicism in his works, which he did for the first time in the Symphonic Poem *Sadko* (1867). He is also known for the claim in his autobiography, *My Musical Life*,[5] that he invented the octatonic scale. The alternating whole and half-step octatonic scale was even dubbed the "Rimsky-Korsakov" scale by his students.

Another early use of symmetrical pitch construction and progression is found in Mussorgsky's Act II Clock Scene from *Boris Godunov* (1871).[6] The progression between two transpositions of a dominant ninth chord a tritone apart is facilitated by the common tritone between them. This tritone is also reiterated as an ostinato in the bass. The resulting symmetrical progression of two symmetrical chords, B-D#-()-A-C# and E#-A-()-D#-Fx, leads to the reinterpretation of the dominant ninth, a traditional tertian construction, in an abstract harmonic context. Significantly, this process is an early instance of invariant set-segment construction that is later adapted in serial composition, and in symmetrical constructions found in the works of Stravinsky, Bartók, and Debussy.[7]

The early symmetrical and octatonic compositional efforts of Mussorgsky and Rimsky-Korsakov found resonance in the style of Scriabin,

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[5]Nicolai Rimsky-Korsakov, *My Musical Life*, ed. Carl Van Vechten, trans. Judah A. Joffe (New York: Alfred A. Knopf, 1923), p. 72.

[6]Ibid., Antokoletz, p. 80.

[7]Ibid., Antokoletz, p. 5.

an important contemporary of Debussy. Two works by Scriabin, the Seventh Sonata (1911-12), and the Opus 74#3 Prelude for Piano (1914), are notable for their octatonic interactions. The Prelude is based on the octatonic set A#-B#-C#-D#-E-F#-G-A, to which a chromatic passing tone is added in both theme statements. This use of octatonic sets with chromatic alterations is an important step toward a freer use of the twelve tones and modal forms. The use of modal and octatonic constructions by Scriabin and the Russian Nationalist composers formed the fundamental basis of Debussy's musical language. The addition of chromatic notes to octatonic and modal collections, and the chromatic reinterpretation of these collections, are common throughout Debussy's preludes. In his discussion of the evolution of Bartók's symmetrical structures, Antokoletz points out:

> The pentatonic and modal characteristics that Debussy acquired, largely through the influences of the Russian nationalists, are the basis of a more significant tendency toward the breakdown of the traditional tonal system and the formation of a new one based on equal or symmetrical divisions of the octave...Debussy, who was only indirectly influenced by folk music--it remained for him an "exoticism"-went beyond the precepts of tradition in his extensive employment of symmetrical (e.g., whole-tone and pentatonic [and octatonic]) constructions.[8]

Although Debussy owes much to the Russian folk modes that evolved into octatonic and symmetrical structures, he did not strive to assimilate folk idioms. This discussion of five selected *Préludes* will highlight non-traditional structures, particularly those involving whole-tone, pentatonic, octatonic, and chromatic interactions. The symmetrical properties of octatonic, whole-tone,

[8]Ibid., Antokoletz, p. 313.

and pentatonic sets, and the invariance of tritone segments among these and modal/diatonic sets, are powerful elements in Debussy's musical idiom.

Non-Traditional Pitch Structures in Debussy

Debussy's music is a synthesis of primarily Russian folk influences, the desire to integrate impressions of the natural world including dreamlike images and the naiveté of childhood, and the application of what appear to be symbolic numerical systems.[9] Debussy's original musical language combines varied influences and moves away from the ultra-chromaticism of Wagner. Debussy himself points to his non-Wagnerian direction:

> Wagner pronounced himself in favor of the laws of harmony. I am for freedom. But freedom must essentially be free. All the noises we hear around ourselves can be re-created. Every sound perceived by the acute ear in the rhythm of the world about us can be represented musically. Some people wish to conform to the rules; for myself, I wish only to render what I can hear.[10]

Indonesian Gamelan, café music, and visual images such as moonlight, fireworks, or dancers find their way into the musical expression of the *Préludes*. As Jarocinsky posited in his study, *Debussy Impressionism and Symbolism*, Debussy was interested in sound for its own sake, in the sonic event. This often meant the isolation of pitch, texture, and stratification of materials so that the aesthetic appeal of the notes, free from any system, was

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[9]For a deeper examination of number symbolism, Golden Section, and proportional systems in Debussy's music see Roy Howat, *Debussy in Proportion*: *A Musical Analysis* (Cambridge: Cambridge University Press, 1983).

[10]See Claude Debussy, *Debussy on Music: The critical writings of the great French Composer*, collected and introduced by François Lesure, trans. and ed. By Richard Langham Smith (Ithaca: Cornell University Press, 1988), p. 243.

the object. Debussy assimilated his varied impressions into the subtle musical forms that define his compositional style. The musical landscape retains vestiges of dominant-tonic allusions, triadic progressions, and traditional formal schemes such as ABA and Rondo, but materially departs from the tonal system.

Although Debussy was not oriented toward traditional tonal development or expectations, vestiges of tonality permeate the *Préludes* to varying degrees. The prelude "*La terrasse des audiences du clair de lune*" from Book II is a haunting example of this. "La terrasse" magically captures the static, muted colors of a moonlit terrace within a predominantly abstract pitch context, but with conspicuous triadic and V-I allusions. Not surprisingly, the paired phrases derived from the classical notion of periodic structure are pervasive throughout the preludes and reflect the inescapable influence of hundreds of years of tonal evolution. Debussy once remarked: "Berlioz, Mozart, Beethoven-they are great masters whom I venerate, the last two above all."[11] Debussy was likely intrigued with the balance, proportion, and classical aesthetics derived from the period structures, ABA, and Rondo forms of Mozart and Beethoven. Perhaps these sources shaped the framework of arch structures and symmetrical pitch constructions in the *Préludes*.

Although Debussy's music represents numerous techniques and scale forms, one trend in the *Préludes* is toward an equal treatment of the twelve chromatic tones. This equalization of the twelve tones, in a non-systematic,

[11]Ibid., Claude Debussy, p. 243.

non-serial manner, accounts in part for the expressive variety and subtle colors in the *Préludes*. To a large extent, the chromatic set can act as a neutralizing force that allows shared segments to evolve into other sets, such as whole tone, octatonic, modal, and pentatonic. Precisely because the chromatic set encompasses all twelve tones, it can be used to generate any other collection. The flexibility afforded by this set in part enabled Debussy to depart from the a priori assumptions of tonality, and selectively apply formulas and processes based on natural phenomena. One reason Debussy moved with increasing intensity towards a language of abstract pitch relations is that he eschewed the complacent, glib, and self-conscious consequences of formulas. Instead, the processes of unspoiled discovery, self-detachment from preconceptions and limits, and sensual self-indulgence appealed to Debussy:

> I detest doctrines together with all their impertinences. That is why I wish to write down my musical thoughts with the greatest self-detachment. I wish to sing of my inner landscape with the naive candor of childhood.[12]

A mind free from dogma and constraints is better able to create works that capture the delicacies and limitless possibilities of the imagination. Self-detachment from formal schemes and the artwork itself can make possible artistic innovation. The "naive candor" which Debussy mentions could stem in part from the joy and candor he saw in his daughter Chouchou, born in 1905. Debussy was very fond of her, and his experience of her discovery of

[12]Ibid., Claude Debussy, p. 249.

life likely inspired Debussy's conceptions of art and the experience of the imagination.

This aesthetic is reflected in the almost stream-of-consciousness succession of events and images in the *Préludes*. Dreamlike visions, imbued with impressions of light, air, scent, and color, characterize both books of preludes. In order to make his sources and inspirations less cryptic, Debussy appends the programmatic "titles" to each of the *Prélude*. If the lines were true titles at the head of the first page, the *Préludes* would not create impressions as effectively. Among these titles are "La terrasse des audiences du clair de lune" (The terrace for moonlight audiences), and "Ce qu'a vu le Vent d'Ouest" (What the West Wind has seen). The dreams and fantasies depicted by these "titles" are one aspect of the Symbolist aesthetic of suggested moods and subjects. In part they represent an adult extension of the fantasy and imagination often ascribed to childhood, and add expression to each prelude. This practice of appended, atmospheric titles follows the Symbolist poet Mallarmé's admonition to not "name an object":

> To name an object is to suppress three-quarters of the enjoyment to be found in the poem, which consists in the pleasure of discovering things little by little: *suggestion*, that is the dream.[13]

The gradual unfolding of pitch materials throughout the *Préludes* follows this dictum as well. While the outset of each Prelude contains the seeds for development, one must follow their progression to the end to ascertain the process.

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[13]Edward Lucie-Smith, *Symbolist Art* (London: Thames and Hudson LTD, 1972), p. 54.

The Symbolist Poets, Baudelaire, Mallarmé, and Verlaine all affected Debussy aesthetically and stylistically. Vagueness, fleeting moods, and the emphasis on expression at the expense of clarity are Symbolist characteristics found in the planed textures of Debussy's music. The Symbolist interest in sound, atmosphere, and the rhythm of verses appealed to Debussy's stylistic self-indulgence, as did the contemporary disfavor with Realism and realistic subjects. The works of the Symbolist poets also affected Impressionist painters such as Redon, Monet, and Sisley, and led to their stylistic emphasis on the moods and effects of light and color in nature. The Impressionists adapted the Symbolist's emphasis on the flow and rhythm of language to create effects in their own media. Their canvasses employed small planes of juxtaposed color to create mosaic textures that blurred form and line.

Debussy was intrigued by this accentuation of evocative, non-representational moods and subjects. He applied the aesthetic in a musical way so that the elements of music, pitch, rhythm, and form, were cast in Impressionist planed and layered structures. As the Symbolist poets explored the aesthetic rhythm and combination of words, Debussy fused and juxtaposed pitches and textures in mosaic constructions.

While the philosophical notion of an inner harmony in nature spans the annals of intellectual thought, it is nonetheless compelling to this day. Music theorists have interpreted and manipulated it to justify many different relational systems, including the symbols and meanings imparted by the tonal system. In contrast, Debussy's application of this concept in each prelude

forges a new musical language and archetype of reflexive versus non-reflexive meaning. The relationships and processes that arise are based on the interaction of various types of pitch sets through common pivotal elements.

These sets include diatonic, chromatic, octatonic and whole-tone. While the use of shared set elements to derive new sets, symmetrical formations, and tonal allusions applies to all of the *Préludes* in varying degrees, each prelude has a unique system of meaning and form that must be discerned on its own terms. Debussy's notion of the complex, varied inspirations that shape the inner harmony of a musical composition is partly illuminated by his words:

> Who can know the secret of musical composition? The sound of the sea, the outline of a horizon, the wind in the leaves, the cry of a bird- these set off complex impressions in us. And suddenly, without the consent of anyone of this earth, one of these memories bursts forth, expressing itself. It carries its own harmony within itself.[14]

An extension of Debussy's interest in natural processes is the application of symmetrical forms such as arch structures, Fibonacci and Golden Section Proportions, tritones, and pitch set partitions that create symmetry. Debussy was drawn to the aesthetic notion of perpetual regeneration, a process common to symmetrical sets as well as the often relentlessly changing pitch content in the *Préludes*. For example, tritone C-F#-C is symmetrical either around an Eb (C-F# partition) or A (F#-C partition), a construction which can be used in a symmetrical scheme around either axis. The axes themselves form a symmetry with the A-Eb tritone around either F#

[14]Ibid., Claude Debussy, p. 248.

or C. The combination of all of these pitches, A-C-Eb-F#, is a minor third cycle which can be used to generate a segment of either octatonic 0 or 1, constructions which themselves allow for additional symmetrical properties. This application of symmetrical pitch properties is one facet of the musical language of the *Préludes*. The five preludes in this study all have some use of tritone symmetries and octatonic structures.

Arch structures, like the arch created by the C-F#-C tritone symmetry, or within traditional ABA structures, are reflections of symmetrical phenomena in nature. The cycle of life follows an extended arch form, from the generation of elements from nothing, to the ultimate return of these elements to their original form upon death. The overall arch from of "Les fées sont d'exquises danseuses", for instance, frames the reinterpretation of form within an abstract context of twelve equal chromatic tones. Roy Howat, among others, has discussed proportional and symmetrical schemes in Debussy's music, and Debussy's interest in such schemes is well documented. One of Debussy's own written observations nicely captures an essential relationship between the cycles of art and nature: "Like Nature herself, Art changes: she moves in curved lines but always ends up exactly at the point where she began."[15]

Arch forms represent curved lines, while symmetrical constructions, like tritones, return to the pitch they started from, for example, F#-C-F#. In the prelude "Ondine," the cycle of the character "Ondine's" animation from

[15]Ibid., Claude Debussy, p. 255.

the imagination to her inevitable return to the imagination follows the dictum of "ending up exactly where she began." One aspect of the character "Ondine's" musical depiction of evolution and return is that Debussy employs a Rondo form with repeated and transposed sections that mirror the symmetry of the life cycle. Debussy's profound interest in the natural derivation of symmetry and curved forms accounts for the symmetrical structures throughout the *Préludes*.

Fibonacci and Golden Section Proportions

Another natural phenomenon that finds considerable resonance throughout Debussy's *Préludes* is the Fibonacci Series. This symbolic numerical formula follows the sequence 0-1-1-2-3-5-8-13-21-34-55-89-144, and continuing ad infinitum. To generate a member of this series, the two previous numbers are added, i.e., 0+1=1, 1+2=3, 2+3=5, etc. The Fibonacci Series is credited to the Italian mathematician Leonardo of Pisa, and was published in his treatise *Liber abaci* (1202). The series has had far-reaching implications in the sciences as well as in the arts. Another important numerical scheme is the Golden Section proportion of 0.618034. The *Encyclopaedia Britannica Online* citation regarding Golden Section proportions observes:

> In short, dividing a segment into two parts in a mean and extreme portion, so that the smaller part is to the larger part as the larger is to the entire segment, yields the so-called Golden Section, an important concept in both ancient and modern artistic and architectural design. Thus, a rectangle the sides of which are in the approximate ratio of

> 0.618 is presumed to have the most pleasing proportions, aesthetically speaking.[16]

This ratio appears to be a formal determinant in many *Préludes*, including "Feux d'artifice," "La terrasse," and "Les fées." Roy Howat, in his excellent study of proportional systems in Debussy, asserts that the aesthetic/artistic climate around 1912 lent itself to experimentation with Golden Section proportions:

> Debussy would have had ample opportunity to learn about GS through his constant associations with painters and other artists; that interest in GS was endemic in the visual arts at that time is documented by the exhibition in Paris by the Section d'or (golden section) group of painters in 1912...It is worth saying straight away, though, that number and proportion were ideas much in circulation among the French Symbolist artists with whom Debussy mixed in his formative years.[17]

One could argue that Debussy's desire to obviate systems and formal schemes contradicts his interest in symmetrical forms and a system of organization as rigid as the Fibonacci Series. However, both Fibonacci numerology and Golden Section proportions were perceived as natural principles that transcend consideration merely as formulas or schemes. Howat observes:

> By contrast, GS is a natural principle, like the harmonic series, whose physical existence antedates mankind. As such it would hardly be disregarded by Debussy, were he aware of it. When he wrote, more

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[16]"Number game" *Encyclopaedia Britannica Online*. <http://search.eb.com/bol/topic?eu+117294&sctn+16>

[17]Roy Howat, *Debussy in Proportion*: *A Musical Analysis* (Cambridge: Cambridge University Press, 1983), p. 7. According to such writers as Erno Lendvai, in his analyses of Bartók's music, these proportions correspond to natural shapes such as fir cones, seashells, etc. See also the last chapter in Elliott Antokoletz's "Principles of Pitch Organization in Bartók's Fourth String Quartet," Ph.D. diss., City University of New York, 1975.

> than once, about his musical search for a world of sensations and forms in constant renewal, his aim was evidently to free music from rigidly stereotyped forms. At the same time his concern for proportional balance within his formal freedom is well documented in his own writings.[18]

Because the tonal system had reached its logical evolutionary end and the liberation of the twelve tones into either serial or non-serial means was the clear future, Debussy's style did not underscore the natural origins and implications of the tonal system.

Another important relation found in the *Préludes* stems from George Perle's identification and labeling of interval cycle ratios. The term ratio refers to the alternation of intervals in a pitch segment. The completion of interval cycles can have significance on a local cellular level as well as in a larger formal scheme. Each ratio refers to the alternation of two intervals. The system of compound cyclic interval sets found in the *Préludes* includes the following ratios: 1:2 the alternation of minor-second/major-second C-C#-D#-E-F#; 1:3 the alternation of minor-second/ minor-third C-Db-E-F-Ab; 1:4 the alternation of minor-second/major-third which yields two interlocking perfect-fourth segments C-Db-F-Gb-Bb; and 1:5 the alternation of minor-second/perfect fourth C-Db-Gb-G-C. Moreover, each of these interval ratio structures comprehends two intercalated uni-intervallic cycles: (1:2), two interval 2 cycles; (1:3), two interval four cycles; (1:4) two interval 5 cycles C#-F#-B; (1:5) the Z cell, e.g., C-Db-Gb-G. The expansion and contraction of

[18]Ibid., p. 6.

interval cycles and their relations is an important means of progression in the *Préludes*.

Debussy's Compositional Periods

The early works of Debussy, including *L'Enfant prodigue* (1884) and *La Damoiselle élue* (1888) follow an expressive, lyrical melodic style inspired by the French composer Massenet. Debussy's *String Quartet* (1893) and *Prélude à l'Aprés-midi d'un faune* (1894) begin to illustrate the textural planing and arpeggiated figuration that characterize Debussy's later works. They also explore shifting timbres and the colors of harmonies, notably in nonfunctional seventh and ninth chords. The dominant ninth chord, in particular, is important in the derivation of non-traditional constructions in later works, including the piano *Préludes*.

While the early works show the seeds of later pitch, color, and texture innovations, it was not until the 1889 Exposition Universelle in Paris that Debussy encountered the music of the Russian nationalists that was to profoundly shape his later development. Specifically, Debussy heard Rimsky-Korsakov conduct two concerts of Russian music at this Exposition, an experience that shaped his subsequent musical thinking. From the Russian music, Debussy adapted modal scalar constructions, while the music of the Javanese *Gamelan* influenced his use of the pentatonic scale. Experimentation with these forms also led to generation of the whole-tone and octatonic scales in particular, from the modes. These constructions minimized and at times removed traditional chord functions. Moreover, they intrinsically

represented an evolutionary step closer to chromatic and octatonic interactions in later works including the *Préludes*. In the *Nocturnes* (1893-99) for orchestra, chords had a coloristic rather than functional meaning as leading tone, fifth, and third scale degrees were variously removed from tertian chords and scales. Progression was not through tonally conceived goals, but instead through the blocking of textures, juxtapositions of rhythm and timbre, and parallelism.

The most important work of this period is the opera *Pelléas et Mélisande* (1893-1902), Debussy's first synthesis of impressionist and symbolist styles. It also is the first work in which Debussy polarizes pitch elements in order to depict a program or characters, a technique found in his later piano *Prélude*s. In *Pélleas*, a conflict is established between the notion that humans are capable of independent emotions and actions, and the idea that they are symbols of fate. Mosaic settings of parallel seventh and ninth chords and modal and whole-tone melodies and harmonies are seminal features throughout *Pélleas*. Yet the extraordinary feature within this opera is that pentatonic/diatonic collections paint the motives that represent the human sphere and the notion of free will, while whole-tone elements represent the "Fate" motive. Transformation of a dominant-ninth chord by the replacement of a single note creates a whole-tone segment that has the stunning effect of transforming the diatonic, human sphere into the whole-tone, fatalistic one. This early instance of whole-tone versus diatonic/pentatonic polarity provides the basis for polarized pitch relations within the later piano *Préludes*. These

include polarity between sets, such as whole-tone versus octatonic, and also within sets, such as between octatonic 1 and 2, or whole-tone 0 and 1.

The impressionistic textures and musical landscape of nonfunctional pentatonic, modal, whole-tone, and octatonic pitch sets yield to a more nationalistic, neo-classical style in Debussy's later years, 1915-18. Illness and the excoriation of the First World War took their toll on Debussy, and spawned a desire to preserve the French spirit. Three sonatas, for cello and piano (1915-16), for flute, viola, and harp (1916), and for violin and piano (1917), were the fruits of this inspiration. Unlike his middle-period works, these pieces feature a clarity and economy of melody and harmony. Sparse instrumentation adds to the relative dryness of the sonorities, and recalls the earlier eighteenth century "Galante style".[19]

This study will consider five of Debussy's *Préludes* for piano: "Ondine", "Les sons et les parfums tournent dans l'air du soir", "Feux d'artifice", "La terrasse des audiences du clair de lune", and "Les fées sont d'exquises danseuses". All represent the middle-period symbolist and impressionist style and encompass different stages in the gradual transition away from tonal procedures. While Debussy's early works are more closely related to Late Romantic harmonic and melodic practices, some of the piano *Préludes*, late in Debussy's oeuvre, are a striking embodiment of post-tonal form and procedures. Within all the *Préludes*, a coloristic use of pitch abounds and reflects the evocative themes and subtle mosaic construction of the

[19]Elliott Antokoletz, *Twentieth-Century Music* (Englewood Cliffs New Jersey: Prentice Hall, 1992), p. 89.

Impressionists. To achieve this, whole-tone, chromatic, and octatonic forms blend with and often replace diatonic forms. Because of this, this treatise does not pursue a traditional tonal analysis. The tonal forms which do arise usually result from partitioning of octatonic, whole tone, chromatic, and symmetrical pitch collections. Octatonic forms commonly delineate important structural points, as Allen Forte points out in his article, "Debussy and the Octatonic": "The octatonic set is everywhere in the music of the two volumes of *Prélude*s for the piano, almost always occurring at the climactic moments in the music or in pre-cadential locations.[20]

While I do not subscribe to Forte's notion that octatonic forms usually occur at "pre-cadential locations," and do not believe traditional cadences are central to the *Prélude*s, he is correct to assert the importance of octatonicism throughout the *Prélude*s. Octatonic forms are often the end products of pitch interactions and commonly demarcate structural and textural changes. The occurrence of octatonic structures is pervasive throughout the *Préludes.* Even more traditional preludes, such as "Général Lavine," with its "cake walk" accompaniment, "Pickwick," with the blatant "God Save the Queen" quote, or the traditionally melodic "La fille aux cheveux de lin," all contain modal or octatonic fragments and symmetrical constructions.

Traditional elements such as paired phrases, triadic constructions, ABA form, to name a few, occur throughout Debussy's *Préludes.* It is the non-traditional procedures in these preludes, however, that distinguish them as

[20]Allen Forte, "Debussy and the Octatonic," *Music Analysis* 10:1-2 (1991): p. 147.

transitional works in the evolution away from traditional tonality. A duality of traditional and non-traditional features thus characterizes the *Prélude*s to varying degrees. One example of a less abstract prelude, "Pickwick," combines tonal elements yet also foreshadows the use of more involved octatonic and chromatic procedures with some chromaticism and symmetrical tritone constructions. "Pickwick" depicts the unabashedly programmatic theme of the foppish character from Dickens with melodies that paint his pomposity and contradictory clumsiness. "Pickwick" is easy to listen to, easy for a traditionally trained pianist to read, and depicts an accessible Impressionist image of Dickens' character Pickwick which is not so far removed from the genre of the Romantic Character Piece. The presence of the "God Save the Queen" melody and light, rhythmical textures add to the accessibility of this prelude.

Other preludes, such as "La terrasse des audiences du clair de lune", "Les sons et les parfums tournent dans l'air du soir", or "Ondine" represent a further evolutionary step from tonality. "La terrasse," in particular, illustrates how tonal procedures are replaced by octatonic partitions of the twelve-tone scale as the means of progression and large-scale structure and design. In "La terrasse," octatonic collections create quasi-tonal key goals and replace traditional chordal progressions and tonal relations. The style and formal procedures of "La terrasse" typify Debussy's Impressionism and reflect the influence of esthetic principles espoused by the Symbolist painters and poets. The adoption of symmetrical and natural formal processes coupled with the

rejection of formulas and traditions had far-reaching consequences in the *Préludes*. Collectively, they led to a striking transformation of tonality and a complete reinterpretation of larger hierarchical systems within these preludes. In preludes like “La terrasse,” the language moves farther from the non-reflexive syntax and traditional implications of tonality and closer to a system defined by the context itself, i.e., the reflexive meaning of pitch relations.

Chapter 2: Octatonic collections created through whole-tone partitions of an equalized chromatic set in “Ondine.”

The prelude “Ondine” symbolizes the natural and supernatural elements on several levels. “Ondine” develops through a systematic process of cell and scale formation within the larger background-level context of the two whole-tone cycle partitions. The octatonic collection, like the modes, appears to be an intermediary stage in the whole-tone interactions, and in the process of expansion from smaller to larger intervals. The two whole-tone partitions in “Ondine” serve as the background source for all other pitch-set interactions, including chromatic, octatonic, pentatonic, and the emergence of D and Eb-Lydian. The conflict between whole-tone partitions ultimately causes whole-tone 0 and octatonic 0 to overshadow whole-tone 1 and octatonic 1. The D-Lydian mode is an essential protagonist in the conflict between these whole-tone scales, since it serves as a confluence of whole-tone 0 and 1. Specifically, D-E-F#-G# of D-Lydian represents whole-tone 0, while A-B-C# of D-Lydian represents whole-tone 1.

The generation and relation of pitch materials stems from the octatonic 1 cell, G-A-Bb, introduced in the first measure. This G-A-Bb octatonic segment, containing G-A from whole-tone 1 and Bb from whole-tone 0, forecasts whole and half steps found in later whole-tone, chromatic, and D-

Lydian collections. Through shared pitch identity and incomplete scale fragments that contain one "wrong" note, one pitch set shifts to the next to create forward motion and a new means of progression. The process of expansion and contraction works on different levels: in a linear sense as well as in the long-term development of intervals and pitch collections. The initial G-(A)-Bb profile not only provides for whole-tone and half-step motion, but for motion to octatonic and even quasi-diatonic areas. This occurs in the juxtaposition of D Major and F# Major in the last section (m. 65ff), a culmination of seemingly diatonic, but actually octatonic pitch expansions. Also, this final diatonic juxtaposition is a product of the progressive fusion of whole-tone 0 and 1, initiated in the m. 1 Bb-B half-step motion. The half step contained in the initial G-A-Bb cell proves very important in the development of diatonic half-step relations throughout "Ondine," including the emergence of D-Lydian. The D-Lydian collection is created by the half-step transformation of G to G#, a process which foreshadows the final juxtaposition and fusion of D and F#-Majors. The combination of these diatonic areas reflects cumulative ratio 1:1 transformations and the fusion of whole-tone 0 and 1.

This chapter will illustrate how pitch materials evolve from the octatonic/whole-tone segment G-A-Bb through cyclic interval expansion and chromatic manipulations that create whole-tone, diatonic, and octatonic forms. These means delineate the structure of "Ondine" on three important levels. First, the A-B-C-B'-C'-B'-A' Rondo form is a result not only of textural and

rhythmic features, but also of changing and reforming scale forms through the shared identity of one pitch, or the absence of others. Second, the programmatic associations of "Ondine" are interwoven into the pitch and scale-form fabric of the piece in a manner that conjures both the real and unreal identity of "Ondine". Within this prelude, Debussy replaces the harmonic and formal expectations inherent in the tonal system with octatonic transformations of the two whole-tone scales that create diatonic collections and D-Lydian.

Tonal forms and functional relationships are only hinted at in "Ondine," and are subordinate to non-functional priorities. Traditional tonal formulas and their functional relations have either dissolved or have only residual carryover. In the idiom of "Ondine" they become subordinate to the new pitch set relations. This occurs not as a conscious rejection of tonality, but rather as a consequence of the colors, moods, and textures employed in the character "Ondine's" depiction. This process of supplanting tonal forms and functional relationships throughout "Ondine" stems in part from Debussy's interest in the imagination and mythical figures. In "Ondine", the real and unreal worlds are symbolized by the dissolution of the tonal system and its replacement with a language based on the separation and fusion of the two whole-tone sets. Debussy drew from his wide knowledge of literature and mythology to select the "Undines" of ancient mythology as the basis for the prelude "Ondine". Perhaps even the celebrated Rhinemaidens in Wagner's *Ring* Cycle were a perverse source, one that Debussy clearly departed from in

his non-traditional musical setting. Debussy likely encountered "Undines", or "Ondines", in *Undine*, published 1909 in German and 1912 in French by German Romantic author Baron Friedrich De la Motte Fouqué, illustrated by Arthur Rackham.[21] The words and pictures in this work of literature and visual art likely appealed to Debussy's sense of color, imagination, and wit. Undines are mermaids, half human, half sea creature, who use their wiles to enter the real world, and delight and frustrate those they encounter with their beauty and charms. After their brief flirtation with reality, they must ultimately return without a trace to the supernatural world from whence they ascend. The following lines from *Undine* reflect on the animation of "Ondines" from fundamental elements and their inevitable disappearance:

> We, and our like in the other elements, vanish into dust and pass away, body and spirit, so that not a vestige of us remains behind, and when we human beings awake hereafter to a purer life, we abide with the sand and the sparks of fire, the wind and the waves. For we have no souls. The element in which we live animates us. It even obeys us while we live, but it scatters us to dust when we die.[22]

"Ondines" scatter to dust, a most fundamental element, after their fleeting mystical lives. Their mythical appeal, their allusion to natural elements of the earth and fluid associations of water, and their dual identity in the real and unreal worlds are all central to the compositional process in "Ondine". The dichotomy between real and imaginary realms ascribed to

[21]Paul Roberts, *Images*: *The Piano Music of Claude Debussy* (Portland: Amadeus Press, 1996), p. 231.

[22]De la Motte Fouqué, *Undine,* adapted from the German by W.L. Courtney, illustrated by Arthur Rackham (London: Heinemann, 1909), p. 16.

mythology is a symbolic link to the conflict between vestigial references to tonality and total dissolution. This is musically represented in "Ondine" in part by deriving D-Lydian from interval cycles of the whole-tone and octatonic sets, not by traditional tonal means. On a large scale, the overall Rondo form, an implicitly tonal form, is crafted to create a symmetrical form transcendent of tonal allusions and possibilities.

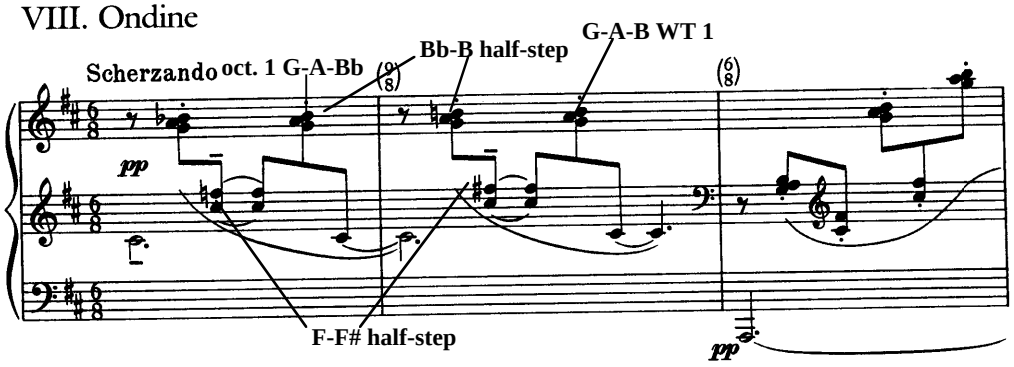
Another source of inspiration for Debussy's *Préludes*, including "Ondine", is the painter Odilon Redon. Known for celebrating the imagination, Redon often depicted fantastic and supernatural subjects with vibrant colors and vivid textures. Redon's following reflection on his work helps to illuminate the aesthetic which shaped Debussy's creation of "Ondine": "My whole originality consists in making unbelievable things live in our human world according to the rules of the believable."[23] The literary character "Ondine's" fusion of the natural and supernatural is portrayed in several ways in the prelude "Ondine". The primary means are the use of dreamy, fleeting figures, a coloristic use of sonority, and merging non-traditional whole-tone and octatonic forms into the patently traditional, A-B-C-B'-C'-B'-A' Rondo.

Analysis

From the beginning of "Ondine", the process of odd-note intrusion as the pivot for pitch set modulations is clearly established. The octatonic 1 cell

[23]Odilon Redon, *Á soi-même: journal (1867-1915*) (Paris: José Corti, 1961; Nochlin 1966), 195.

G-A-Bb, introduced in m. 1, forecasts later interval cycle 1:1 and 1:2 transformations. All of the pitch sets in "Ondine" evolve from this initial cell and its juxtaposition with the left-hand F, an "odd" note missing from the octatonic 1 collection. It does however form the whole-tone 1 segment F-G-A-(B)-C#-(D#) if pitches from m. 1 and 2 are combined. Curiously, only F# is present from the other whole-tone partition, whole-tone 0. The alternation of F/F# and B/Bb forecasts later whole-tone and diatonic pitch groups, and initiates an additive process of set-segment generation.

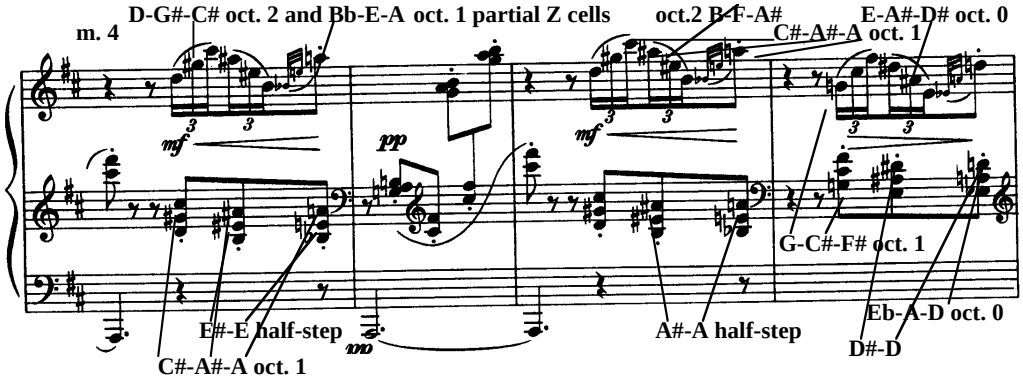


Example 2-1: Ondine m. 1-3

Through the shift in "light" by the addition of a sharp or flat, a new means of progression evolves which can produce new collections. Pitch set identity is contrasted in m. 2, where G-A-B is juxtaposed with G-A-Bb. G-A-B is purely whole-tone 1, while G-A-Bb is either part of octatonic 1 or a modal, diatonic collection. These two cells share the G-A segment, but feature a half step, ratio 1:1 conflict between B and Bb. They also reflect an expansion process from octatonic to whole-tone that shapes the form of "Ondine". Another ratio

1:1 conflict is found between the F# of m. 1, and the F of m. 2. These chromatic juxtapositions reveal that “Ondine” develops from the smallest possible interval ratio, the half-step 1:1, and imply that interval cycle expansion will aid in the development of materials. In a pictorial sense, “Ondine” develops from nothing into the smallest interval the half-step, and later into larger intervals and more complete pitch sets before ending.

The pairing of measures in the m. 1-6 section points to the important influence of classical period structures in “Ondine’s” phrase conception. Throughout “Ondine” phrases are paired, or the pairing is broken to delineate important structural events. The intervals begin to expand in m. 4, where partial Z-cells D-G#-C# and Bb-E-A are cast as triplets with B-F-A# from octatonic 2. Octatonic identity is further contrasted in these figures since D-G#-C# is itself a member of octatonic 2, while Bb-E-A is part of octatonic 1. One important transformation in m. 4-6 is the chromatic recasting of A# as A, E# as E, and D# as D in m. 7. This represents the integral, pervasive process of chromatic reinterpretation that shapes “Ondine”.



Example 2-2: Ondine, m. 4-7

Another important relation is contained the melodic outline C#-A#-A, derived from the top note of the m. 4 triplets. The C#-A#-A line highlights the 1:1 half-step, the 1:3 minor third, and 1:4 major third cycles. Interval cycles are a central part of the expansion and contraction process that often includes motion from one pitch collection to another. A shift to the major third cycle is important in the emergence of Eb-Lydian, and minor third cycles can be used to derive octatonic sets. This m. 4 and 6 C#-A#-A outline is moreover an octatonic 1 fragment that, in m. 7, is transposed to F#-D#-D of octatonic 0. This measure breaks the phrase pairing, and is the first clear example of transposition of both melodic figures and octatonic sets. In contrast to m. 4 and 6, m. 7 has the tritone/fourth constructions G-C#-F# and E-A#-D# from octatonic 1, and Eb-A-D from octatonic 0.

Up to this point in “Ondine” whole-tone material has not been prominently partitioned and has been embedded in octatonic and chromatic constructions. The rising scalar figures of m. 8-9 abruptly change this by introducing five members of whole-tone 0, (G)-Ab-Bb-C-D-(D#)-E. Also, the low A bass note, indicative perhaps of the dominant of D-Lydian, is replaced by Bb-F fifths of octatonic 2. This fifth is an intermediate product of cyclic interval expansion from the m. 1 half-steps and the m. 4-7 thirds, fourths, and finally tritones. The last beats of m. 8 and 9 follow the rising chromatic line D-D#-E, a surface reflection of the underlying process of chromatic expansion. The last measure before the B section, m. 10 marked *retenu*,

reiterates this with the D# in the left-hand, and D-E in the right-hand. This break in motion and texture effectively polarizes left and right, white and black-key, and whole-tone 0 and 1. It is likewise a reflection of the character "Ondine's" merging of the natural and supernatural worlds.

The D-D#-E chromatic contraction leads to an exploration of smaller intervals, specifically octatonic 1, in the m. 11-13 section, *au Mouvement*. Contrasting Eb-F# augmented seconds and A-Bb half steps combine with Db to form the octatonic 1 partition, Eb-F#-G-A-Bb-Db, that imparts an exotic, otherworldly mood. The repetition of this figure creates an emotional and textural staticism inspired by the Symbolist painters and poets, and offers a brief respite from prior texture contrasts.

Fibonacci symbolism, which figures prominently in other preludes, is worth mentioning since there appears to be a displaced correlation of events with the numbers in this series. For instance, m. 13, a number of the Fibonacci series, marks the repetition of the exotic, rising and falling octatonic 1 scale introduced in m. 11. For strict correspondence to the Fibonacci series, the material should fall in m. 13, not in m. 11. Nevertheless, the proximity of this and other structural and pitch set events in "Ondine" appear to be related to the numbers in this series. Roy Howat's contention that Debussy sometimes does not completely fulfill formula and schemata is pertinent in this case.[24]

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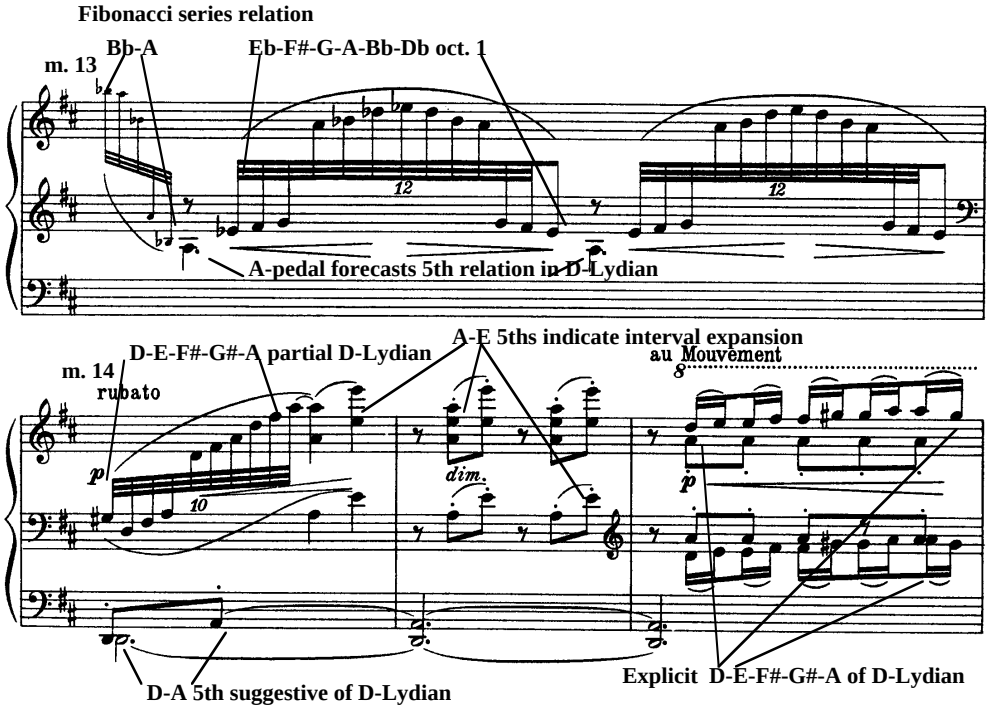
[24]See the chapter, "'La terrasse des audiences du clair de lune': Symmetrical and Golden Section relations in the Conception of Tonal Allusion", in this treatise, p, 99, and also Roy Howat, *Debussy in Proportion*: *A Musical Analysis* (Cambridge: Cambridge University Press, 1983), p. 162.

Another interpretation of the Fibonacci relation relates to the m. 14 transformation into D-Lydian. This occurs as the F#-A-Db fragment from octatonic 1 evolves in m. 14 into the incomplete D-Lydian collection, D-E-F#-G#-A, stated as thirds and fifths. This Lydian set is a result of half-step chromatic expansions throughout the A and B sections, but specifically from the G in m. 1-3, to the G# found in m. 4-7. This presentation of Lydian with the whole-step segment D-E-F#-G# also points to the derivation of this mode from whole-tone 0 (C-D-E-F#-G#-A#). Melodic A-E fifths, stated over a bass fifth D-A, assert a vague D diatonic or D-Lydian allusion, then quickly move to clearly assert D-Lydian in m. 16, *au Mouvement*. The juxtaposition of the D-Lydian collections in m. 14, where the intervals are thirds and fifths, and m. 16, where a five-note segment of the D-Lydian scale is presented linearly, point to a cumulative expansion of interval cycles in the formation of this set.



Example 2-3: Ondine, m. 13-16

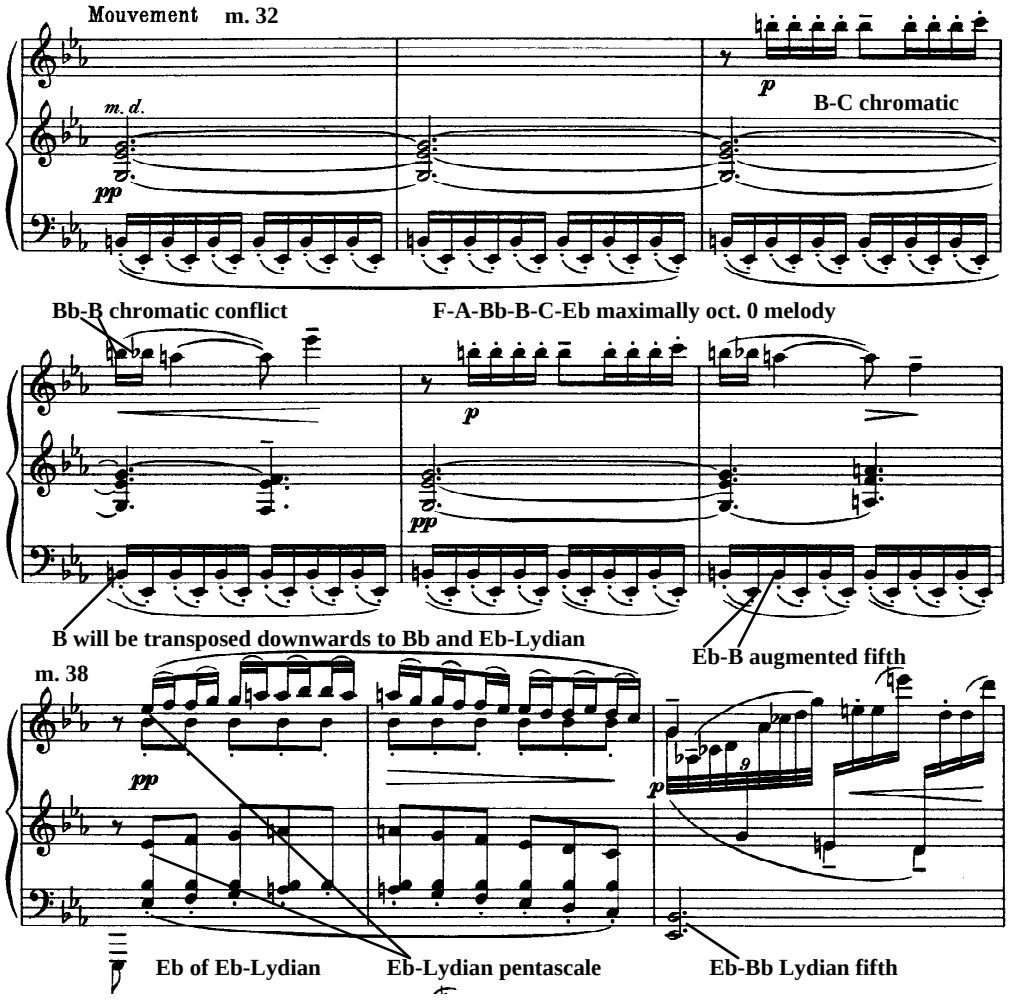
Through common pitch segments, this five-note D-Lydian scale evolves away from whole-tone 0 and instead into whole-tone 1 and octatonic 1 in the section beginning in m. 18. On one level, the m. 13, octatonic 1 Db-Eb-F#-G-Bb material returns, missing only A from the m. 13 collection. Although pitch A is present in the bass fifth D-A, I do not include it because it occurs only on the first beat, and is not part of the melodic texture in the upper two staves. What distinguishes m. 18ff from m. 13 is that octatonic 1 is partitioned into a Db-Eb second from whole-tone 1, and a middle-stave, Db-Eb-F# pentatonic fragment. The affiliation of whole-tone 1 and octatonic 1 is strengthened by this shift in identity. While the augmented second Eb-F# was

cast in an octatonic context in m. 13, it is pentatonic now. The combination of this Eb-F# augmented second with the Db-Eb second points to an expansion away from the half-step and chromatic relations that culminates with the Eb-Bb fifth on the last beat of m. 19.

Even so, the technique of chromatic reinterpretation is an important means of progression in the next sections. In the top stave of m. 20ff, the fifth Eb-Bb is chromatically recast as the E-B fifth and combined with the third F#-A to form a partial D-Lydian ostinato. The G# necessary for Lydian identity is found in the middle stave melody, F#-G#-A-B-C-D, that reiterates C-D-F#-G# of whole-tone 0. The C-natural in the melody imparts a mixed Lydian and Mixolydian modal form. Further, D-Lydian is asserted by the combination of the D-A fifth, the D-F#-A triad, and the middle-stave G#. The m. 22-25 transition to the "B" section return chromatically recasts pitches F/F#, G/G#, E/E#, C/C#, and B/B#, and dominant seventh chords built on D, C, B, and A. The white and black-key dichotomy inherent in these contrasts is important stylistically in many of the *Préludes*, including "Feux d'artifice" and "La terrasse".

The technique of chromatic reinterpretation of pitches and intervals from prior sections expands in the next sections, including the transition and "C" section. The D-Lydian *Mouvement* section returns in m. 26, only to be interrupted with the return of the m. 11-13 material Eb-F#-G-A-Bb-Db of octatonic 1. An appendage to the original m. 13 *Mouvement*, marked *retenu*, prominently emphasizes the Db-D-Eb-Fb half steps and Db-G tritone in m.

31. The congruence of the Db-G tritone to octatonic 1 and 2, and the emergence of this chromatic line both point to a chromatic equalization of pitch materials. The m. 32 “C” section affirms this since the key signature shifts from two sharps to three flats, and no particular pitch collection is invoked. An Eb-B augmented fifth ostinato, yet another chromatic reinterpretation of the m. 19 Eb-Bb black-key and m. 20 E-B white-key fifths, is a prime example of material created through odd-note intrusion and interval cycle expansion. The combination of the Eb-B 1:8 augmented fifth and Eb-G tied chord forms an Eb-G-B augmented triad that represents an expansion to major third, Eb-G/G-B 1:4 ratios. The 1:4 ratio expansion to the major third helps to prepare for the reformation of D-Lydian as Eb-Lydian in the following section.



Example 2-4: Ondine, m. 32-40

The techniques of odd-note intrusion, cyclic interval expansion, and shared pitch identity in whole-tone, octatonic, and Lydian spheres prepare for the articulation of the next pitch goal, Eb-Lydian in the B' section, m. 38ff. The right-hand chromatic melody in m. 34-7 draws on commonality with

octatonic 0 to prepare for this Eb-Lydian transposition from the original, m. 15 D-Lydian. This melody, containing the pitches F-A-Bb-B-C-Eb, is maximally related to the octatonic 0 set (C-D-Eb-F-F#-G#-A-B) and is partitioned to highlight half steps, whole steps, and the A-Eb tritone. Pitch B from the left-hand ostinato must move to Bb and combine with A-natural to form this Eb-Lydian collection, Eb-F-G-A-Bb-C-D-Eb. An interesting relationship is that Eb-Lydian contains the whole-tone 1 segment Eb-F-G-A, while D-Lydian contains the whole-tone 0 segment D-E-F#-G#. The motion between octatonic 0 and 1 spheres has not only polarized whole-tone elements, it has effectively facilitated the creation and distinction of these separate Lydian spheres.

The Bb in the m. 34-7 melody, however, is not part of octatonic 0 and serves a dual function. On one level it is an odd-note intrusion (akin to a textural variation in a painting), that combines with octatonic 0 elements to allow Eb-Lydian to evolve from the partial octatonic 0 set. On another, it is a half step 1:1 cycle transformation of B to Bb. The resultant Eb-Lydian collection is a fusion of octatonic 0 elements and cumulative chromatic transformations. This Bb also is a product of the cumulative expansion process, from tritones to fifths to the Eb-B augmented fifth of octatonic 0. This method of cyclic interval expansion is an effective way to progress from one octatonic or whole-tone set to another. Octatonic 0 is a useful set to migrate towards because it contains the greatest number of pitches common to Eb-Lydian and whole-tone 1. The m. 34-37 chromatic melody establishes a

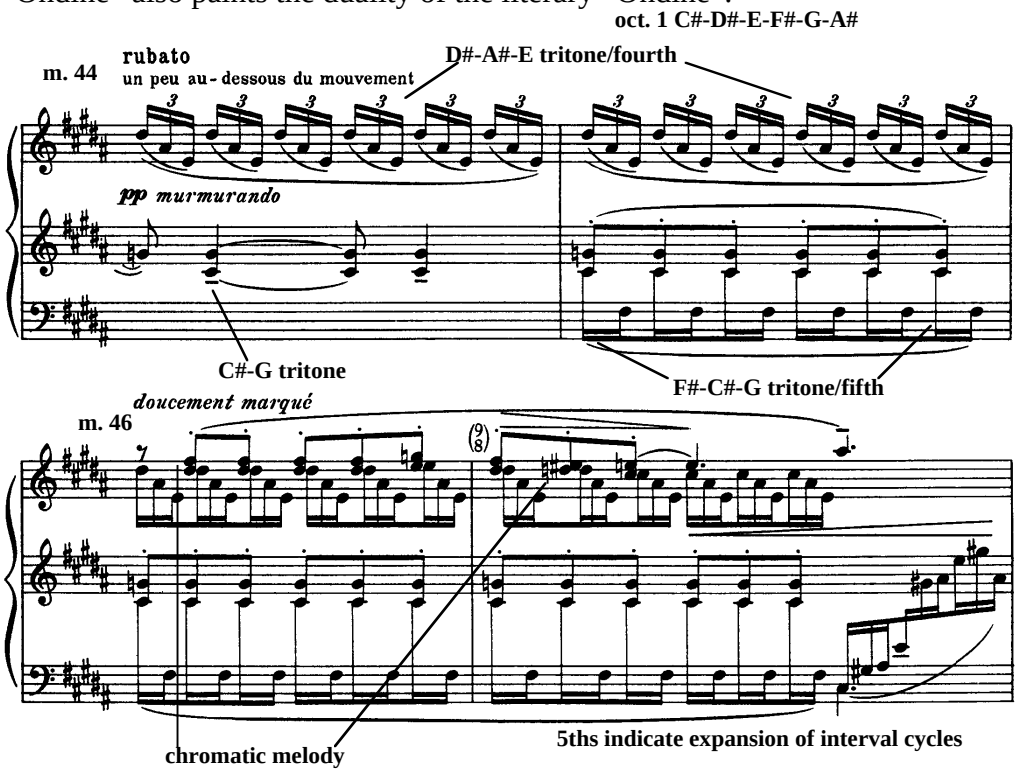
conflict between B and Bb in m. 35 and 37 which through a change in the underlying chromatic set, allows Bb and A to emerge in Eb-Lydian. In addition, part of the Eb-F-G-A-Bb Lydian pentascale, Eb-F-G-A, is derived from whole-tone 1 (Db-Eb-F-G-A-B).

The m. 38-43 "B'" section is fundamentally a chromatic transformation of the underlying whole-tone elements of the original D-Lydian "B" section (m. 26). This transposition is accomplished not through traditional tonal means, but through chromatic and octatonic reformation of the whole-tone components of the Lydian scales. The half step contrast between D and Eb-Lydian colors also reflects a larger polarization of white and black-key, and whole-tone 0 and 1 spheres respectively. All of these musical opposites reflect the underlying conflict between real and unreal, and natural and supernatural inherent in the mythical figure "Ondine".

The Eb-Lydian section unexpectedly ends with the return of the meandering chromatic line Db-D-Eb-Fb-G from m. 30-31. This line, omitting the Db-G tritone from octatonic 1 and 2, was previously part of D-Lydian. The only difference is that in m. 42-43, the material is divided between the hands in a symbolic separation of left and right that foreshadows chromatic separation in the "D" section.

Throughout the m. 44 "D" section, marked by a five-sharp key signature, the Db-G tritone is reinterpreted as C#-G. Falling triplet D#-A#-E tritone/fourth constructions combine with F#-C#-G tritone/fifth figures to form the six-note octatonic 1 collection C#-D#-E-F#-G-A#. The whole-tone

content of this collection is also important, as C#-D#-G from whole-tone 1, and E-F#-A# from whole-tone 0 are contrasted. The presence of three notes from whole-tone 0, versus three from whole-tone 1, implies these whole-tone areas are equal and that whole-tone 0 has yet to emerge. This polarity of whole-tone spheres is a direct consequence of the separation of left and right hand chromatic elements in m. 42-43. It also significantly foreshadows the final F#-A# 1:4 third contained in the final F#-A#-C# triad. On another level, the duality of separation and fusion that unifies the structure of the prelude "Ondine" also paints the duality of the literary "Ondine".



Example 2-5: Ondine, m. 44-47

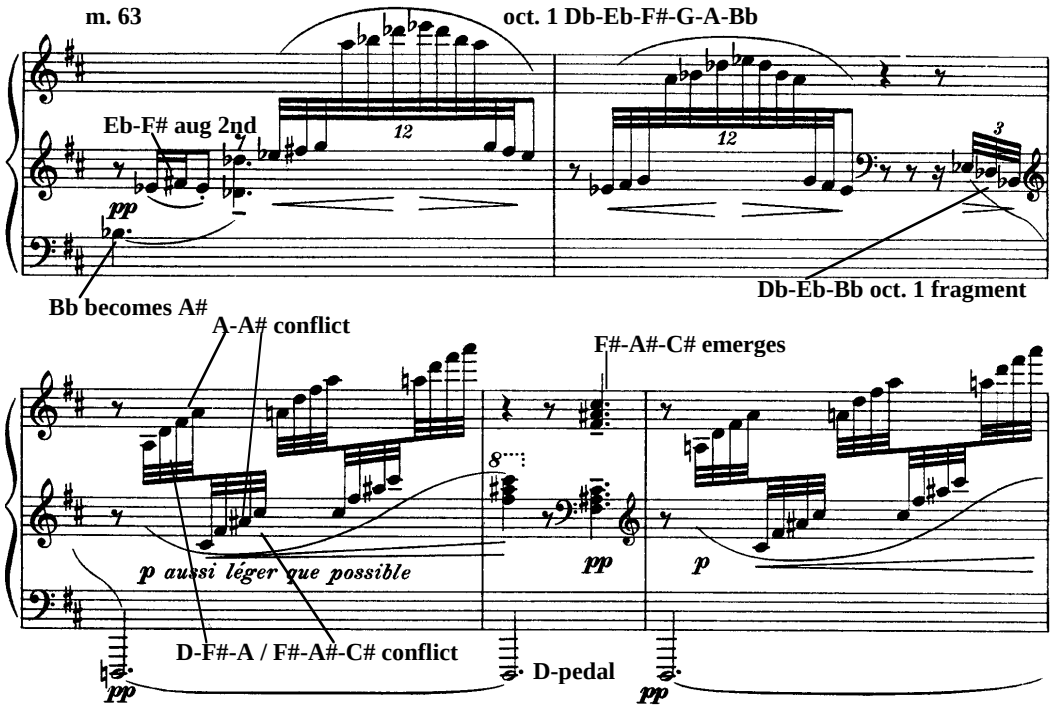
The recurrent chromatic line Db-D-Eb-Fb-G is at the original pitch level in the lower voice, and also stated a minor third above (E-E#-F#-G-A#) in m. 46-47. The augmented second Eb-F#, first heard in m. 11-13, generates this vertical doubling in the original octaves in m. 48-49, where octatonic 1, C-C#-D#-E-F#-G-A#, recurs with only pitch "A" missing. Although it also occurs in octatonic 0, this augmented second is central to the generation and identification of octatonic 1. Moreover, it bridges the two whole-tone spheres, with F# representing whole-tone 0, and Eb representing whole-tone 1.

The chromatic relations of tritones shape the material from m. 49-53, as the Db-G tritone is transposed to Bb-E and E-A# and the material moves by minor third between octatonic collections. The aggregate pitch collection of each measure moves toward greater octatonic 1 and D-Lydian content, away from octatonic 0 and Eb-Lydian. Pitch collections traverse the m. 52 pitch set C-C#-D-E-F#-G-A-Bb-B, which contains the almost complete Lydian segment D-E-F#-A-B-C#. The Lydian-defining G# must still be added to complete the collection. The material in m. 53-55, true to the evolutionary process of ambiguity to clarity, is less explicitly Lydian and instead prepares for the m. 56 return of the c' motive. As would be expected in the traditional thematic return in a Rondo, this motive follows the original m. 30-31 rhythm and pitch content (Db-D-Eb-Fb-G-A). An indication of the progressive motion toward overall closure is that this motive is played solely in the right-hand, and not divided between the hands as it was in m. 42-43.

The generative process of chromatic expansion returns in the left-hand of the *Mouvement* section, m. 54ff, to prepare for the return of B' and the final Coda. The low pitch "G" is an unmoving, repeated bass note within a chromatic ostinato spanning m. 54-58. Concurrently, the upper notes of the ostinato traverse the rising chromatic line A-Bb-B-C-C#-D-Eb. The juxtaposition of the G and these undulating chromatic pitches creates a static, expectant quality that intensifies the need to move upward from G to G#. Motive c' "accompanies" this rising chromatic passage in m. 56-57. After two complete left-hand cycles, the right-hand finally introduces Eb octaves in different registers of the piano to signal an end to staticism. Immediately following, the chromatic line rises through F-F#-G, and at last G# to include all twelve chromatic tones (m. 59). This conclusive upward motion of the static left-hand texture, delayed for six measures, is a powerful moment in the prelude "Ondine" that must mirror the ascent of the character "Ondine" into another realm.

In a decisive move toward closure, octatonic 1, including the Eb-F# augmented second, returns in B' (m. 62-64). This second and the line Bb-Db-Eb (A#-C#-D#) are an octatonic 1 fusion of both whole-tone partitions that prepare for the emergence of F# and D triads in the Coda. Moreover, secondary octatonic elements within the figuration also serve as intermediate constructions in the long-range motion between whole-tone sets and the D and F# triads (m. 65). The octatonic 1 collection Db-Eb-F#-G-A-Bb, missing only C and E, serves as pivot between the two whole-tone collections. It also

contains pitches F#-Bb-Db (F#-A#-C#) and F#-A from the D-major triad. Consequently the whole-tone and diatonic implications of this m. 63 material, first encountered in Fibonacci m. 13, are made explicit after cumulative transformations. In a larger sense, formal symmetry, a notable feature of Rondo-form, is attained by the return to the C' and B' sections and octatonic 1.



Example 2-6: Ondine, m. 63-7

Perhaps at this point "Ondine" has returned to her origins and fundamental elements, much as the pitch materials are returning to the initial octatonic 1 and D-Lydian collections. The final Db-Eb-Bb octatonic 1

fragment in m. 64 allows Bb to be respelled chromatically as A# and form the F#-major triad F#-A#-C#. This triad represents a cumulative fusion of whole-tone spheres in m. 65. The Db-Eb-Bb line also fuses Db-Eb from whole-tone 1 and the Bb that originally appeared as part of whole-tone 0 in m. 1. The upward expansion from A to A#-Bb culminates in this final section with the juxtaposition of pitches A and A# inherent in the D and F#-major triads.

A fitting form of bi-tonality that reflects the duality inherent in the subject "Ondine" results from this recasting of Bb as A#. Even in the Coda, the conflict between chromatic pitches is not complete. The triads D-F#-A and F#-A#-C# are alternated every other beat to contrast pitches A and A#. Meanwhile, a low D bass note played throughout m. 65-71 suggests that some form of D pitch set identity will prevail. Yet m. 66 and 68 present only the F#-A#-C# triad in the treble to thwart the statement of D-major. After both of these F#-major pauses, the alternation of D-major and F#-major continues until the last F#-major triad dissolves in m. 72. This D-F#-A triad rises prominently in three octaves, and is held for two and a half measures.

Paradoxically D-F#-A, part of octatonic 0 and not the original octatonic 1, is a fusion of chromatic and whole-tone elements. Moreover, the G# from the D-Lydian collection has also disappeared through cumulative chromatic transformations. But most important, the G# was transposed upwards by one-whole-step through the whole-tone 0 collection to A#, and then fused into the F#-A#-C# triad. Long-range whole-tone interactions have

prepared for this transformation, which paints “Ondine’s ” disappearance from the real world and her return to the supernatural.

In conclusion, the prelude “Ondine” aptly fulfills Debussy’s depiction of art: ”Like Nature herself, Art changes: she moves in curved lines but always ends up exactly at the point where she began.” [25] While the prelude “Ondine” does not return to the original G-A-Bb cell, the overall arch form of the Rondo oversees the fulfillment of the whole-tone and octatonic possibilities inherent in this cell.

[25]Claude Debussy, *Debussy on Music: The critical writings of the great French Composer*, collected and introduced by François Lesure, trans. and ed. By Richard Langham Smith (Ithaca: Cornell University Press, 1988), p. 255

Chapter 3: Polarity and shared identity of pitch materials in the emergence of A-Lydian in "Les sons et les parfums tournent dans l'air du soir"

The prelude, "Les sons et les parfums tournent dans l'air du soir", was inspired by the third line of the first stanza of the poem, "Harmonie du soir" (Harmony of Evening), from *Les Fleurs du mal* by Baudelaire:

> Voici venir les temps où vibrant sur sa tige
>
> Chaque fleur s'évapore ainsi qu'un encensoir;
>
> Les sons et les parfums tournent dans l'air du soir;
>
> Valse mélancolique et langoureux vertige!
>
> (Now comes the time, when vibrating on its stem
>
> Each flower sheds its scent like a censer;
>
> Sounds and scents turn on the evening air:
>
> Melancholy waltz and languorous vertigo!)[26]

This poem conjures a vision of pungent scents merging with the air in varying shades of intensity, only to waft away and recombine in new shades as the wind swirls around. The poetic beauty of these words conveys an impressionist aesthetic of scents and colors that are created through the juxtaposition and combination of seemingly disparate, yet subtly related elements.

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[26]Paul Roberts, Images: *The Piano Music of Claude Debussy* (Portland: Amadeus Press, 1996), p.73.

Paul Roberts, in his study of the literary and programmatic influences on Debussy's piano music, contends the phrase "Sounds and scents turn on the evening air" refers to the fusion of the senses experienced in synesthesia. Debussy demonstrated interest in a fusion of the visual and musical arts, and in the variety of impressions created by all the senses, with the programmatic titles appended to the *Préludes*. As mentioned in the introduction, the imaginative possibilities and unspoiled conditions of the mind attracted Debussy. The dichotomy between mythical and real figures inspired Debussy, as did the relation between subconscious and conscious. Roberts contends: "Debussy's "Les sons et les parfums" evokes that half-light, characteristic of so much of his music, in which the conscious and the subconscious meet."[27] This merging of conscious and subconscious is reflected in the constant swirling and blending of pitch materials throughout "Les sons et les parfums". The fusion of non-traditional structures such as octatonic and chromatic forms into apparently diatonic areas is a central musical construal of this meeting of subconscious and conscious.

Debussy's prelude, "Les sons et les parfums dans l'air du soir", forms a musical landscape that blends four colors; diatonic, octatonic, chromatic, and whole-tone, into the ultimate emergence of A-Lydian as the governing pitch set. The constant respelling and realigning of shared pitch elements creates a fluid motion of ambiguity that gradually reveals the A-Lydian identity of the set segments.

[27]Ibid., Roberts, p. 74.

The process of pitch and key area development is cumulative in “Les sons et les parfums”. A-Lydian is stated in its entirety only in the final section, measure 51-to the 55th bar line. This is important because bar line 55 marks the end of the piece and the number 55 is a numeric proportion of the Fibonacci series. This series 0,1,2,3,5,8,13,21,34,55, and continuing, corresponds with the measure numbers in which pitch sets and thematic statements emerge in ”Les sons et les parfums tournent dans l’air du soir”.[28] A close examination of the convergence of shared pitch elements and “missing” and “wrong” notes at these Fibonacci measure numbers will illustrate how A-Lydian is implied from the inception of this prelude.

The clearest statement of the A-Lydian mode, A-B-C#-D#-E-F#-G#-A, in m. 51-55 is a consummation of cumulative Fibonacci correspondences and transformations. This section is marked by the return of the “A” pedal and an A-Major/Lydian triad that delineate structure throughout the prelude. The closing theme, which contains the Lydian-defining D# first in grace-note minor thirds, then in 16th-thirds, unifies the cumulative minor third cycles of the octatonic scale. On another level, the left-hand fourths below this theme recall the interval expansion process (from whole and half steps, to fourths, tritones, and finally fifths) that generates new pitch areas throughout “Les sons et les parfums“. A further indication of the cumulative processes at work is that material presented in one context in the beginning of the prelude takes

[28]For a perspective on the Fibonacci Series and Golden Section see Roy Howat, *Debussy in Proportion*: *A Musical Analysis* (Cambridge: Cambridge University Press, 1983), p. 2-3 and 7-8.

on new meaning later, often through the addition or subtraction of pitches. Significantly, successive transformations of the m. 1-2 A-Major/octatonic material and bi-tonal A-C#-E / F#-A#-C# triads are revealed as A-Lydian structures in the final section. Gradual intrusions of D# in octatonic and whole-tone formations, first in a partial theme statement in measure 8, and later in the theme in measures 24 and 33, exemplify this progressive transformation to the A-Lydian mode.[29]

As is commonly found in Debussy's *Prélude*s, the generative process and system of relations is established in measure one, the first measure of the Fibonacci sequence. The development of "Les sons et les parfums" stems from the reinterpretation of pitches and pitch segments in a palette of constantly evolving pitch sets. Although at this point the D# necessary to define the A-Lydian goal of the prelude is missing, the low A pedal and A-Major triad assert some form of A-Major tonality. This omission is central to the process of development and transformation. Partial pitch sets allow for new sets to arise through combination with other notes and collections. This pointillistic technique of completion and transformation of incomplete sets is akin to the mosaic construction of colors and texture in an Impressionist painting. In each case, an out-of focus form will become more apparent through a shift of pitch or pitch-set (similar to light or color in painting) that reveals previously veiled aspects. While a painting is fixed in time, music

[29]In the Dover and Alfred editions, a barline is added between m. 28-29 that adds a measure to the total. Since this is not found in the Durand edition, and m. 28-29 appears to be a 5/4 measure as found in m. 24-27, 30, 44, 45, and 49, I have disregarded the barline.

progresses and changes through time so that new forms and moods can be generated through recombination of mosaic pitch elements.

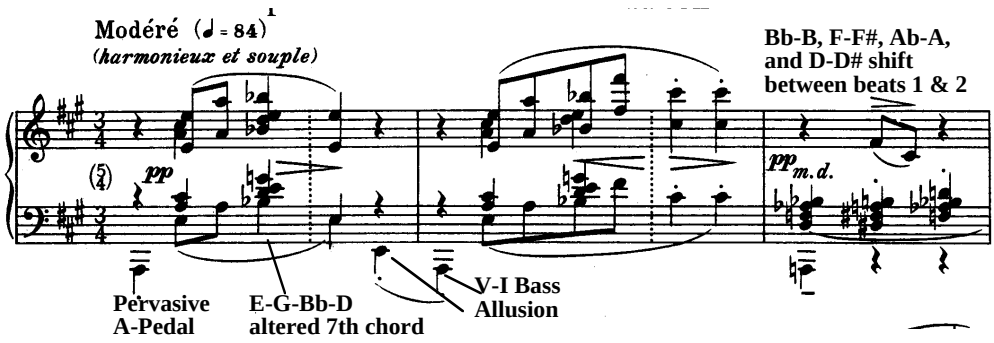
Another important practice introduced in m. 1 is the manipulation of traditional tonal precepts. Debussy's piano music is a clear evolutionary step in the move away from tonality. On one hand it retains allusions to tonic-dominant tension, but on another it casts these relations in a new light that reflects the independence of the twelve chromatic scale tones. The addition of chromatic tones alters formal and tonal implications, and revises the overall sense of progression customarily created by traditional tonal building blocks. For example, the traditional harmonic progression Tonic I, to Subdominant IV, to Dominant V, with an inevitable return to I, is not followed. The normal dominant of A-major/Lydian E-G#-B-D is instead chromatically reinterpreted in m. 1 as E-G-Bb-D. This alters the tonal dichotomy and harmonic tension between I and V. Pitches Bb and G are added to this altered, half-diminished 7th chord, while G# and B are removed. Notably, the D# necessary to complete the A-Lydian goal is not yet present, an omission which promotes further pitch transformation and motion. The progressive motion to D# is one formal process that replaces the harmonic progressions and goals prescribed by tonality. As outlined in the Introduction, the creation and fulfillment of tonal goals and progression is not the point of the Debussy *Préludes* in this study. Rather, the means of progression in "Les sons et les parfums" is the transformation of interval cycles via expansion of the half-step through the whole-step, third, fourth, tritone, and finally fifth.

The principle of interval inversion is another way the traditional concept of tonality and tonic-dominant relations is replaced in “Les sons et les parfums”. In this technique, pitch-set elements are separated and subsequently fused. The Bb within the chromatically reinterpreted E-G-Bb-D seventh chord in m. 1 forms an incorrect Bb-E tritone within a traditionally “dominant” chord. In “Les sons et les parfums”, however, this tritone is transposed down one half-step to the A-Lydian tritone, A-D#. Furthermore, the initial octatonic material will be reinterpreted as chromatic and whole-tone before it finally evolves into the purely A-Lydian set.

The remainder of the “exposition” of “Les sons et les parfums” transforms the incipient m.1 octatonic 2 fragment, C#-D-E, into the more complete octatonic 1 set, then into chromatic segments, and finally into whole-tone components. Motion to these pitch sets is through reinterpretation of shared pitch-set elements. Initially, m. 2 expands the rising–fourth/tritone E-A-Bb motive of m. 1 to a Bb-F# augmented fifth, and places the E-Bb tritone in the E-diminished 7^{th} chord (E-G-Bb-Db). This seventh chord, when combined with the A-major triad, yields a scale form closer to A-major, A-(Bb)-C#-D-E-F#-(G). The presence of pitches G and Bb, which are not part of A-major, adds ambiguity to the pitch set identity and enables them to become part of the incomplete chromatic segment C#-D-D#-()-F-F#-Ab-A-Bb-B-() in m. 3. Extra pitches such as the G and Bb are often added to incomplete pitch collections to promote motion to related collections throughout “Les sons et les parfums”.

Another important means of progression in “Les sons et les parfums” is created through the juxtaposition of white and black key elements. Debussy also employs this technique in “Feux d’artifice” and “Les fées”, among others, to supplant the conflict and progression inherent in traditional tonal forms. Although the polarity between the white and black key spheres is not as pronounced in “Les sons et les parfums” as in “Feux d’artifice”, the half-step conflicts created in m. 3 between black- and white-key collections shape the structural development of “Les sons et les parfums”. The half-step gap created by the white-key versus black-key contrast is important in two ways. As the smallest interval, the half-step can be part of octatonic or diatonic pitch groups, or, through cyclic interval expansion, can evolve into larger intervals such as tritones and fifths. In this manner the juxtaposition of white and black keys facilitates motion between the diatonic and modal spheres that produce the A-Lydian goal. As in “Feux d’artifice”, chromatic interactions are only one type of white-key/black-key dichotomy in “Les sons et les parfums”. Other types arise through the interaction and juxtaposition of whole-tone or octatonic elements.

One instance of chromatic white -and black-key alternation occurs in m. 3, where alternated Bb7 and B7 chords are reinterpreted and contrasted as the chromatic respelling of the other.



Example 3-1: Les sons et les parfums, m. 1-3

Pitch Bb and the Bb-7th chord represent the black-key realm, while pitch B and the B-7th chord represent the white-key realm. Combined, they allude to chromaticism both in blocked textures as well as in long term formal development and progression. Locally, pitch Bb changes to B, F to F#, D to D#, and Ab to A, and back again. This stark juxtaposition of the Bb7 and B7 chords and their elemental pitches illustrates that transformation takes place not only within pitch-set groups or chordal formations, but also from one pitch to another. The half-step extracted from the white and black key juxtaposition of these Bb7 and B7 chords is a germinal interval throughout the prelude, one which ultimately transforms the initial D of A-major to the D# of A-Lydian. In summary, these procedures illustrate the pervasive mosaic construction of this prelude, akin to the mosaic of paint layers and colors in an Impressionist painting, that permeate all levels of the form.

More complete pitch collections progressively emerge through the techniques of cyclic interval expansion and pitch segment fusion. The nearly

complete chromatic segment in m. 4, C#-D-D#-E-F-F#-G-Ab-A-Bb-B, with only C missing, is a cumulative union of previous pitch groups. It is also a fusion of diatonic A, Bb7, and B7 chords set a half step apart, and assimilation of the falling F#-C# right-hand motive, itself a transformation of the initial E-A fourth (m. 1). The creation of chromatic sets that serve as intermediate stages in pitch development, such as in m. 4, is important throughout the structure of "Les sons et les parfums". One reason for this is any other pitch set can be derived from the equalized twelve-tones of the chromatic scale. For instance the omission of pitch C from the m. 4 chromatic collection enables the whole step created by the B-C# gap to shape the creation of subsequent pitch collections. It also enables members of the chromatic set that are adjacent to the B-C# whole-step gap to be combined to form a new hybrid segment that functions as a pivot.

This happens in m. 5, where the Bb7 chord shifts by whole-step to an Ab-Bb-Db pentatonic cluster, while the F#-C# falling motive moves to C-G and then Bb. The addition of pitches C, G and Bb transforms the pentatonic segment (Ab-Bb-Db) into the hybrid set C-Db-D-E-F-G-Ab-A-Bb. Chromatic elements G-Ab-A-Bb-Db remain from the m. 4 set. But this new m. 5 set features whole-steps between Bb-C and F-G, and minor thirds between G-Bb and D-F. The introduction of these larger intervals, an expansion away from the half-steps of the chromatic set, serves a dual purpose. It realizes the whole-step potential of the B-C# gap in m. 4, and also

forecasts further expansion and generation of whole-tone and minor third cycle (octatonic) pitch sets.

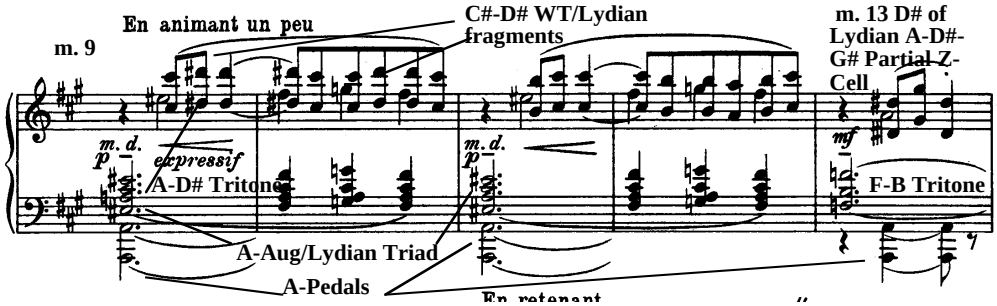
This minor third cycle/octatonic potential is quickly achieved in m. 6, where the C#-diminished 7th, chord (C#-E-G-Bb) is prominently presented in the treble clef. Underneath, the recurrent A-pedal remains in the low bass, alluding to some form of A-Major/Lydian tonality. This pedal, when combined with the diminished 7th, forms a partial octatonic 1 segment, G-A-Bb that also shaped the materials in "Ondine". Octatonicism is slowly emerging in fleeting segments. To intensify the conflict between chromatically spaced pitches, m. 7-8 restate the ambiguous pitch material of m. 5-6, but tie the pitch collection Ab-Bb-Db-E from m. 7 to m. 8, adding Ab to the octatonic 1 A-Bb-C#-E-G segment. This juxtaposition of chromatically related A and Ab is another local half-step manipulation of the pitches, one which points to the later Ab (G#) leading-tone of A-Lydian. Moreover, it reflects the ongoing polarization of white and black-key spheres.

Pitch set ambiguity intensifies until the whole-tone 1 set emerges at an important Fibonacci series correspondence in m. 8. Immediately before, a C#-diminished-7th implies octatonic potential, and an Ab-Bb-Db cluster suggests pentatonic or whole-tone pitch identity. The duality and ambiguity of these sets is further developed in m. 9ff, "En animant un peu", where the whole-tone 1 set is asserted by the segment C#-D#-E#-(G)-A. In m. 10 pitch G is added to the m. 11 pitches A and B to form the complete whole-tone 1 scale A-B-C#-D#-E#-G. This scale is a realization of the whole-tone potential

created by the whole-step B-C# gap in the m. 4 chromatic scale. It also reflects cumulative cyclic interval expansion to the whole-step from the half-step of prior chromatic areas.

A notable instance of structural unity, one which foreshadows the final A-Lydian section, is the m. 9-10 embedding of the A-Lydian tritone A-D# within the texture. This forecasts subsequent octatonic, symmetrical pitch structures as well as the concluding A-Lydian goal of the prelude. This is only one of the cumulative transformations and juxtapositions that demonstrate the multiple identities of pitch materials in “Les sons et les parfums”.

A cumulative example of this process of kaleidoscopically mutable pitch meaning follows in m. 11ff. This occurs as the whole-tone set of m. 11-12 is transformed into a partial A-Lydian collection in Fibonacci measure number 13. The addition of D# to A from the underlying whole tone collection forms the A-D# tritone that defines the A-Lydian mode. Significantly, this emergence of an A-Lydian fragment at a Fibonacci juncture (m. 13) confirms that previous set segments were really part of A-Lydian, and points to the prevalence of A-Lydian segments throughout “Les sons et les parfums”. Pitches A-D#-G# form a partial Z Cell (A-D-D#-G#), replete with the octatonic implications associated with symmetrical, dual-tritone constructions.



Example 3-2: Les sons et les parfums, m. 9-13

These cumulative manipulations, especially the expansion from half-step to whole-step, cast the m. 1 melodic statement in an A-Lydian light. To achieve this, the D# of A-Lydian has replaced the D of the m. 1 A-major opening. In addition, E has moved up a half-step to E# to create the A-augmented/Lydian triad in m. 9. Broader application of this Lydian identity suggests that the whole-step C#-D# melodic figure of m. 9-12, which precedes and prepares the m. 13 Lydian theme transformation, is common to not only the whole-tone, but also the Lydian pitch sphere.

Two relevant structural connections emerge from this whole-tone to Lydian progression. One is that the A-D# tritone is a pitch segment shared between whole-tone and Lydian sets. Another is the motion of the whole-tone set to the A-Lydian goal. The A-Lydian mode (A-B-C#-D#-E-F#-G#-A) is the union of two whole-tone segments, (A-B-C#-D#), and (E-F#-G#). These segments are sometimes combined to form A-Lydian, but they also combine with other elements to form chromatic, diatonic, and octatonic pitch sets. The tritone represents an expansion from the initial chromatic half-step, and the whole-step and minor thirds of m. 5. Intervals throughout this prelude are

consequently transformed on a local level into new sets, but also on a global level to link larger sets and sections. As a result, elements of A-Lydian gradually emerge through the creation of hybrid collections and their transformations, including the whole-tone collection.

The multiple meanings inherent in the A-D# tritone are explored further in m. 14, where another shift of pitch color leads to octatonic 1, C#-D#-E-F#-G-A-A#-(C), with only C missing. In the constantly shifting pitch mosaic of "Les sons et les parfums" no single pitch set dominates for long. The A-D# tritone is made explicitly octatonic by its inclusion in this nearly complete octatonic 1 scale, which retains whole-tone dyad C#-D# from m. 9-10. The absence of C from this octatonic set, which has A, C#, D#, E, and F# in common with the A-Lydian mode, brings it even closer to A-Lydian identity. Although not yet complete, the pitch structures of "Les sons et les parfums" are progressively moving through the whole-tone and octatonic structures that will constitute the A-Lydian set.

The manner of pitch transformation in the next section moves away from the fusion and addition of shared pitch segments and instead explores the processes of chromatic equalization and interval cycle expansion. The seconds and thirds of m.14 expand to the perfect fourth, D#-G# (m. 15), originally stated in m. 13. Concurrently, the A-pedal is removed from the bass for the first time to temporarily dissolve the A-D# tritone and Lydian associations. The D#-G# perfect fourth, the C#-D# whole step, and the F-B tritone are not clearly aligned with any pitch set at this point. Since no single set asserts

dominance the pitch materials are effectively equalized into interval cycles common to any set. This abstraction continues in m. 16-17, where the pitch group C#-D#-G# implies pentatonic, whole-tone fusion, or some other indeterminate pitch set. Despite the ambiguity of the m. 18-23 materials, a six-note segment of octatonic 1, Bb-C-C#-D#-E-G, emerges in m. 19 and 21. This nearly complete collection emerges from pitches fused from juxtaposed C-dominant–7th and C#-diminished-7th chords.

The kaleidoscopic shifting of pitch materials from one identity to another is illustrated by the chromatic reinterpretation and juxtaposition of the C-dominant-7th as the C# diminished-7th chord. This procedure is related to the juxtaposition and respelling of Bb7 and B7 in m. 3. In m. 19, C# changes to C, a procedure symbolic of the recasting of octatonic segments into Lydian. Both the C-dominant 7th and the C#-diminished-7th share a common pitch segment, the interval 1:3 G-Bb. Yet in a tonal world these chords convey vastly different meanings. The C-dominant seventh chord invokes functional tonal relations within the diatonic key area of F-major. In contrast, a C#-diminished seventh often occurs as an applied chord or adds chromatic color to a tonal texture. In the unique musical sphere of “Les sons et les parfums”, however, their differences are not as important as their commonality. The seminal G-Bb interval 1:3 segment they share points to the larger process of generating related pitch sets based on the interval 1:3 cycle.

This m. 19ff seventh-chord transformation is an extension of the m. 3 Bb7 and B7 chord juxtaposition that points to an integral means of

progression and pitch set derivation. This process, which occurs in other Debussy *Prélude*s including "La terrasse", involves the chromatic transposition of chords with the same letter names. This can include intervals, triads and seventh chords that have identity in opposing white and black key spheres, or in separate octatonic, whole-tone, or diatonic sets. In the present case, the m. 3 Bb7/B7 juxtaposition transposes pitches Bb to B, D to D#, F to F#, and Ab to A, while the m. 19ff C7/C#-diminished-7th chord juxtaposition contrasts pitches C and C#, E and E#, and the continuing series. This transposition effectively contrasts white and black key spheres to emphasize the pervasive role of the half-step and chromaticism in pitch generation. This strengthens the contention that tonal implications of "Les sons et les parfums" are only on the surface, and belie the complex chromatic and octatonic processes that shape this unusual work.

Structural correlation to the Fibonacci series and the "Golden Section" occurs in measures 24-36, where a quasi-development section defines A-Lydian with progressively greater clarity. Instead of diatonic transpositions of the theme and dominant preparation, whole-tone, octatonic, and chromatic sets are the media through which A-Lydian eventually emerges in a theme statement in the original octave. The beginning of this "development" begins with a colorful twist: D# is tied from m. 23-24 to blend into the verbatim restatement of the m. 1-3 theme. This tied-D# provides conflict between the D of A-Major (m. 1), and the D# of A-Lydian. It also reflects the cumulative half-step pitch set interactions that will ultimately generate A-Lydian. Up to

this point, the A-D# tritone of Lydian has been found in the theme only at measure 8, while in m. 24, pitch D# occurs on beat one, before the theme begins on beat two. For the Lydian identity of "Les sons et les parfums" to be realized, the D# must be explicitly part of the theme.

To this end, the D# pitch gradually emerges through pitch set interactions in this quasi-development section. At first the m. 24 D# is fleeting, as m. 25 repeats the m. 2 pitch set (A-Bb-C#-D-E-F#-G) to effectively remove D# and dissipate the Lydian mode. But the D# is too significant to be removed for long. The six-note octatonic segment, (Eb[D#]-F-Gb-Ab-Bbb-[B]-C), brings the D# back in m. 27 to allude to the octatonic origins of A-Lydian. More important, D# (Eb) becomes part of an incomplete theme statement in measure 27, not in the original octave, with A-natural embedded in one layer. Through this transformation, D# is at last part of the theme, albeit in altered form. This restatement is enharmonically spelled Bbb-Eb (A-D#) in the original octave in measure 28, but with eighth notes, which diminishes the similarity to the first theme statement of m. 1-3. That aside, A-Lydian is clearly coming closer to the foreground through the transformation of this theme statement.

The subsequent m. 28 octatonic material (Bb-B-C#-D) reiterates that of m. 6ff to integrate this section and the end of the first theme statement. Moreover, the pitches liquefy into the complete chromatic scale, cast as diatonic triads in m. 29, in a process similar to the m. 9-12 reformation of pitches in the whole-tone sphere. This temporarily removes tritone A-D# and

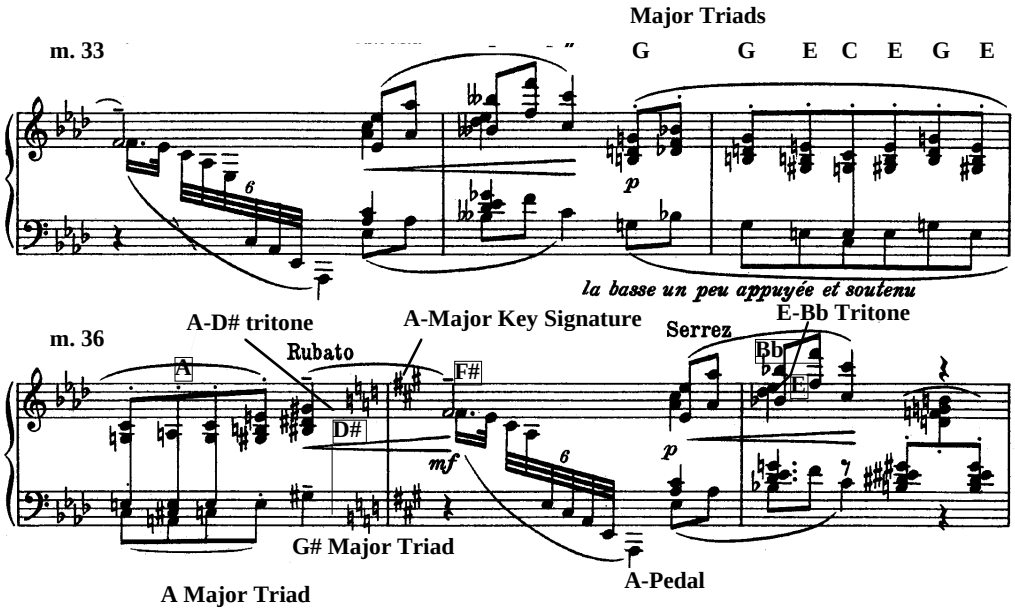
A-Lydian from the palette. As was the case before, the chromatic scale neutralizes pitch materials so that any other pitch set can evolve. This occurs in m. 30, where an incomplete fragment of the theme is transposed one whole step higher. The F-C melodic fifth and the "wrong", non A-Lydian G-Db tritone on the fifth beat evolve from this chromatic neutrality. In addition, the G-Db tritone is a whole-step transposition of A-D# that plays on the recurrent white and black key dichotomy. Pitch sets, white- and black-key polarity, and interval cycles must resolve before the A-Lydian-defining A-D# tritone can emerge in Fibonacci measure 32.

Measure 32 marks the two-thirds "Golden Section" point in measure numbers for this 53-bar prelude. Debussy corroborates that A-Lydian with enharmonic Eb-D# is the governing set at this important Fibonacci juncture. Through the process of chromatic transposition to the flat-key sphere, Eb can be transformed into the D# and a more complete A-Lydian segment. While pitch Eb(D#) is present in the m. 30 section, pitch A appears only briefly on the fourth beat, as a portent of A-Lydian. In m. 32, the A-D# (Bbb-Eb) tritone is created by a realignment of the chromatic collection into the incomplete whole-tone segments Eb-F-G and Ab-(Bb)-C. These two fragments, embedded in an Ab-Major 7th chord with added F, constitute the (G-F-Eb-C-Ab) descending arpeggio of the fleeting Ab-diatonic area.

This pseudo Ab area is created in part by the shift of key signatures from the three-sharp, implied A-Major key signature of m. 1-26, to the four-flat, Ab-major key signature of m. 27-37. "Transposition" to the flat-key

sphere allows Bbb to enharmonically signify A, while Eb enharmonically signifies D#. The chromatic scale in m. 29 equalizes the pitches, and permits Debussy to shift easily between sharp and flat pitches and white-key and black-key spheres. This process enables the A-D# Lydian tritone to emerge through enharmonic respelling, a procedure found in “Feux d’artifice” and “Les fées”.

Akin to the mercurial wafting of air, this appearance of A-Lydian dissipates as the quasi-development closes. The alternation of the whole-tone/diatonic Ab area with the A-Lydian fragment, first in m. 31-32, and again in m. 33-34, illustrates the underlying instability of the pitch materials. Blocked parallel triads G-Major, Bb-minor, E-Major, and C-Major emerge from this ambiguity and shift to A-Major and G#-Major at the end of m. 36. Motion through diatonic triads liberates the pitch materials into third cycles, with identity in chromatic, octatonic, and A-Lydian spheres. The multifaceted meaning of third cycles equalizes pitch set identity and covers A-Lydian identity. While the A-D# tritone is present between the bass and treble in measure 36, the original A-major key signature returns in measure 37, and the “wrong” E-Bb tritone reappears in the m. 38 theme restatement.



Example 3-3: Les sons et les parfums, m. 33-8

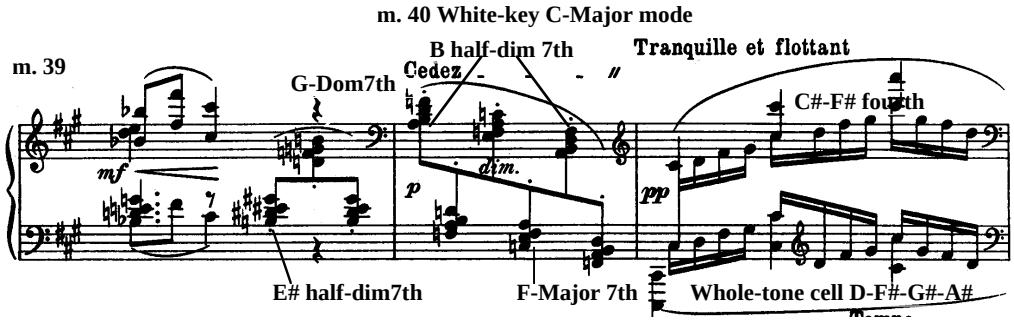
On a larger structural level, the quasi-recapitulation does not provide immediate closure of the theme or pitch material. Throughout “Les sons et les parfums”, local pitch structures, as well as long-term formal relations, depart from traditional expectations. Debussy signifies the beginning of the “recapitulation” not with a clear return to a central tonic, but with the recasting of A-Lydian pitch segments in the original three-sharp, A-Major key signature. This process suggests that the key signature was actually A-Lydian from the start, and that prior sections indeed should be considered within an A-Lydian context. Moreover, it illustrates the progressive emergence of the A-Lydian mode from interactions among chromatic, octatonic, diatonic, and whole-tone constructs.

Another important aspect of the reinterpreted form of “Les sons et les parfums”, one that firmly links it with the impressionist aesthetic, is that the main structural events are slightly displaced forward from the Fibonacci series. The coincidence of significant pitch and structural events at measure numbers that correspond to the Fibonacci series is no accident. Debussy, as mentioned in the Introduction, delighted in natural processes, forms, and ideas. Yet part of Debussy’s aesthetic was that such forms not limit or dictate the natural flow and progression of ideas, feelings, and gesture. Consequently, the development starts at measure 24 instead of measure 21, and the recapitulation at measure 37 instead of 33. The overall effect is one of a pointillistic palette draped over the pitch elements and their points of convergence. This superimposed palette shifts the focus off-center to allow reinterpretation both of pitch function and progression on numerous levels throughout “Les sons et les parfums.” Traditional tonic-dominant relations are replaced by pitch transformation through common set segments, while the formal processes of development and recapitulation are reinterpreted to reflect abstract pitch contexts.

Despite the non-traditional landscape of “Les sons et les parfums,” Debussy creates formal unity with the restatement of the original expanding fourth motive within the original A-Major key signature in m. 37-38. This thematic “recapitulation” reiterates the m. 1-2 fragment between m. 37-38 to allude to a traditional return of the theme. In the last part of m. 38, the E# half-diminished 7th chord, a fusion of white and black key pitches, is

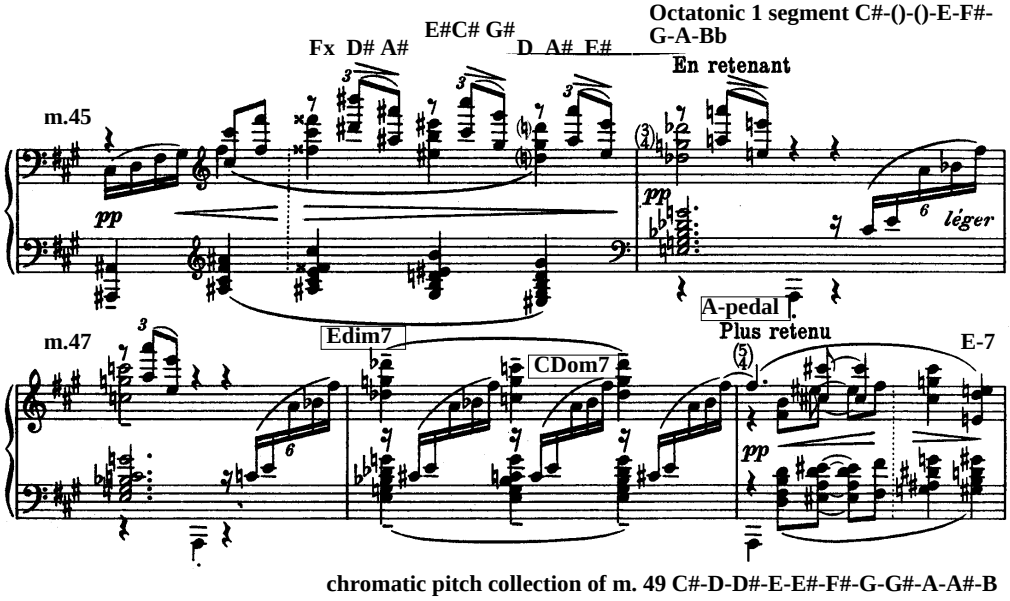
alternated with the G Dominant 7th chord, a white-key diatonic construction, to suggest conflict between octatonic and diatonic modes respectively. These chords, combined with the theme fragment, form the incomplete chromatic scale C#-D-D#-E-F#-G-G#-B. Moreover, they are a development of the chromatically respelled, alternating B7 and Bb7 chords in m. 3. While those chords featured the shift between Bb-B, F-F#, Ab-A, and D-D#; the E# half diminished 7th and the G Dominant 7th contrast E#-F, G#-G, and D#-D respectively.

White-key/black-key, and diatonic/whole-tone dichotomy is amplified in m. 40-41. First, juxtaposed B half-diminished 7th, and F Major 7th chords evoke white-key pitches C-B-D-F-A. These chords quickly shift to the incomplete whole-tone cell D-F#-G#-A# in measure 42 which includes pitches C#, F#, and G# of A-Lydian. The C#-F# fourth within this cell recalls the expansion from fourths within the first theme, while the D-G# tritone is a half-step transposition away from the A-Lydian, D#-A tritone.



Example 3-4: Les sons et les parfums, m. 39-41

Lydian identity is thwarted in m. 42, where A# and E are added to the whole-tone collection to create the A#-E tritone. Tritones D-G# and E-A# surround the A-D# tritone to forge an important chromatic half-step relationship: Tritone A#-E is one half step above tritone A-D#, while tritone G#-D is one half step below. The whole-tone content of m. 41-42 prepares for the complete Lydian mode and tritone A-D# with this juxtaposition of half-step-displaced tritones. The A# pitch evolves into F# major and Fx half-diminished 7th chord variants of the theme in m. 44. These chords move away from the Lydian tritone A-D# to the Fx-C# tritone at the end of m. 44. In the following 5/4 m. 45, chromatic, whole-tone, and octatonic elements converge, while theme fragments outline the Fx-D#-A#, E#-C#-G#, and D-A#-E# lines. This series of descending fourths provides closure and balance to the ascending fourth of the theme, and balances the tritones Fx-C#, E#-B, and D-G# contained in the treble chords.



Example 3-5: Les sons et les parfums, m. 45-49

The fusion of pitch materials increases as “Les sons et les parfums” moves toward closure. One indication of this, which also relates theme and pitch materials to the beginning, is that the initial A-pedal returns in m. 46. This pedal also signals the return of the C#-E-F#-G-A-Bb octatonic 1 segment, with C-D# missing, that is a combination of three elements. These include the first-beat E fully-diminished 7th chord, the A-E melodic fragment, and the octatonic 1 fragment C#-E-A-Bb-F#. In order to recall the paired phrasings in the exposition of “Les sons et les parfums”, and to forecast the two phrase pairs in m. 50-53, the material of m. 46 is repeated in m. 47 with a C-dominant-7th chord substituted. Partial octatonic 1 segment C-()-()-E-F#-G-A-Bb arises from this, with pitches C#-D# missing. Yet at the same time pitches E-F#-A from A-Lydian are present, and will be combined with pitch B

from octatonic 2 in m. 49, second beat, to create the complete A-Lydian collection.

Alternating E fully-diminished 7th, and C dominant-7th chords in m. 48 are fused into the more complete octatonic 1 scale, C-C#-(D#)-E-F#-G-A-Bb. True to the formal process of “Les sons et les parfums”, one pitch is missing from this collection, the Lydian-defining D#. The omission of this D# affirms octatonic 1 must be complete with D# before A-Lydian can emerge. A-Lydian will stem from the cumulative evolution of octatonic, whole-tone, and chromatic material. Pitch material shifts again on beat two of m. 49, where A-C#-D-E#, a structure of major and minor third cycles a half step apart, imply the partial octatonic 2 scale, D-(E)-F-(G)-(Ab)-(Bb)-(B)-C#. This octatonic collection is not closely related to A-Lydian, but contains two pitches from it, C#, and the B missing from octatonic 1. The next chord, G-A#-C#-D#, adds the missing D# of octatonic 1, but emphasizes whole-tone relations with the C#-D#-G fragment. This collection implies the dual-tritone construction (G-C#-D#-A), with pitches C#-D#-A common to A-Lydian. Pitch materials in the important 5/4 m. 49 are convoluted, and change quickly in a kaleidoscopically swirling mosaic that resembles the texture of an intricate impressionist painting.

The cumulative chromatic pitch collection of m. 49, C#-D-D#-E-E#-F#-G-G#-A-A#-B, contains the complete, embedded A-Lydian scale, A-B-C#-D#-E-F#-G#. The D# missing from octatonic 1 has been assimilated from the G-A#-C#-D# chord, and C, alien to A-Lydian, is instead missing.

Although this chromatic collection could generate any other pitch set, the omission of the non-A-Lydian C coupled with the addition of D#, point to the partial generation of A-Lydian from the chromatic collection. In this case, octatonic 1 and 2 elements and whole-tone fragments combine into a collection maximally common with A-Lydian, (C#-D-D#-E-E#-F#-G-G#-A-A#-B).

A symbolic tonal reference can be extracted from the motion from an E-dominant-7th chord (V7) on the last beat of measure 51 to the A-Major/Lydian (Tonic) pitch group in m. 50. This V-I cadence, reinterpreted within the non-traditional harmonic landscape of "Les sons et les parfums", casts the m. 49 chromatic collection as a "traditional" dominant preparation to A-Lydian. As is often the case in Debussy's *Prélude*s, intervals and pitch cells shared between chromatic, whole-tone, modal, and octatonic collections in "Les sons et les parfums" have replaced the means of progression and formal structure commonly asserted by the tonal system.

The last line, "Comme une lointaine sonnerie de Cors", marks the return of the A-bass pedal, and establishes the minor third D#-F# as part of the A-Lydian collection, (A-B-C#-D#-E-F#-G#-A). This paired-phrase repetition of the closing section provides a final allusion to classical paired phrasings, but in an A-Lydian context. Octatonic, whole-tone, and chromatic elements have been transformed into A-Lydian through cyclic interval expansion, and transposition through shared pitch segments. The result is the initial A-Lydian scent of "Les sons et les parfums" is finally realized in a manner symbolic

both of Baudelaire's evocative title and the mosaic construction characteristic of Impressionism.

Chapter 4: The Derivation of Octatonic and Chromatic Sets through the Fusion of Whole-tone 0 and 1 in "Feux d'artifice"

The last Debussy Prelude in Book II, "Feux d'artifice", is a striking work of bold gestures, great contrasts of texture and dynamics, and remarkable unity of pitch materials. The opening triplet 16th figure, divided between the hands, creates a symbolic opposition of two whole-tone figures. The left-hand figure, F-G-A, polarizes the white key sphere and whole-tone 1 against the right hand, Gb-Ab-Bb figure and the whole-tone 0 black-key sphere. The undulating, contrary motion of these triplets initiates the motoric unfolding of texture and closely- related pitch cells that sculpt this unique prelude.

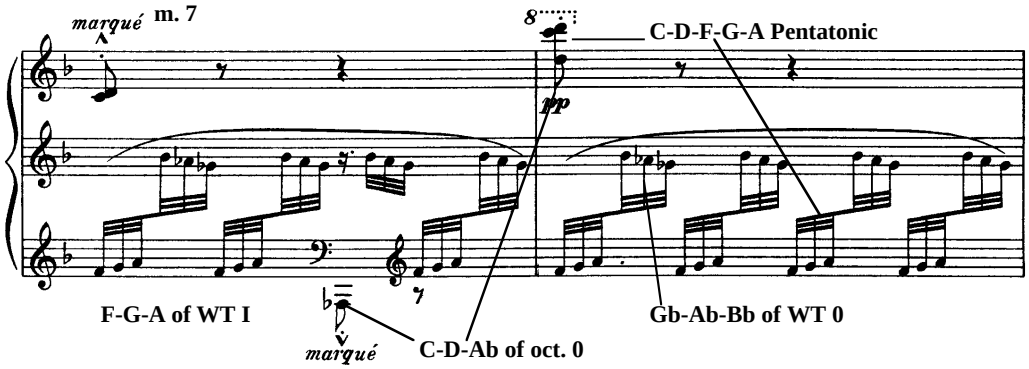
The initial whole-tone material leads to chromatic, octatonic, pentatonic, and diatonic areas in a dual process of cyclic interval expansion, and the creation of new collections from shared pitch elements. These "modulations", which move toward increasing density and back, are essential to the formal conception. Moreover, the Fibonacci number series corresponds with several primary articulations of structure and pitch. Consequently, an examination of Fibonacci symbolism is necessary for a deeper understanding of the meaning of "Feux d'artifice."

Part of this discussion of "Feux d'artifice" will explore the role symbolic number relations play in the delineation of form. Specifically, the 2/3 ratio of Golden Section proportions, and measure numbers 1, 2, 3, 5, 8, 13,

21, 34, 55, and 89 of the partial Fibonacci Series correspond with important thematic, pitch, and structural events. As discussed in the Introduction, the Fibonacci Series is created by adding the last 2 numbers of the series to create the next, i.e., 1+2=3, 2+3=5, 3+5=8, etc. The ongoing process of realignment and recombination of pitches progresses from the initial whole-tone collection to chromatic, pentatonic, and octatonic collections. Cumulative pitch-set expansions parallel the geometric expansion of the Fibonacci numbers, and culminate with the assertion of a Db pitch goal in the final measures.

The opposing right and left-hand triplets introduce whole-tone 1, F-G-A-B-C#-D#, with the left-hand segment F-G-A, and whole-tone 0, Gb-Ab-Bb-C-D-E, with the right-hand segment Gb-Ab-Bb. This texture effectively polarizes the white and black key segments of the whole-tone scale in m. 1. The progressive combination and transformation of the two whole-tone partitions enables other pitch sets to develop throughout “Feux d’artifice”, including octatonic, chromatic and pentatonic. Whole-tone 0 is made more complete in m. 3-6, with only E missing, through the introduction of D and Ab in the right hand. The major-second C-D and the low Ab bass note of whole-tone 0 are important in m. 7-10 for several reasons. First, as the rhythmic/motivic activity increases, the right-hand D-Ab figure is played every half-measure to assert this tritone, rather than every measure as in m. 1-6. Second, if right-hand C-D (m. 7-8) is combined with the F-G-A of whole-tone 1, the pentatonic scale C-D-F-G-A is formed which conflicts with whole-tone 0, and foreshadows the related pentatonic collection of m. 27ff. Most

important, the combination of these C-D and D-Ab melodic right-hand figures form segment C-D-Ab of octatonic 0, with the D-Ab tritone prominently emphasized. This three-note segment is ambiguous because it could also imply a whole-tone 0 or diatonic segment.



Example 4-1: Feux d'artifice, m. 7-8

Motion and ambiguity are created in "Feux d'artifice" in part through the dual identity of pitch materials common to the whole-tone and pentatonic scales. The following example illustrates how the whole-tone continuum can be partitioned into the pentatonic collection F-G-A-C-D, through a shared F-G-A segment:

C-D-E-F#-G#-A# Whole-tone 0

F-G-A-C-D Pentatonic

Cb-Db-Eb-F-G-A Whole-tone 1

Illustration 4-1

This commonality allows pitch sets to evolve into chromatic and octatonic sets through the shift of even one or two pitches. The result is an Impressionist image of colors that subtly change within a consistently shifting mosaic of shared pitch-sets.

The transitional nature of the materials continues in the m. 13-17 section. The now familiar octatonic 0, D-Ab tritone returns (m. 13-14) but is interrupted by the dramatic m. 17 glissando on the black-key pentatonic scale. This glissando at first appears to assert the pentatonic set and clear previous collections from the palette. However, the repeated Cb-Db middle-range whole-steps of whole-tone 1 emphasize the whole-step components of the pentatonic set and foreshadow later transformations. (See illustration 1 above) This whole step is filled in with the addition of pitch C to create a B-C-Db (012) chromatic cluster, and transformed in m. 20ff into the C-Db-Eb (013), octatonic 1 tri-chord cluster. These clusters contrast chromatic and octatonic pitch collections that are the aggregates of cumulative pitch interactions. They also foreshadow later pitch mutations to collections created through fusion of white and black key spheres. The mercurial flashing of fireworks is effectively portrayed in “Feux d’artifice” by the evanescent appearance of pitch collections that quickly evolve into other collections.

This facile, recurring process of pitch set transformation is essential to the fleeting quality of impressionism. A related procedure is how the addition of one extra note to the dominant ninth chord can transform it into a whole-

tone collection. This principle of addition to the dominant ninth was discussed in Schoenberg's *Harmonielehre*.[30] In "Feux d'artifice" the C dominant-ninth chord C-E-G-Bb-D boldly interrupts the texture as an arpeggio shared between the left and right hands. This chord is maximally whole-tone as seen in scalar order, G-Bb-C-D-E, which isolates the fifth degree G from the collection and allows the remaining four-note adjacency to manifest its whole-tone components. This chord allows for the transformation from diatonic to whole-tone by the change of one note, an important example of invariant segments between sets.

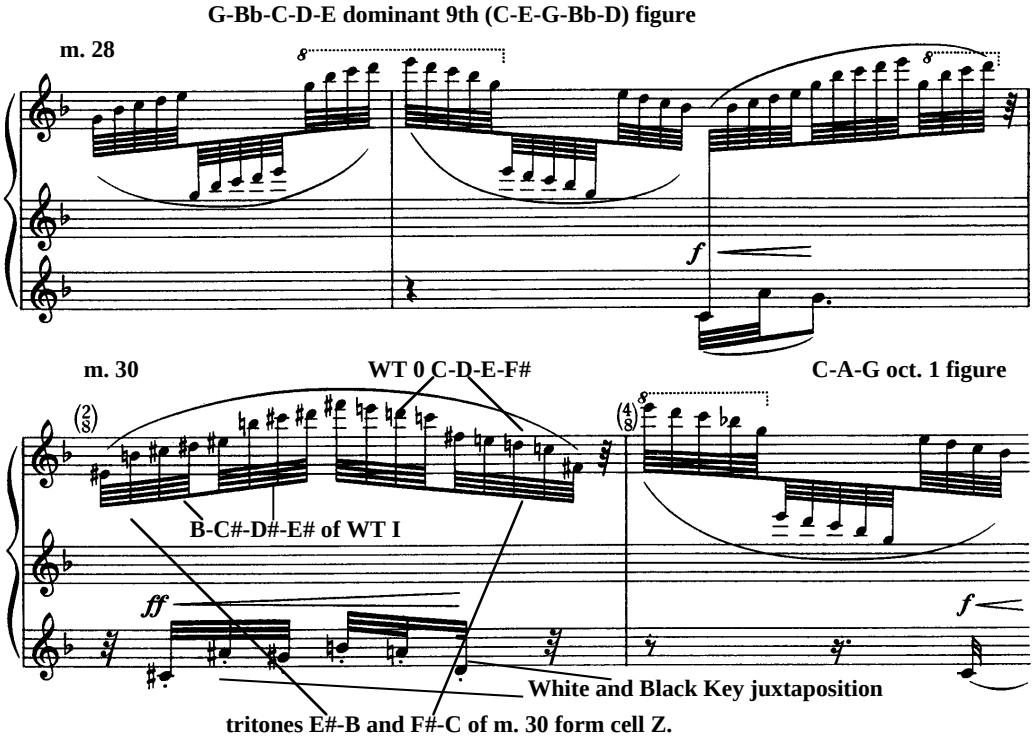
The evolutionary process of pitch and form in Debussy's music owes much to the transformation of cognate set segments, or pitch groups that can belong to divergent sets. This is precisely what allows motion and integration throughout the broader sphere of Debussy's musical language, and specifically in "Feux d'artifice". The remarkable harmonic coloring and striking changes in mood and texture achieved in "Feux d'artifice" and other *Préludes* emerge from this procedure. This musical impressionism is akin to the subtle shifts in meaning and effect produced by shifting color blocks or texture in an Impressionist painting.

The G-Bb-C-D-E figure symbolically unifies left and right hands, C-D-E-Bb of whole-tone 1, and G from whole-tone 2. Although Bb is present, the primary materials are the white-key left-hand motives C-G (m. 27) and C-

[30]For a fuller discussion of dominant-ninth to whole-tone transformation see Arnold Schoenberg, *Harmonielehre*, (Vienna: Universal Edition, 1911); *Theory of Harmony*, Eng. trans. by Robert D.W. Adams (New York: Philosophical Library, 1948). p. 323-26.

A-G (m. 29). Moreover, these C-G and C-A-G motives are themselves common to octatonic 1, (C#-D#-E-F#-G-A-Bb-C), in direct contrast to the D-Ab octatonic 0 tritone (m. 3-14). At this point, the motion is away from octatonic 0 and the D-Ab tritone. Yet in m. 30 the m. 27ff material is itself quickly interrupted with the B-C#-D#-E# ascending whole-tone 1 arpeggio, the descending C-D-E-F# whole-tone 0 arpeggio, and the left-hand C#-A#-G#-B-A-D motive. The quick succession of different pitch materials mimics the sudden flashes of fireworks, and intensifies the programmatic and textural aspects of "Feux d'artifice."

Several important connections emerge from the convergence of these collections. The left-hand motive forms partial octatonic 2 segment C#-D-G#-A#-B if pitch A is removed, but as partitioned on the page creates a black key C#-A#-G# versus white key B-A-D contrast. This octatonic 2 allusion is an indication of the evolution of pitch materials away from the original octatonic 0 (m. 3-14), and octatonic 1 (m. 27-29) material. Further, the combination of the two whole-tone arpeggios forms the chromatic collection B-C-C#-D-D#-E-E#-F#, with only G-G#-A-Bb missing.



Example 4-2: Feux d'artifice, m. 28-31

A more interesting relationship within this collection is that tritones E#-B and F#-C of m. 30 form cell Z. Tritone transformations are another important feature of "Feux d'artifice", as they are in "La terrasse" and "Les fées". Pitch C#, introduced in m. 33, transforms the m. 25 (G-Bb-C-D-E) material, a dominant ninth-chord with maximal whole-tone adjacencies, into G-Bb-C#-D-E by the change of one note. The change from C to C# transforms diatonic to octatonic; the dual tritone collection G-C# and Bb-E results from the chromatic manipulation of this dominant ninth chord. The resulting cognate construction can be interpreted as a chromatic alteration of whole-tone 0, or as partial octatonic 2 segment G-(G#)Bb-(B)-C#-(D)-E.

The prominent D-Ab tritone in the first section illustrates another example of the unity of elements. This important interval in “Feux d’artifice” initiates a stepwise motion of tritone dyads, and the need for completion of tritone dyad complements. The initial D-Ab dyad is replaced by C#-G in a stepwise motion from the C-F# and B-E# tritones of m. 30. It moves on to then to the next tritone, Cb-F, in m. 35.

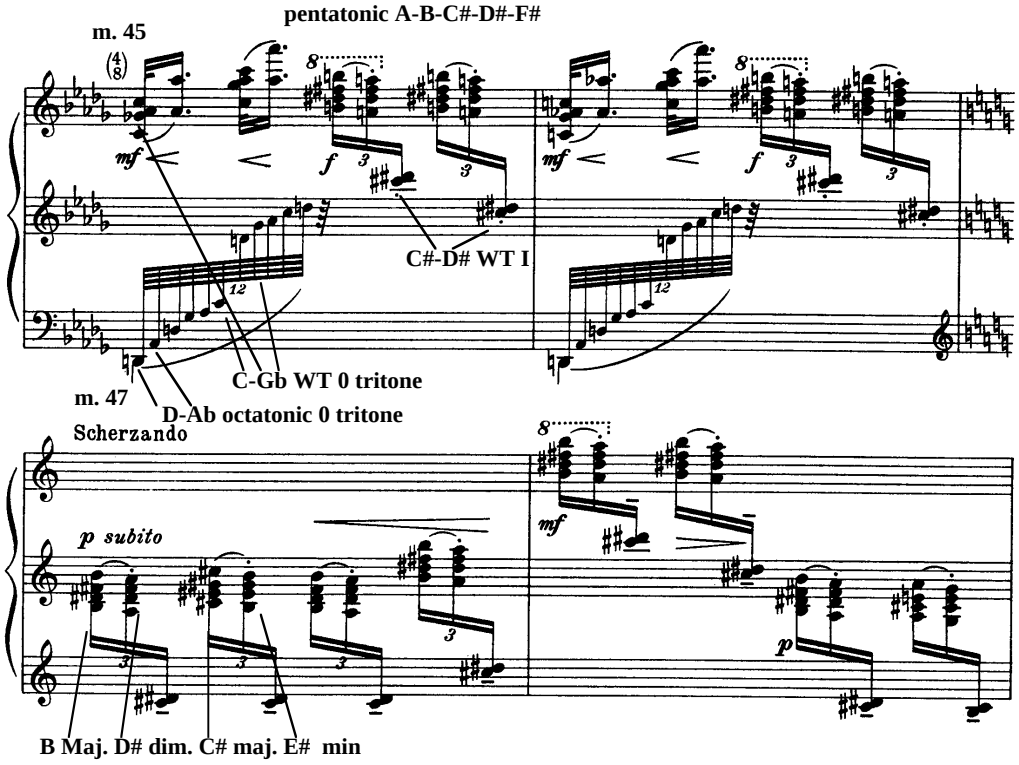
Meanwhile, whole-tone 1 takes over until m. 39, where whole-tone 1 in the right hand, B-Db-Eb-F, is linked to whole-tone 0 in the left hand, Gb-Ab-Bb, by the shared Eb. The section from m. 36-40 increases the octave range of the piece considerably and highlights the motive F-Db-Cb-Eb-Db-G in m. 37. This motive is a transformation of the left hand C#-A#-G#-B-A-D figure of m. 30, in rhythmic augmentation.

The key signature changes in m. 41 from one flat (F-Major) to five flats that suggest Db-major and foreshadow the final-section Db key area. The key signature is not functional, however, and instead signifies a move to the black-key sphere. Although Ab pedals occur in m. 41-43, and the right hand Bb-Eb figure suggests a V-I motion to the Ab dominant of Db, these are surface textures with no functional connotations.

Analogous to the abrupt m. 30 interruption, the scale (Gb-Ab-Bb-Db-Fb) quickly interrupts the whole-tone/octatonic collection in the first half of m. 44. The Db-Eb-Gb fragment of this appears to be the common link between the hybrid whole-tone collection, octatonic 1, and this set. This obvious black-key emphasis is starkly contrasted in the second half of m. 44

with the white-key segment F-G-Ab-B-D that features the B-F tritone. The strong juxtaposition of these spheres suggests the Db key signature is temporary and white-key material will instead follow.

The texture change in m. 45-46 underscores the return to octatonic 0 in the left hand C-D-Gb-Ab. The familiar rising motive C-G is transformed into C-Ab-G to reflect cyclic interval expansion, the m. 36 F-Db-Cb statement, and intrusion of the flat-key sphere. As “Feux d’artifice” progresses, the flat versus sharp, and white-key versus black-key conflict intensifies. The first parts of m. 45 and 46 feature C-Gb and D-Ab tritones that belong to both the whole-tone 0 and octatonic 0 sets. In the second part of both measures the flat-key sphere yields to the sharp-key, A-B-C#-D#-F#, scale. This collection has the potential to serve as a pivot. If pitch B is removed, the octatonic 1 collection A-C#-D#-F# results, while if C# is removed, the A-B-D#-F# octatonic 0 collection results. This reinterpretation of meaning by the shift of only one pitch is another allusion to the mosaic, shifting palette of color and texture in an impressionist painting. The chordal partitions B-D#-F#-B and A-D#-F#-A of this pentatonic collection are alternated with the C#-D# whole-tone 1 cluster on the second half of these measures, effectively polarizing these closely related elements.

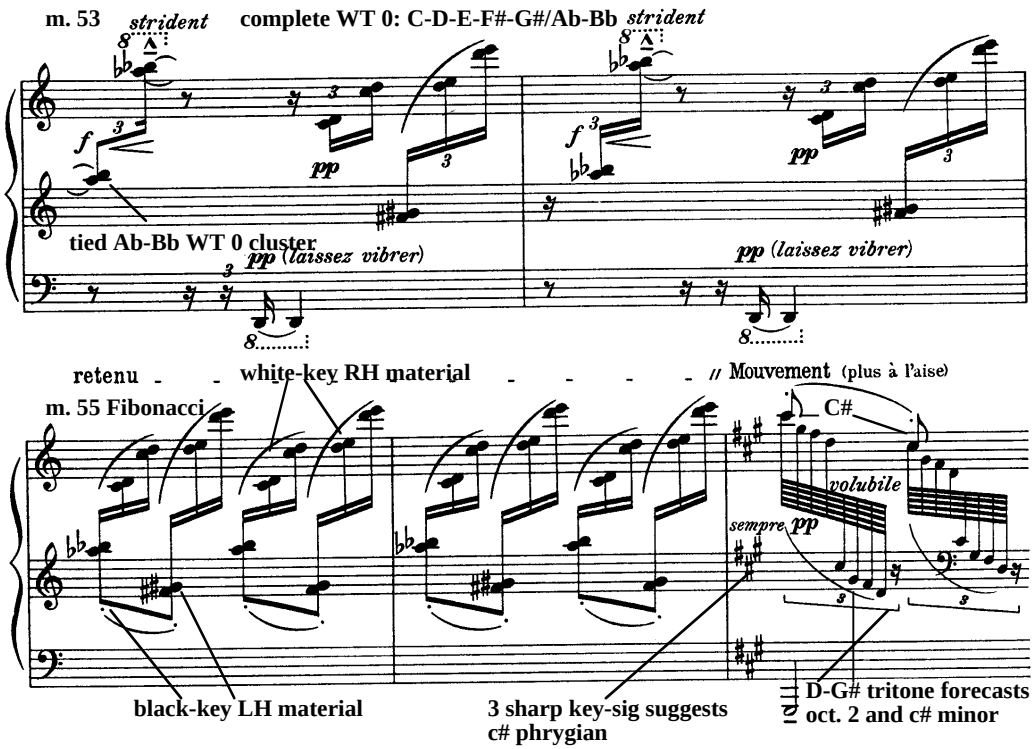


Example 4-3: Feux d'artifice, m. 45-48

The pattern of two triads followed by a whole-step continues from m. 47-53. On the surface this appears to be a linear motion through triads with shared interval segments. But the real transformation is an intensified conflict among octatonic sets, and an emergence of the hitherto absent octatonic 2. The triads of m. 47 move through the following: B major-D# diminished; C# major-E# diminished; and back to B major-D# diminished. This "progression" explores triads related by keys a major third apart, i.e., B-D# and C#-E#. Further examination reveals these triads actually outline the partial whole-tone 1 segment B-C#-D#-E#. Moreover, the aggregate collection of the second

eighth-note beat, right-hand chords is B-C#-E#-G#, an octatonic 2 partition of the whole-tone 1 set. Immediately after, the fourth beat of m. 48 changes the pattern with A-C#-E and G-C#-E chords which form the octatonic 1 segment A-C#-E-G.

The last beat of m. 48 initiates movement of the whole-step clusters to pitches other than C#-D#, particularly those of whole-tone 0 and 1. Throughout m. 49-50, these left-hand seconds follow the pattern whole-tone 1 A-B, whole-tone 0 Bb-C, whole-tone 1 A-B, and whole-tone 1 Eb-F. Not only are the octatonic sets juxtaposed in the *Scherzando*, both whole-tone sets are as well. As m. 49-50 progress, the dichotomy between black and white key spheres gradually dissolves, and whole-tone and octatonic fragments merge into a hybrid octatonic 0/chromatic collection, C-D-Eb-F-F#-G-Ab-A-Bb-B, in m. 51-52. Although chromatic elements G and Bb do not belong, this collection is maximally octatonic 0 (C-D-Eb-F-F#-G#-A-B), or chromatic with only C# and E missing. It is a true union of white and black key spheres, and whole-tone 0 and 1.



Example 4-4: Feux d'artifice, m. 53-57

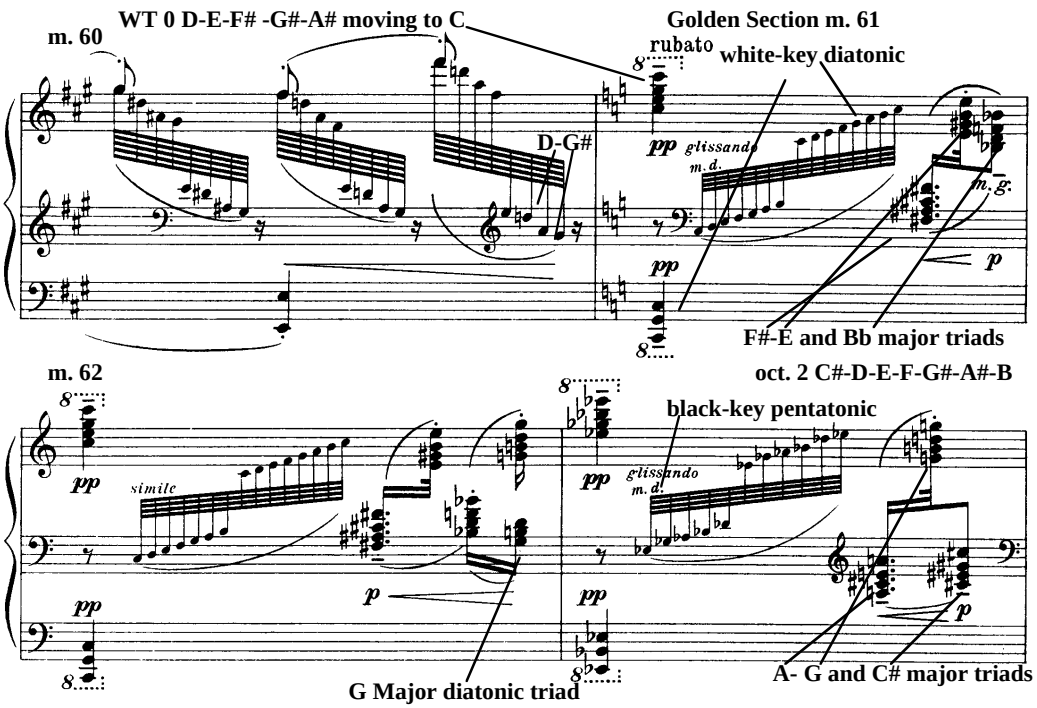
A striking embodiment of the conflict between these spheres is found in alternated A-B whole-tone 1 and Ab-Bb whole-tone 0 clusters in the left-hand of m. 51-52. The juxtaposition of the non-octatonic 0, Ab-Bb whole-tone 0 cluster, tied over the bar line from m. 52-53, prepares for expansion into the complete whole-tone 0 figure of m. 55-56, C-D-E-F#-G#/Ab-Bb. The significance of this emergence is amplified by its occurrence at m. 55, a number in the Fibonacci Series. Remarkably, at this point the Ab-Bb and F#-G# figures maintain sharp-key/flat-key dichotomy within the left-hand. In addition, white-key/black-key dichotomy is also maintained between the right-hand C-D-E and left-hand F#-G#/Ab-Bb.

The next section, *Mouvement*, begins in m. 57 with a new texture and a three-sharp key signature to suggest C#-Phrygian; since a G# pedal underlies the first two measures and C#-B#-C# is the melodic line, C#-minor is a plausible implied tonic. In addition, the pitch collection D-F#-G#-B# in the second half of the measure spells an octatonic 0, French augmented-sixth chord which would resolve to C#-minor. This common tonal progression is manipulated by alternating C#-G#-F#-D content in the first half of m. 57 with B#-G#-F#-D content in the second to produce a chromatic, white-key/black key conflict between B#(C) and C#. The presence of the D-G#(Ab) tritone, embedded within the arpeggiated figure, recalls m. 3-16, and anticipates the octatonic 2 emergence of this material in the final section. Moreover, the C#-Phrygian tonic triad C#-E-G# is notably found only within the octatonic 2 set.

The ongoing struggle between octatonic 0 and 1 continues and a temporary C-major area is created as the next section unfolds. These contrasted octatonic 0 and 1 scales are a synthesis of cumulative octatonic, whole-tone and pentatonic interactions. The conflict arises in part from the tension between the F#-C and Eb-A tritones found in octatonic 0 and 1, and the B#-F# and C#-G tritones exclusive to octatonic 1. An intermediate octatonic 1 set, B#-C#-E-F# (m. 57-60), is formed by melodic eighth notes in the right hand. More interesting is the whole-tone melodic outline B#-D-E-F#-G# in the same measures that prepares for the quasi C-Major, white-key area in m. 61. This collection, defined by a C-major triad and C-major glissando scale, occurs at the Golden Section of this prelude. The Golden Section

happens in m. 61 since the 2/3 ratio of the 98 measures is 61. Although this diatonic area is temporary and is in part an assertion of the C-E-G triad and white key elements of octatonic 1, it is an important whole-tone result. Further, the C-major scale is a white-key respite from previous black-key sharp and flat manipulations.

White-key “diatonicism” is fleeting, however, as the second half of m. 61 renews the flat and sharp black-key conflict with parallel F#-Major, E-Major, and Bb-Major triads. These parallel root-position triads outline C-E-F#-Bb, a whole-tone 0 segment. More important, the combined collection of the F#, E, and Bb triads, C#-D-E-F-F#-G#-A#-B, allows for the generation of segments from any one of the three octatonic sets. Octatonic 2, C#-D-E-F-G#-A#-B with only G missing, is the most complete octatonic set contained in this collection. The other octatonic possibilities are partial octatonic 1, C#-E-F#-A#, and partial octatonic 0, D-F-F#-G#-B which contains the dual-tritone construction D-G#-F-B.



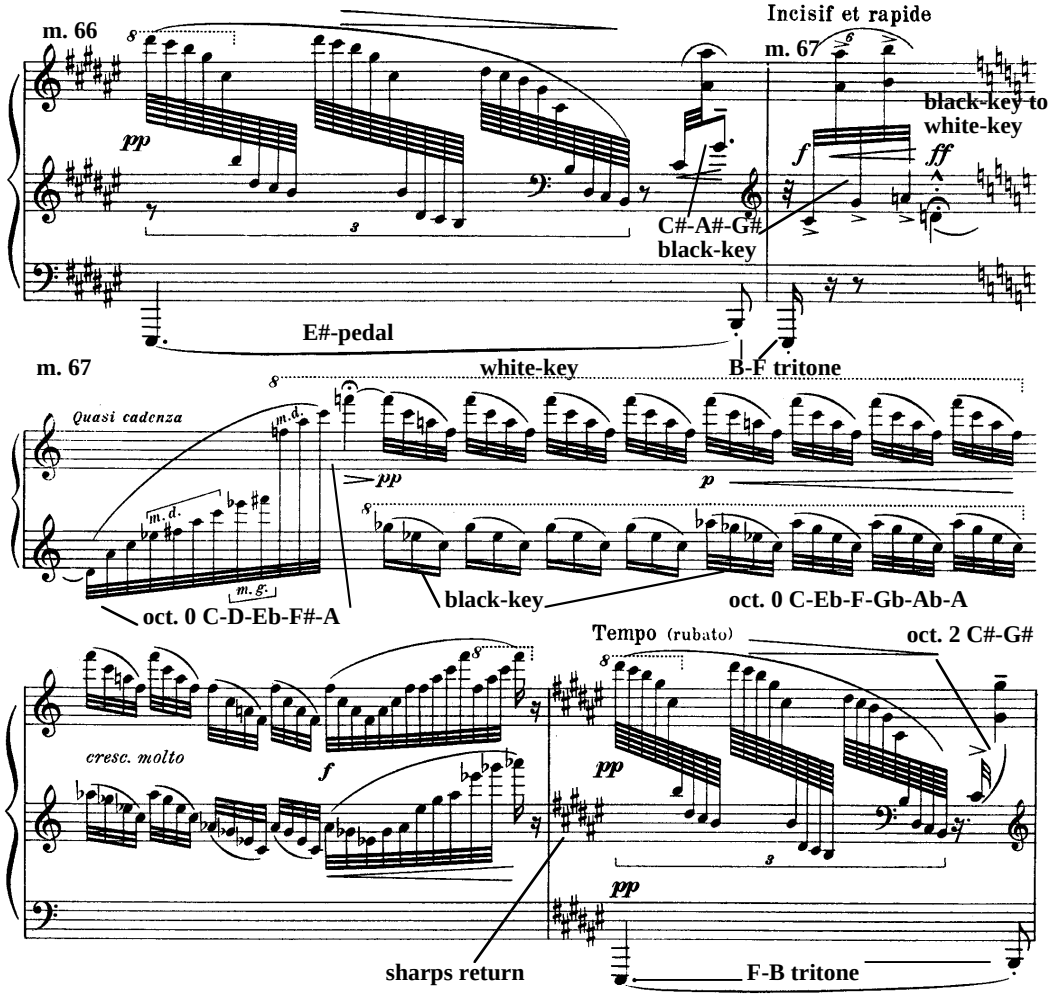
Example 4-5: Feux d'artifice, m. 60-63

Paired phrasings which stem from classical period structures found in works by composers such as Haydn and Mozart are characteristic in "Feux d'artifice". This is particularly evident in the m. 61ff section. Another characteristic is the diatonic planing that occurs between the C-major triad on beat one of both m. 61 and 62, and the Eb-minor triad on beat one of m. 63 and 64. As a consequence, octatonic 2 is completed in the m. 62 repeat of m. 61, where the shift to a G-major triad on the last chord adds the G pitch missing from the previous octatonic 2 collection. The addition of G-B-D to the collection produces a more complete chromatic collection with nine out of the twelve pitches present. Chromaticism proves to be fleeting, however, as

the next m. 63-64 phrase pair leaves the white-key sphere in favor of the black-key, pentatonic glissando Gb-Ab-Bb-Db-Eb. The chords that follow this pentatonic glissando also evolve, to A-major, G-major, and finally C#-major. Combined, these diatonic triads constitute the collection D-E-F-G-G#-A-B-C#, an aggregate that is maximally octatonic 2.

The next section, *Doux et harmonieux*, introduces a key signature of six sharps and sees the contraction of the octatonic 2 set to B-C#-E#-G#. Motivically the C-G, C-A-G figure returns as the chromatically inflected C#-G#, C#-A#-G#. This motivic reinterpretation is stated over a low E# bass-note and exemplifies the ongoing white and black-key metamorphosis.

The quasi-cadenza in the m. 67 section is an interesting feature that proceeds in two stages. First, the sharps are removed from the key signature and the octatonic 0 segment C-D-Eb-F#-A returns in a rising arpeggio. Next, right-hand F-A-C, cast first against left-hand C-Eb-Gb in a four against three rhythmic pattern and then against C-Eb-Gb-Ab, creates a more complete octatonic 0 fragment, C-Eb-F-Gb-Ab-A, with equal white and black-key representation. Significantly these spheres are unified within the original octatonic 0 set at this quasi-cadenza.



Example 4-6: Feux d'artifice, m. 66-8

The marking *Tempo* accompanies the m. 68-69 return of the m. 65-66 material that effectively dispels the cadenza. First the C#-A#-G# motive leads to C#-A#-G#-B-A-D, a mainly chromatic collection, and then to the transposed chromatic statement Eb-C-Bb-C#-B-E. The aggregate of both is the chromatic collection G#-A-Bb-B-C-C#-D-E-E, with F-F#-G missing.

Another chromatic segment, A#-B-C-C#, is outlined by the right hand octaves of the two patterns combined. This chromatic line itself rises to the D#-D bass pedal of the next purely chromatic section, m. 71.

The ensuing technique of chromatic equalization is a stark contrast to the octatonic convergence seen in the Golden Section. The next m. 71-73 section juxtaposes minor D-D# and major D-E {012} seconds in the left hand to prepare for subsequent derivation of whole-tone and octatonic pitch sets. The chromatic set is moving towards completion in anticipation of the Fibonacci presentation of the entire chromatic collection in m. 85. To prepare for this, m.71 and 73 contain all pitches of the chromatic scale except C and A. Moreover, m. 72 and 74 respectively present the whole-tone 0 cluster C-D, and the whole-tone 1 cluster Db-Eb. These clusters combined form the chromatic fragment C-Db-D-Eb, but also foreshadow later whole-tone and octatonic material.

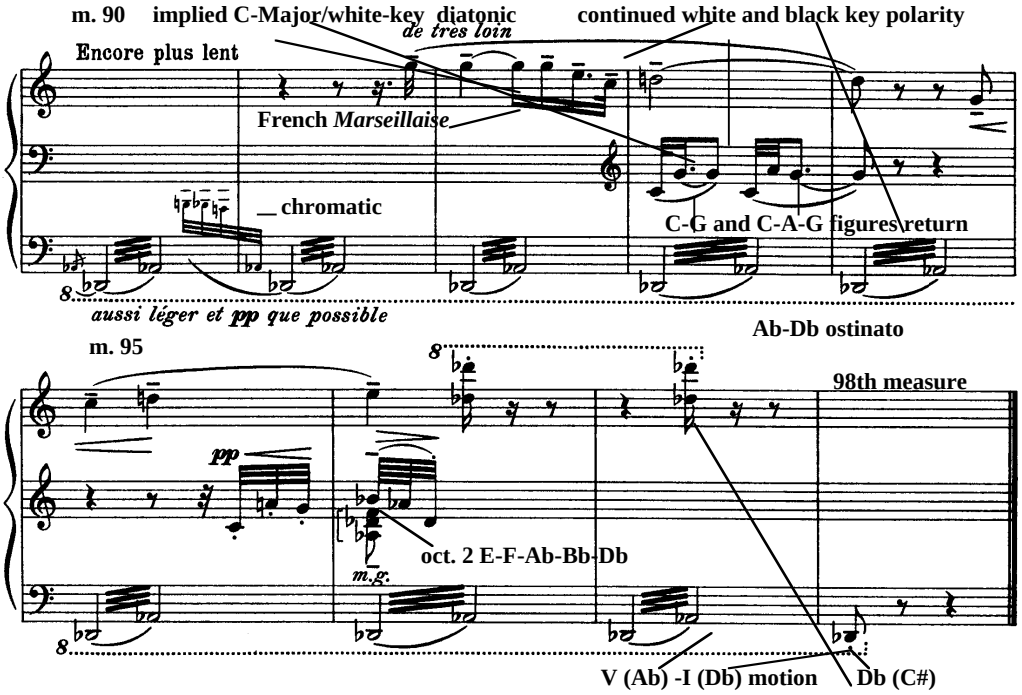
This transforming function of the chromatic set continues in m. 76 as pitch materials shift to the dual-tritone, octatonic 0 construction C-D-Gb-Ab. When considered with the Bb the construction is whole-tone 0. As partitioned on the page, the right-hand encompasses black-key Gb-Ab-Bb of whole-tone 0, while the left-hand encompasses the C-D whole-step of the same set. The return to these sets reflects the progressive closure of materials. The next section, *Mouvement élargi*, triumphantly features the C-G and C-A-G figures in the original key signature of one flat. The combined m. 79-80 pitches, including these figures, the E bass note, and the rising C-D-Bb arpeggio, are a

cumulative union of white-key interactions. More importantly, they recall the m. 61 Golden Section statement of the diatonic C-major scale. Secondarily, this diatonicism provides a relief from recent chromatic interactions and highlights the dichotomy between white- and black-key areas.

Although octatonic and chromatic content can be derived from the m. 81-84 pitches, the primary feature is the return of the C-G and C-A-G motives within the polarized white-key/black key texture. This polarity intensifies in m. 85-86 of the Fibonacci Series, as a rising, Eb-E-F-F# chromatic bass line is set against diatonic triads and diminished-seventh chords that, cumulatively, present the complete chromatic scale. This chromatic union creates the final climax in m. 87, where right-hand black-key and left-hand white-key descending glissandi dramatically assert the full chromatic set for the last time. The swirling chromaticism, pentatonicism, and octatonicism of the entire prelude are synthesized in this climactic glissando. This grand gesture unifies cumulative interactions throughout "Feux d'artifice" including the original, m. 1-8 polarization of whole-tone elements into white and black key spheres. It is therefore appropriate that the right-hand plays the black keys, while the left-hand plays the white keys in this glissando descent.

The following section, *Plus lent*, continues the white and black key polarity of the dual glissandi with the return of the original figure from m. 1-8. Further, the return of the right-hand, black key figure Gb-Ab-Bb of whole-tone 0, and the left-hand, white-key figure F-G-A of whole-tone 1 again polarizes right and left hand elements. This return promotes structural and

pitch-material unity, much as the return of the first theme in the original key provides completion at the end of a sonata recapitulation. “Feux d’artifice” moves toward completion in m. 90 with a Db-Ab left-hand ostinato below a primarily C-Major statement of a portion of the French *Marseillaise.* This left- and right-hand juxtaposition constitutes the final polarity of both white- and black-key, and whole-tone 0 and 1 collections, and reiterates the C-major diatonic material in the m. 61 Golden Section. Motives C-G and C-A-G return from m. 27-29 for closure, and pitch D is heard prominently against pitch Ab in m. 93 and 95 to recall the initial D-Ab tritone of m. 13-14.



Example 4-7: Feux d’artifice, m. 90-98

Motion to a C#/Db goal established in the m. 57 *Mouvement* section is belatedly fulfilled in m. 95ff. In m. 96 the Db-Ab ostinato combines with pitches Bb-E-F to form partial octatonic 2 segment E-F-Ab-Bb-Db. This transformation is a reinterpretation of the initial octatonic 0 D-Ab tritone as an octatonic 2 tritone. Because *Feux d'artifice* ends with a single Db pitch in m. 98 that is not part of octatonic 0, the identity of the Ab-D tritone shifted to the octatonic 2 set that contains both D-Ab and Db. Another mark of unity is that the m. 95-96 figure C-A-G-Bb-Ab-Db that precipitates this shift in octatonic identity is itself a chromatic reinterpretation of the m. 30 figure, C#-A#-G#-B-A-D. In a final play on tonal expectation, the last motion in the prelude is the left-hand Ab-Db, implied V-I progression to the last Db pitch. This Db is also a respelling of the implied C#-minor "tonic" of the m. 57ff *Mouvement*. Even the abstract pitch landscape of *Feux d'artifice* contains vestiges of tonality.

"Feux d'artifice" transforms the three-note seed fragments of whole-tone 1 and whole-tone 2 and the octatonic implications of the D-Ab tritone into a complex work which explores virtually all pitch set combinations. The conflict between whole-tone scales gradually incorporates pentatonic, chromatic, and finally octatonic scales in a systematic transformation of pitch and texture.

Chapter 5: Symmetrical and Golden Section relations in the Conception of Tonal Allusion in “La terrasse des audiences du clair de lune”

“La terrasse des audiences du clair de lune," from Book II of the *Préludes*, is a striking illustration of the Impressionist aesthetic of mosaic colors and forms. The evocative title, translated loosely as “The terrace for moonlit audiences," paints a scene of subtly filtered beams and hues of moonlight. The inspiration for this prelude was apparently a letter, titled *Lettres des Indes*, in the December 1912 edition of *Le temps*.[31] This letter imaginatively described the coronation of King George V of England as Emperor of India, including the words:

> la salle de la victoire, la salle du plaisir, le jardin des sultanes, la terrasse des audiences au clair de lune---the hall of victory, the hall of pleasure, the garden of the sultanas, the terrace for moonlit audiences.[32]

These lines paint a regal impression of sultans, a large ceremonial theater, and the grandeur that commemorated the king’s installation as an emperor. The exotic, mystical impressions that India conjures account in part

[31]Paul Roberts, *Images*: *The Piano Music of Claude Debussy* (Portland: Amadeus Press, 1996), p.276.

[32]Louisa Liebich, “An Englishwoman’s Memories of Debussy,” *The Musical Times* (June 1, 1918); Nichols 1992, p. 202.

for the suggestive, subtle textures and colors that characterize “La terrasse.” This prelude is a study in implication and suggestion, and rarely contains bold gestures. The metaphor of a changing mosaic of light, with muted shadows at one moment, and sharper color blocks at the next, permeates all levels of texture and pitch set generation in “La terrasse.” The texture of “La terrasse” conjures the musical impression of a swirling kaleidoscope of light and color through constant repartitioning of the twelve-tone chromatic continuum into subtly-related pitch sets. Throughout this prelude, octatonic, whole-tone, and chromatic pitch-segments are readily juxtaposed and fused to alter meaning. This is often accomplished through the shift of only one or two pitches, a procedure that mirrors the use of color blocks and points in Impressionist paintings. Although the overall effect can convey staticism at one point, and freedom and formlessness at another, an economy of means characterizes the form and progression.

The form of “La terrasse” is difficult to discern. Surface features commonly associated with tonal forms initially belie the complex underlying pitch transformations. The pervasive F#-major key signature, as well as tonic-dominant pedal relations implied in both F#-major and C-major, could suggest that tonal relations and functional harmonic progressions are the governing principles. This has often led theorists to confine their analyses of Debussy’s works to the semi-functional tonal implications of chords and bass-line progressions.

The subtle, evocative form of “La terrasse,” however, does not follow the formal and functional precepts of the tonal system. The partitioning of abstract pitch collections, particularly octatonic set segments, instead creates the illusion of traditional tonal forms. Moreover, the octatonic sets themselves are created by the convergence of whole-tone elements, diminished-seventh chords, and tritone dyads. “La terrasse” is far removed from the process and products of traditional tonal progression. It instead combines elements of a language derived from twelve equal tones, although this is not twelve-tone or serial music. Octatonic sets, which are dissolved and later reformed by the introduction of new pitches, are part of a process in which diatonic and other intervallic by-products result. These diatonic results create an illusion of tonal forms and an allusion to traditional means of progression throughout “La terrasse.” This unusual prelude is conceived through manipulation of the reflexive and non-reflexive precepts of the tonal system.

The new system of generation and progression that results creates a sense of quasi-tonality within “La terrasse.“ The tonal areas of C-major and F#-major, whose tonic triads form a six-note segment of octatonic 1, C-C#-E-F#-G-A# are the products of octatonic interactions among octatonic 0, 1, and 2. Both the C-E-G and F#-A#-C# tonic triads are created by partitioning octatonic 1, C#-D#-E-F#-G-A-Bb-C. Yet true to the Symbolist aesthetic of suggestion, the complete F#-major and C-major scales are never uttered verbatim. The tonal areas of F#-major and C-major are instead implied with pedals, triads, and constructs which invoke the identity of F# and C major.

The impressionism of “La terrasse” evolves precisely from illusions created by incomplete collections. A realist depiction would be a literal representation while an Impressionist image is created by intimation and partial fulfillment.

This Impressionistic sense can also result from the fusion of octatonic segments that form hybrid chromatic collections, as well as through specific octatonic combinations that create modal diatonic forms. In such modal forms, we have staticism because of the lack of leading-tone elements in the modes. (I should clarify that this chromaticism is not of the Wagnerian, Schoenbergian, or late-tonal kind, but rather a result of the process of polytonal combination). Allusion and illusion to the tonal system is evoked by octatonic partitions that form surface and underlying structures that are customarily interpreted in a functional tonal context. This is similar to an Impressionist painting because the color blocks and obscured forms are not themselves representational, but create the illusion of their subject.

The equalization of the twelve tones in “La terrasse” lends itself to the disillusion of the hierarchy found in functional tonality. The liberation of the pitch classes leads to equalization of the components of the chromatic scale. This equalization effectively disbands functional harmonic relations. Moreover, the removal of the notion of traditional consonance and dissonance yields an equalized chromatic scale that removes tonic, dominant, and sub-dominant functions. It also dissolves or alters the functional harmonic relations between developmental sections and transitions. Without the

traditional tonal frame of reference, pitch materials are "developed" instead within new formal structures by a new means of progression. A pitch landscape of twelve equal tones, as found in "La terrasse," nullifies the traditional development section of a sonata, for example, where the harmonic motion conventionally moves from the dominant back to the tonic return of the first theme. The non-hierarchical system of "La terrasse" infers quasi-tonal expectations through reflexive meaning, and in so doing reinterprets and at times satirizes the myriad associations of tonality.

Although Debussy was known to eschew formal schemes such as tonality, he was interested in proportional, numerical systems such as Golden Section and the Fibonacci series. Debussy was intrigued by the organizing potential of these natural number phenomena. The appeal of non-tonal, "natural" means to create "natural" musical forms that contravene standard formulas shaped the musical language of the *Préludes*. Yet even the natural principles Debussy explored in place of the tonal system are subject to selective application. As discussed in the Introduction, Debussy does not always strictly subscribe to the divisions or sections implied by these "natural" phenomena. Just as an Impressionist image is evanescent, Debussy's fluid musical language adapts the texture and style to the pseudo-programmatic material evoked.

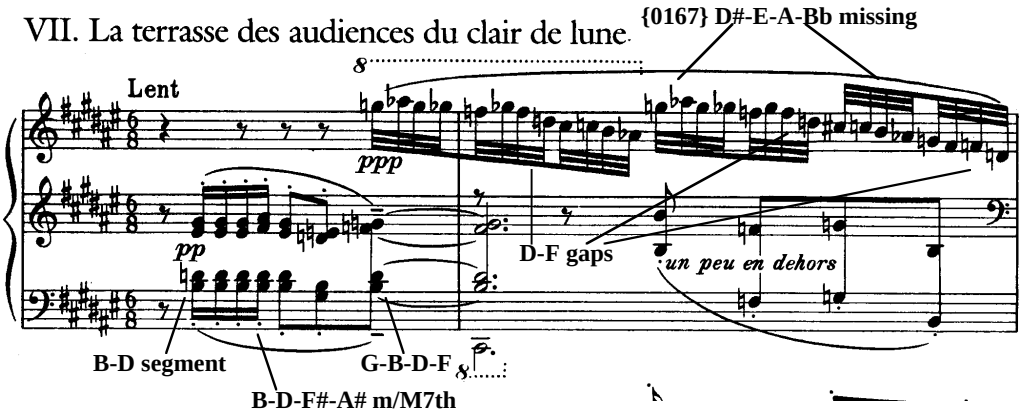
Analysis

The first few measures of Debussy's *Préludes* commonly present in a microcosm the conflicts between pitch sets and the pitch goals of the entire

work. This is the case in “La terrasse,” where as early as m. 1, the three octatonic sets are juxtaposed and fused to reveal this process as the means of progression. The quasi-tonal results of these octatonic interactions, the G-dominant-seventh of C-major and the tonic triad of F#-major, are forecast in this first section. In one instance, the diminished seventh chord E#-G#-B-D of octatonic 0, (C-D-Eb-F-F#-G#-A-B), is directly contrasted with the dominant seventh chord E-G#-B-D of octatonic 2, (D-E-F-G-G#-A#-B-C#). The relationship of these collections is important because the shared G#-B-D segment can impart octatonic 0, E# diminished identity with the addition of E#, or E-dominant seventh chord, octatonic 2 identity with the addition of E. This chromatic replacement of pitches is one procedure that creates a landscape of kaleidoscopically realigned pitch set identity, a primary structural feature of “La terrasse.” A significant result of this process is that it polarizes octatonic 0 and 2 for interactions throughout this prelude.

Another process that shapes “La Terrasse” is the interplay and combination of octatonic sets that form tonal constructions that invoke functional relations, such as seventh chords and triads. One instance of this combination is found on beat 3 of m. 1, where the B-D-F#-A# minor/major seventh chord fuses the B-D minor third of both octatonic 0 and 2, and the F#-A# major-third from octatonic 1 (C#-D#-E-F#-G-A-Bb-C). A striking example of pitch set unity, this B-D-F#-A# aggregate of all three octatonic sets combines the third (B) and fifth (D) of the G-dominant seventh of white-key C-major, and the root (F#) and third (A#) of black-key F#-major. This B-

D-F#-A# chord, a fusion of black and white-key spheres and all three octatonic sets, foreshadows the C-major and F#-major key areas.



Example 5-1: La terrasse, m. 1-2

Thus far, the formation of quasi-tonal goals through octatonic interactions has only been suggested. Pitch materials combine into an explicit diatonic partition, G-B-D-F, on the sixth beat of m. 1. This dominant seventh chord evolves from the dual congruence of the B-D minor-third segment in octatonic 0 and 2. Through this common segment, G and F are added to create the G-B-D-F white-key, diatonic seventh chord and temporarily invoke the octatonic 2 sphere. More important, G-B-D-F implies a C-E-G tonic triad, while the prior F#-A# segment is the root and third of the final tonal goal, F#-major and its tonic triad F#-A#-C#. This, and the fact that C-E-G and F#-A#-C# are completely contained in octatonic 1 point to the prominent role this set has in producing diatonic partitions. While octatonic 0 and 2 help create the

quasi-tonal areas of C and F# major, they are secondary to octatonic 1 in “La terrasse” and are de facto products of explicit octatonic 1 partitions.

The octatonic sets in “La terrasse” are presented both within vertical chords as well as in horizontal lines. The lines are at times explicitly melodic, and at other times embedded within the stratified texture. While the horizontal and vertical planes can be perceived separately, the combination of elements from them is more important to our perception of the formal structure of “La terrasse.” Throughout this prelude, the linear continuum of the chromatic set forms a backdrop for the emergence of octatonic and diatonic collections. The first instance of an explicitly linear, chromatic partition is found in the falling iridescent scale of m. 1-2, Ab-G-Gb-F-D-C#-D-B. Only the double tritone cell-0167, D#-E-A-Bb, a union of tritone dyads A-D# and E-Bb (A#) of octatonic 1, is missing from this chromatic collection. The omission of this D#-E-A-Bb cell, wholly derived from octatonic 1 (C#-D#-E-F#-G-A-Bb-C), implies that addition of these pitches will lead to progressive completion of octatonic 1.

It also points to the multifaceted use of symmetrical formations throughout “La terrasse.” One aspect is that Fibonacci number relations and Golden Section proportions are part of the overall formal organization. Another is that dyads and tritones within chords both help to constitute a symmetrical concept. The D#-A and E-Bb tritones of {0167} contrast white-key and black-key spheres, and allude to the important tritone distance between the implied tonal goals of the prelude, C and F# majors. A conflict

between these traditional tonal protagonists is thus created, but within a symmetrical and chromatic context. As proposed earlier, in “La terrasse” tonality is a frame of reference for external, non-reflexive meaning. The tonal “goals” form through the reflexive system of pitch relations created by octatonic and symmetrical partitions of the chromatic scale.

The combined pitches of the C major and F#-major tonic triads, C-E-F#-G-A#-C#, constitute six notes of the octatonic 1 scale. The combination of these triads importantly pair tritone elements, C-F#, E-A#, and G-C#. The tritone distance of these tonic triads was surely no accident, and forecasts other symmetries. Notably, the D#-A tritone pitches from the omitted {0167} cell D#-E-A-A#, are the only two pitches needed to complete the (C-E-F#-G-A#-C#) octatonic 1 segment formed by the C and F# tonic triads. Since tritone D#-A is contained both within octatonic 0 and 1, it functions as a link to octatonic 0 material in m. 10. This missing tritone dyad thus presents the potential for motion and a new process of progression and pitch generation akin to tonal transposition and transformation.

The octatonic areas introduced in the m. 1-2 section are clarified as “La terrasse” progresses. The D-F gaps in the m. 1-2 chromatic segment, for instance, (Ab-G-Gb-F-D-C#-C-B) serve a dual function. On one level these gaps are a development of the D-F minor third in the m. 1-2 chords. On another, they forecast the formation of octatonic 0 and 2 pitch structures into intervals, chords, and linear segments throughout “La terrasse.” One example of this shared identity is the previously discussed, m. 1-2 dominant-seventh

chord G-B-D-F, which links octatonic 0 and 2. It is an “octatonic 2” dominant seventh-chord because G, B, D, and F are all contained within octatonic 2, D-E-F-G-G#-A#-B-C#. It is related to octatonic 0 because its cycle-3 component is also contained in octatonic 0, C-D-Eb-F-F#-G#-A-B.

In a larger sense, the octatonic relevance of this G-B-D-F white-key chord is more completely explored in m. 28 and 30. Moreover, the F and G pitch components will be reinterpreted as the F-G whole-tone segment in m. 34-35. Both the F-G segment and G-B-D-F chord evolve from the m. 1-2 D-F minor-third gap. The pitch protagonists and their means of development are carefully established in the initial section.

The equalization of pitches from traditional triadic structures into the larger, static symmetrical system contributes to the impressionistic quality of “La terrasse.” This staticism, created by the special color of tritones, seventh-chords, and octatonic segments that refer to triads, is basic to the impressionist aesthetic. In this non-traditional sense, several quasi-tonal constructions emerge throughout this prelude. One, the tonic C-E-G triad, is stated in m. 24, 25, and 27. However, the C-Major key area is never articulated in a traditional tonal manner as no C-major scale or explicit cadential formula occurs. The C-major area is primarily invoked by the G-B-D-F dominant seventh created by octatonic 2. In m. 24 only pitches G-B-D occur since the F must be added for the goal to be fulfilled. However in m. 24, the octatonic scales create an implied tonal hierarchy where octatonic 1 represents I, C-E-G, octatonic 0 represents IV, F-A-C, and octatonic 2 represents V7, G-B-D. The pitch

content of each chord is exclusive to only one octatonic set; i.e. the C-E-G pitches are common only to octatonic 0. Although the G-B-D-F dominant seventh is not emphasized until m. 28 and 30, it is prepared by progressive motion to the white-key sphere throughout the m. 20-24 section. The intermediate arrival at F-A-C and C-E-G triads in m. 24 also prepares for the G-B-D-F seventh.

The emergence of symmetrical tritone and octatonic relations is clarified as "La terrasse" progresses. Throughout the prelude, the shifting meaning of pitch segments, similar to the change in color of a chameleon, is the primary means. One instance of this shared meaning is contained in the C# pedal found throughout m. 1-5. While it alludes to the ultimate assertion of the F#-Major triad of m. 44-45, it forms a dual octatonic relation since it is a member of both octatonic 1 and 2. In a larger structural sense this pedal forecasts a gradual shift to the octatonic 1 sphere of F#-major, since C# invokes a functional dominant-seventh chord, C#-E#-G#-B, fifth relationship with an F# tonic. On a local level, it is part of the octatonic 2 segment C#-D-[E]-F-[G]-G#-Bb-B, with only E and G of octatonic 2 and 1 missing. The commonality of the missing E and G to octatonic 1 and 2 partially illustrates how related octatonic segments are derived from an underlying twelve-tone language.

Conflict between octatonic 1 and 2 spheres continues at the next point of structural interest, m. 8 of the Fibonacci Series. The C#-E-G# modal, minor "dominant" triad of F#-major and octatonic 2 forms through interactions of

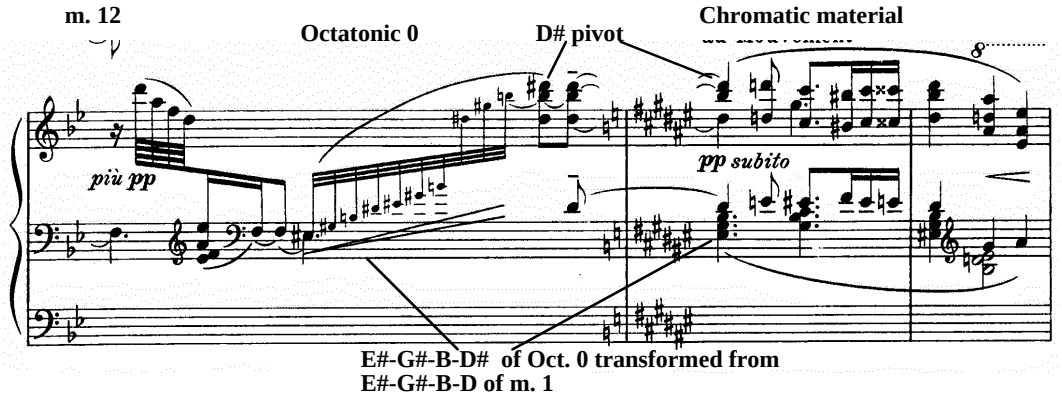
the white-key octatonic 2 triad E-G-B and the black-key octatonic 1 triad D#-F#-A# in m. 7. The motion from this C# to the Bb-D-F triad (m. 8) reflects the gradual emergence of octatonic 2 (D-E-F-G-G#-A#-B-C#). Texturally, the Bb-D-F chord stops the rhythmic motion at this Fibonacci juncture, which implies that octatonic 2 imitates the function of a quasi-cadential articulation. Another important function is that octatonic 2 draws together two seemingly traditional constructions, (i.e. E-G-B and Bb-D-F triads) into the larger, symmetrical, cyclic interval set.

The Bb-D-F triad is clearly juxtaposed with octatonic 1 chords in m. 10-11 to illustrate a struggle between octatonic 1 and 2, and left and right hands. Octatonic 2, through the Bb-D-F partition, gradually combines with the m. 10 octatonic 1 clusters Db-E-G, Db-E-A, and Db-E-G-C until octatonic 1, C#-()-E-()-G-A-Bb-C is formed with D# and F# missing. Pitches and pitch segments are continually reinterpreted in this manner as "La terrasse" progresses. At times, a process of black and white-key juxtaposition is hinted, but is mostly overshadowed by changing partitions and colors of the chromatic members of the octatonic scales.[33]

Transformation from octatonic 0 to 1 characterizes the m. 10-12 section. Specifically, the Eb-F-A chord on the last beats of both m. 10 and 11 functions as a pivot to the m. 13 octatonic 0 collection, E#-G#-B-D#. The Eb-

[33]White and black key polarity is often very important in Debussy as in Stravinsky and Bartók. While in this prelude there is some relevance, it tends to be more obscure than in others such as "Les sons et le parfums," and "Feux d'artifice." In "La terrasse," chromaticism filters out at times to the black-key sphere, while at times the white-key sphere is asserted so a clear polarity is not established. However, due to an understanding of other works of Debussy, where white/black key polarity is established, a mention here is relevant.

F-A chord, including the important A-Eb tritone and enharmonic Eb/D#, are contained in octatonic 0 and 1. This enharmonically respelled D# serves as a pivot between octatonic 1 and octatonic 0, and the flat and sharp spheres, which is made explicit when the Eb is respelled as D# in m. 12. This prepares for a shift to the revisited, half-diminished seventh chord E#-G#-B-D# that is common only to octatonic 0. This chord is a reformation of the initial m. 1 octatonic 0, fully diminished seventh chord E#-G#-B-D. Further, it is an explicit product of white and black-key half-step transformations of the underlying chromatic continuum.

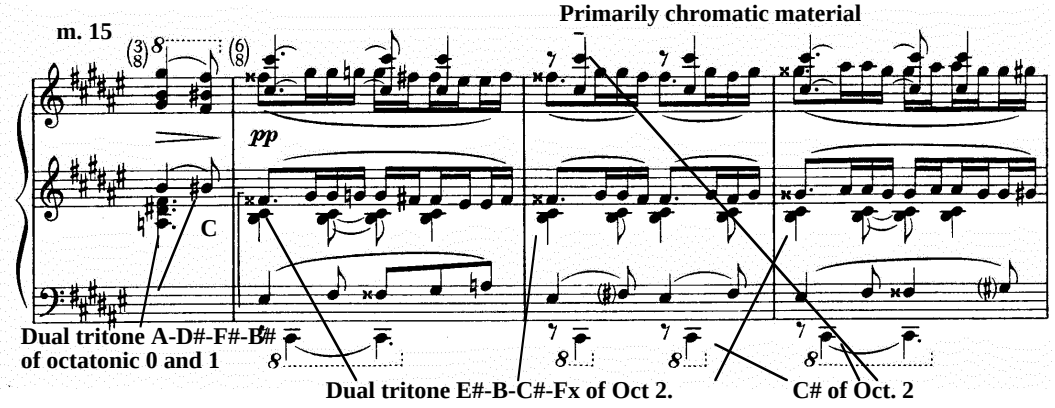


Example 5-2: La terrasse, m. 12-14

The recasting of the Eb as D# is also important because it appears to serve as a pivot to the primarily chromatic collection of m. 13ff. The chromatic set returns to equalize pitch identity in m. 13, where ironically the F#-major key signature returns and no octatonic set receives primary emphasis. Chromatic transformations shape m. 14-15, where A#-D# and E#-A# fourths expand by half step into tritone A-D# and the dual-tritone chord A-

D#-F#-B# on beat three of m. 15. This construction is notable because it is a wholly interval 3 cycle chord, symmetrical, and common to both octatonic 0 and 1 protagonists. In “La terrasse” the octatonic set is asserted even within primarily chromatic sections.

In a surprising shift away from recent octatonic 0 and 1 interactions, pitch material moves to the octatonic 2, dual-tritone construction E#-B-C#-Fx in m. 16. The C#- Fx(G) tritone is a half-step transposition up of the m. 15 C-F# tritone, while the B-E#(F) tritone a whole-step transposition up from A-D#. These combined whole and half step transpositions point to later scalar intermixing of these steps, particularly in octatonic collections. More evidence of octatonic 2 is found in low C# bass notes that recall the C#-E-G#, octatonic 2 triad of m. 8. The allusion of octatonic content to quasi-tonal forms is reasserted by this emphasis.



Example 5-3: La terrasse, m. 15-18

This section is primarily chromatic despite the emergence of octatonic 2 constructions. In a larger sense it occludes octatonic identity and highlights the half-step component of the octatonic set. The reiteration of the E#-B-C#-Fx chord from octatonic 2 in m. 16-17 emphasizes this sonority. At the same time, however, rising and falling chromatic lines in all three staves blur white and black key areas; this effects a virtual equalization of the pitch palette. Any set can emerge from an equalized twelve-tone set, and color indeed shifts abruptly in the lower two staves to the white-key collection A-B-D-E-F-G (m. 19). This is notable because it is thus far the clearest white-key diatonic area.

The absence of C from this set, which implies the C-major scale, illustrates Debussy's selective, and sometimes incomplete, realization of formal implications. Since C major is a very secondary consequence of white key interactions and does not serve as a functional goal, the pitch C is not necessary. As this passage from Howat's *Debussy in Proportion* book proposes, Debussy often only partially fulfills symmetrical schemes, Fibonacci divisions, and pitch set goals:

> But the tendency can be summed up briefly by saying that Debussy, continuing his constant evolution away from the musically obvious, sometimes moved clear even of any instinctive expectations and rewards that might be involved in following Golden Section and symmetrical sequences- avoiding the subconsciously expected proportional move, just as his earlier works develop by forestalling the expected melodic or harmonic follow-through. When proportional systems are partly present, as in some of the Preludes or Etudes, they

> could simply initiate musical relationships that can then be continued and developed in different ways.[34]

"La terrasse," like other Debussy *Préludes* with Fibonacci and Golden Section correspondences, does not always follow these schemes closely. Allusion to forms, and even subversion of the forms that supplant tonality, are characteristic of "La terrasse" and other *Préludes*. One example of this is the incomplete, m. 19 occurrence of white-key diatonic material, two measures away from measure 21 of the Fibonacci series. The proximity of m. 19 to m. 21, and the significance of this white-key material, point to a Fibonacci relationship.[35] This formal imprecision is another depiction of the impressionist aesthetic, one upheld by Howat's contention that Debussy avoids the expected. The misalignment of measure numbers and structural events is akin to the shifting meaning and alignment of pitch segments. These features reflect the Impressionist and Symbolist artist's rejection of strictly depicted time, form, or design.

This Fibonacci correspondence intensifies in m. 20, where the chromatic reinterpretation of pitches emerges as a primary method of pitch-set derivation and motion. Chromatic shifts of a single note contrast the half-diminished versus diminished color of the chords G#-B-D-F# to G#-B-D-F. This chromatic manipulation is a transformation of the initial m. 1 G-B-D-F

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[34]Roy Howat, *Debussy in Proportion*: *A Musical Analysis* (Cambridge: Cambridge University Press, 1983), p. 162.

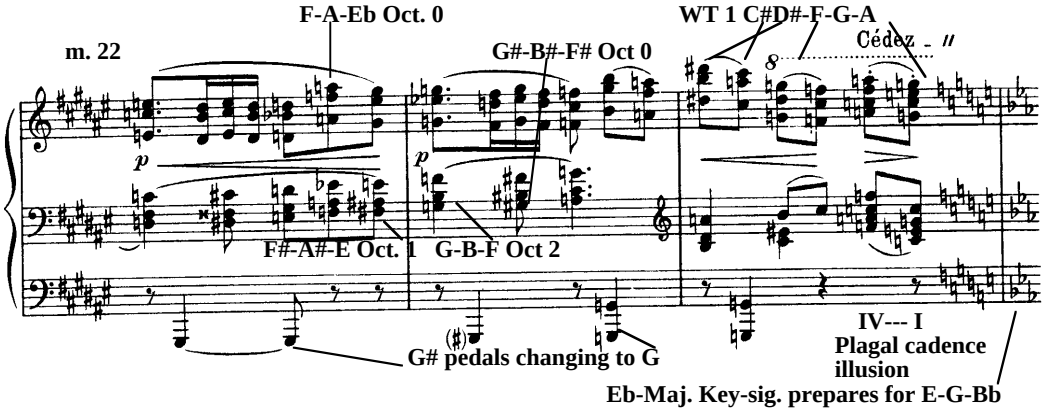
[35]See the Introduction, p. 12-14, for a more complete discussion of the Fibonacci Series, which follows the pattern 0-1-1-2-3-5-8-13-21-34-55-89-144, and also, "Number game" *Encyclopaedia Britannica Online*.http://search.eb.com/bol/topic?eu+117294&sctn+16.

dominant seventh chord of both octatonic 2 and diatonic C-major. Cumulative chromatic mutations are proving to be a pervasive, driving force in the transformation of material on many levels. This kaleidoscopic half-step shift, symbolized by the F to F# mutation, changes the color, white and black key identity, and octatonic meaning of chords and pitch segments throughout "La terrasse."

A variation on this chromatic recasting of pitches occurs in the m. 21-25 section, where enharmonic reinterpretation of Eb and D# leads to the emergence of an Eb-G-Bb triad in m. 25. This is important because Eb is the symmetric midway point between tritone C-F#, the two primary key "goals" of "La terrasse." In a more general manner it likewise points to the importance of symmetrical constructions within octatonic sets and to relationships shaped by tritone dyads throughout this prelude. Specifically, the C, F#, and Eb Major triads are all part of octatonic 1. Since the important quasi-tonal goals of "La terrasse" are C and F#-major triads, the octatonic 1 collection plays a major role in defining the pitch materials and form of this prelude. As will be more fully demonstrated, the triads that suggest tonality in "La terrasse" are actually products of chromatic respelling and transformation, and partitioning of tritone dyads from octatonic 1.

Before the Eb-G-Bb triad and Eb-Major key signature, chords are successively reinterpreted chromatically in m. 21-24. Cumulative transformations prepare the arrival of Eb, and the illusion of a quasi-tonal plagal cadence. In each measure, the chords rise chromatically in the middle

staff to contrast the octatonic sets, but also equalize the chromatic continuum. This chromatic equalization neutralizes pitch set identity so that any set can evolve.



Example 5-4: La terrasse, m. 22-24

Chromatic transformations featured in this section include: D-F#-C (Oct. 0) to D#-Fx-C# (Oct. 1) to E-G#-D in m. 21; continuing up to F-A-Eb (Oct. 0) to F#-A#-E (Oct. 1) in m. 22, and G-B-F (Oct. 2) to G#-B#-F# (Oct. 0) in m. 23. On another level, G# pedals of m. 21-23 change to G pedals in m. 23-24 to point to a chromatic shift from the G# of octatonic 0, to the G of octatonic 2. Chromaticism is a central protagonist in the kaleidoscopic realignment of pitch segments throughout “La terrasse.“

The m. 21-24 section also has whole-tone elements noticeable in the upper melody note of the chords. In m. 21, for instance, D-E-F#-G# of whole-tone 0 is apparent, while in m. 24 has the explicitly whole-tone 1 collection C#D#-F-G-A.

This seemingly paradoxical duality of pitch generation often leads to quasi-tonal results. Chromatic manipulations lead to white-key F-A-C "subdominant" and C-E-G "tonic" triads in m. 24 that allude to a plagal cadence. This white-key emphasis is a continuation of the dichotomy between white and black key spheres that allows the C-major triad to emerge. This illusion to C-major itself shifts the focus to octatonic 1, a change that allows for the Eb triad of octatonic 1 to occur in m. 25. These quasi-tonal goals result not from functional tonal means, but from the chromatic development of octatonic materials.

The m. 25-27 "Mouvement du début" briefly explores the quasi-diatonic Eb and C-major possibilities of the octatonic 1 collection. An implied Eb-major section, denoted by a non-functional Eb-major key signature, successively presents the Eb, C, G, and F major triads. Each of these triads represents an octatonic set; F represents octatonic 0, G represents octatonic 2, and Eb and C represent octatonic 1. Nevertheless, these loose functional tonal implications are remote. The juxtaposition and combination of these chords more importantly prepare for the motion to exclusively white-key material in m. 28 and 30. What is more, the G-dominant seventh chord recurs as the sole material in m. 28, the two-thirds Golden Section point in "La terrasse." In a functional tonal context, this chord would represent the dominant seventh of the prior C-major triad. This seventh chord performed a similar role in m. 1-5, where it referred to the white-key sphere with another distantly implied C-major allusion.

Materials and spheres converge in the m. 25ff section, where the octatonic 1 set serves as a backdrop for an intensified conflict between chromatically altered pitches. This is accomplished in part by whole- and half-step motion between middle-stave grace notes Cb and C, and the Eb triad, and grace notes E and the G-B-D- triad, and grace note D and the F-A-C triad. Another convergence is the half-step juxtaposition of the triads Fb-Ab-Cb (E-G#-B) and Eb-G-Bb. This occurs as the Fb-Ab-Cb triad shifts first to the "subdominant" F-A-C triad of octatonic 0 in m. 26, and then to the Gb-Bb-Db triad of octatonic 1 on the last beat. This leads to the return of the m. 25 pseudo-cadential 6/4 allusion of the C-major tonic triad G-C-E on the last beat of m. 27.

This shift of light allows the C-major tonic triad to emerge in the white-key sphere, and leads directly to the G-B-D-F dominant seventh chord realization in m. 28. This chord develops from the original D-F gaps from the m. 1-2 chromatic scale and the m. 1, last beat G-dominant-seventh chord. While this chord is non-functional, it is an important link to the white-key sphere and to octatonic 2, the only set containing G-B-D-F. The statement of this G-dominant-seventh chord at m. 28, the Fibonacci two-thirds point in "La terrasse," highlights the importance of Fibonacci relations in forming and demarcating structure. Although tritone symmetry is not implied by this correspondence, the emergence of white-key material at this Golden Section juncture is striking. This material contrasts with the surrounding black-key chromatic material and the F# material in the last line. In addition, octatonic

interactions play a role here, as this G-dominant seventh from C major and octatonic 2 is created through non-symmetrical octatonic partitions of the equalized twelve-tone chromatic scale.

True to the mercurial form of "La terrasse," this C-major allusion also dissipates through a change in the underlying chromatic structure. On beats three and six of m. 30, the G-B-D-F chord yields to the related chord cluster D-F-A-B. In one sense, this D-F-A-B is simply a cluster based on the common B-D-F pitches of the dominant seventh that alters the mood and color. In another, it signifies a shift from octatonic 2 to octatonic 0. If pitches D-F-A are considered as a triad indicative of functional harmony, they constitute the subdominant ii chord of C major. However when combined with pitch B, they yield B-D-F-A, a half-diminished seventh chord fully contained within octatonic 0. In a non-traditional way, a "tonal" hierarchy evolves from the juxtaposition of these octatonic sets. The allusion to and illusion of tonality is paradoxically created by chromatically recasting octatonic sets and their symmetrical tritone dyads. The B-F tritone segment shared by octatonic 0 and 2 is reinterpreted to allow motion between octatonic 2 and 0. The changing context of this tritone as a cognate set segment is an important mechanism of progression and generation in "La terrasse."

This dual identity of materials allows for octatonic 2 to evolve again in m. 31ff. The complex relations of pitch and common segments that define the reflexive meaning of "La terrasse" become progressively more apparent. This hierarchy of seemingly tonal forms is intensified in m. 31, where dominant

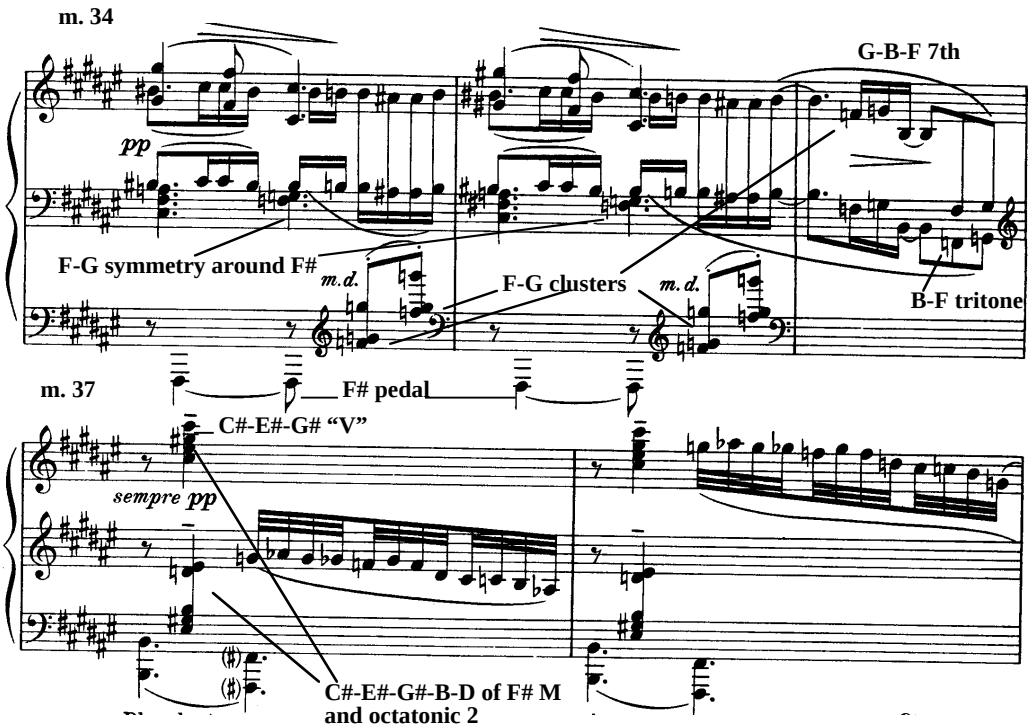
seventh chords built on C#, E, G, and Bb delineate the octatonic 2 tritone dyads, G-C#, and E-A# (Bb). The combination of these seventh chords spells the complete octatonic 2 scale (D-E-F-G-G#-A#-B-C#) with no extra or missing pitches.

Octatonic 2 "dominant" identity is thus fulfilled by the conspicuous combination of constructions central to tonality, dominant seventh chords. It is important to emphasize that these dominant seventh chords are created through octatonic segment partitions, not through tonal transformation. These dominant seventh chords map into the octatonic collection as non-symmetrical partitions, in contrast to the tritones and diminished sevenths that are symmetrical partitions. The illusion of tonal forms is thus created by motion between seemingly traditional elements that are actually non-functional octatonic forms. "La terrasse" is a clever manipulation of the reflexive and non-reflexive meaning of the tonal system and the structural framework of chromatically created octatonic sets.

Cumulative pitch transformations have thus far emphasized G-B-D-F as an octatonic 2 seventh chord with tonal allusions. Now that the implied C-major and octatonic 2 goals have been realized, the F#-major goal of octatonic 1 must be achieved. Consequently, pitch materials from m. 32 onward are more closely aligned with the octatonic 0 and 1 spheres that generate F#-major. One step towards this is the m. 32 return of the m. 12ff material and the F#-major key signature. This revisited material includes the octatonic 0, E#-G#-B-D# half-diminished seventh chord. An E# (F) pedal in the bass recalls

the subdominant function of octatonic 0 in the formation of C-major. It further points to the dual role octatonic 0 plays in the formation of the C and F# major areas.

Another sign that F# is emerging is that the F-G segment of the F-G-B chord in m. 34 and 35 is symmetrical around F#.



Example 5-5: La terrasse, m. 34-38

Although the C and F# areas are related, the dual meaning of materials common to both collections enables the progressive motion from the C sphere towards the F# sphere. One sign that the F# area is emerging is the F# pedal in m. 34. Another is that the revisited G-B-D-F dominant seventh leads

melodically to the C#-E#-G# “dominant” triad of F#-major in m. 37. The G-B-(D)-F chord returns through fusion of the lingering beat five and six F-G clusters with the B-F tritone in m. 36. As a sign of structural unity, this G-dominant-seventh is partitioned as an F-G-B-F falling melody to highlight the F-B tritone dyad from octatonic 0. Throughout “La terrasse” this F-B segment serves as a pivot from one modal diatonic sphere to another in a process of octatonic transformation that replaces tonal transformation. The dual relation of octatonic 0 in the white-key C major and black-key F#-major spheres is paramount to the overall process of “La terrasse.” In this case, this dual meaning allows for the seemingly incongruous shift to C#-E#-G#-B-D, six notes of F#-major and “dominant” octatonic 2.

The remaining measures, from 37-45, unify chromatic interactions and focus motion towards the implied F#-Major goal. Throughout, the identity of pitch segments as a chromatic component of octatonic sets is progressively clarified. Motion from one octatonic set to another is achieved through chromatic reformation and transposition of triads. Likewise, octatonic content is chromatically altered so that quasi-diatonic allusions evolve from triads and fifths. This process leads to the final F#-major allusion denoted by the F#-major triad F#-A#-C# and the C#-F# bass motion between the last two measures.

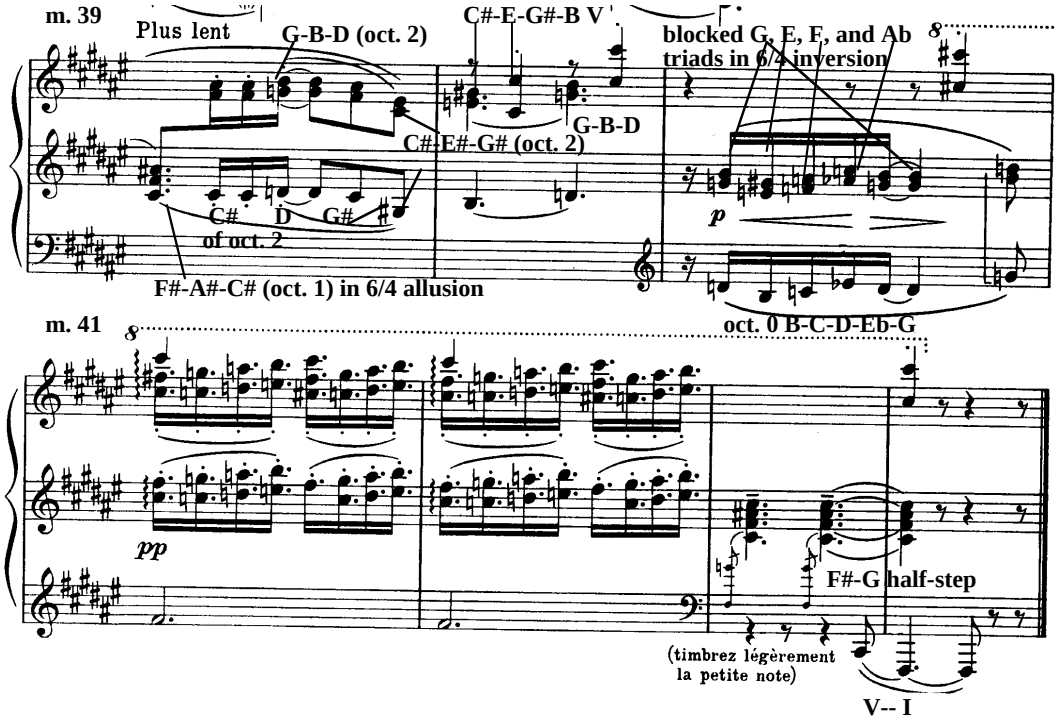
This F#-A#-C# triad first occurs in m. 39 as a second inversion construct that mimics a cadential 6/4 construction. The second inversion weakens the triad as a quasi-tonic or key goal and provides the need to move

to root position. This 6/4 chordal inversion, explored in both m. 39-41, alludes to the sixths and thirds that often connote motion in tonal forms. Tonality, however, is only illusory as these chords really explore chromatic shades of octatonic meaning. In m. 39, the triads F#-A#-C# (oct. 1), G-B-D (oct. 2), and C#-E#-G# (oct. 2) occur; in m. 40, E-G#-B and G-B-D occur (oct. 2), and m. 41 adds F-A-C (oct. 0), and Ab-C-Eb (oct. 0). This contrast stresses the dichotomy between sharp and flat spheres, and white and black key identity within all three octatonic sets.

Within each of those progressions, the linear motion is chromatic. The lower lines delineated by the chords traverse the purely octatonic 2 C#-D-G# in m. 39, and the primarily octatonic 0 B-C-D-Eb-G in m. 41. In m. 40, a C#-E-G#-B octatonic 2 seventh chord is alternated with a G-B-D octatonic 2 triad to delay the final motion to octatonic 1 and F#-major. Further, the C#-F#-A# triad is a chromatic reinterpretation of the C-F-A subdominant of C-major which effects an impressionist blurring of diatonic relations. Diatonic constructs are manipulated interchangeably in “La terrasse” because octatonic sets, not diatonic, are the objective. Both C-E-G and F#-A#-C# triads and their quasi-tonal implications belong to octatonic 1. The implied functionality, however, is a consequence of chromatic convergence of elements from all three octatonic sets.

As Howat proposed, the formal relationships in Debussy’s music often serve as a point of departure for other developments and relations. The chromatic re-interpretation of the subdominant adds an ironic traditional

allusion in an otherwise dense chromatic/octatonic landscape. However, it is a consequence of the underlying octatonic identity throughout "La terrasse." The quasi-tonal goals of C and F# are simply partitions of chromatically partitioned octatonic scales.



Example 5-6: La terrasse, m. 39-44

In a conspicuous move to octatonic 2, the triads E-G#-B and G-B-D of octatonic 2 occur in m. 40 with a C#-dominant pedal. Chromatically juxtaposed G, E, F, and Ab major triads blur the pitch identity yet again. The C# pedal returns in the top octave and is joined by an F# pedal in the lowest staff in m. 42-43, which unequivocally affirms the F# goal. A union of white-

and black-key spheres, these F#-C# pedals are contrasted with inner C-G, D-A, and E-B fifths placed in melodic succession. One final procedure serves as a concluding tribute to the chromatic transformation of pitches and pitch sets in this unique prelude. The final F#-major chords are preceded by G grace notes to recall the G-B-D-F chord from m. 1 and the Golden Section m. 28. This confirms G and the F#-G half-step as the seminal half-step components in the creation of “La terrasse.”

Chapter 6: Horizontal and Vertical 12-Tone Implications of Octatonic and Modal Sets in "Les fées sont d'exquises danseuses"

"Les fées sont d'exquises danseuses", one of the more harmonically non-traditional *Préludes* from Book II, represents an even further departure from tonal form and progression. While key signatures, chords, and the final statement of a Db-Eb-F line suggestive of a Db tonic establish references to traditional tonality, the process is not tonal transformation. Even the technique of symmetric or octatonic partitioning to invoke tonal allusion that characterizes "La terrasse" and "Les sons et les parfums " is supplanted in "Les fées". Instead, the means of progression is independent of a priori schemes and stems from the entire set of relations possible within the chromatic collection. These include new types of pitch constructions such as interval cycles and the relations within compound cyclic sets, including the three octatonic sets.

The phrase that inspires this prelude, "The fairies are exquisite dancers," was adapted from an Arthur Rackham illustration in *Peter Pan in Kensington Gardens,* published in 1906.[36] The element of fantasy inherent in this childhood story surely affected Debussy's conception of the dancers

[36]Paul Roberts, *Images*: *The Piano Music of Claude Debussy* (Portland: Amadeus Press, 1996), p.228.

portrayed in the prelude “Les fées.” The extraordinary movement quality of the fairies, and perhaps even their costumes and shapes, conjured an image worthy of an extraordinary musical depiction.

Consequently, the system of pitch meaning in “Les fées” is far removed from tonal references and associations. In this prelude, the language has evolved so that the underlying chromatic continuum is a backdrop for reflexive meaning between intervals and sets. This application of the chromatic set is as equally removed from tonal function as the free atonal idiom of Schoenberg. As mentioned in the Introduction, two primary trends in Debussy’s use of pitch and delineation of formal meaning are discernible. One stems from the explorations by national composers of pentatonic and modal folk sources, while the other stems from the ultra-chromaticism of the Wagner-Strauss period. The modal and symmetrical tonality of Debussy is likewise based on a kind of twelve-tone language, whose development is concurrent with the development of the free atonality adopted by the Viennese composers. Modal and symmetrical deviations from tonality will be the focus of this discussion of “Les fées sont d’exquises danseuses.”

The pitch relations that generate the progression and form of “Les fées sont d’exquises danseuses” present themselves in m. 1-4. As in “Feux d’artifice,” Fibonacci principles, white- and black-key juxtapositions, and chromatic combinations evolve. In the opening, right-hand pentatonic Db-Eb-Gb-Ab-Bb is cast against left-hand diatonic C-E-G-A-B to polarize white and black key spheres. The possibility of their combination foreshadows later

octatonic, whole-tone interactions, and the emergence of pitch relations derived from twelve equal tones. The pitch sequence in m. 1-4 features major and minor thirds in the left hand and fourths and fifths contained within an octave boundary in the right hand. This partitioning effectively segregates the intervals into interval 1:3, 1:4, 1:5, and 1:7 ratios when considered only within each hand.[37] Their combination yields the hybrid chromatic/octatonic segment C-Db-Eb-E-Gb-G-Ab-A-Bb-B. Prior chapters demonstrated that "La terrasse" and "Feux d'artifice" use the chromatic set as an intermediary stage in octatonic and pentatonic development. In "Les fées," the means of progression and derivation is instead the expansion and contraction of interval cycles derived from the chromatic set. Cyclic interval transformation facilitates motion between pitch sets and is more systematic and pervasive than in the other preludes in this study. George Perle identified and labeled interval cycle ratios in his discussion of Berg's *Wozzeck*:

> Let the letter "C" followed by an interval-class number (0 through 6) designate the cycle..."C_1" represents the semi-tonal scale, "C_2" the whole-tone scale, etc. But there are *two* whole-tone scales. What if we wish to distinguish between them? Since the two partitions of C_2 are mutually exclusive, either of them may be identified by any one of its pitches. Let us represent these by pitch-class numbers, 0 for C, 1 for C#, etc. The pitch-class numbers of the one whole-tone scale are 0, 2, 4, 6, 8, 10, and those of the other are 1, 3, 5, 7, 9, 11. In general we will specify the partition by employing its lowest pitch-class number as a subscript.... The three C_3 partitions may be analogously represented C_{30}, C_{31}, and C_{32}...[38]

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[37]See the discussion of interval cycles and ratios in the Introduction, p. 14.

[38]George Perle, *The Operas of Alban Berg, Vol. I: Wozzeck* (Berkeley and Los Angeles: University of California Press, 1980).

If the left-hand white-key diatonic set is combined with the right-hand black-key pentatonic set, tritone relations, such as A-Eb and C-Gb can result. These and the E-Bb and G-Db tritones appear in m. 1. Combined, these tritone pairs yield two interval-3 cycles, and both interval-3 cycles together yield the complete octatonic collection, which represents the interval 1:1 and 1:2 ratio schemes. These tritones recur in m. 2, where they join with the D-Ab tritone dyad from the interval 3 cycle 3-2 (hereafter referred to with Perle's terminology, i.e., C_{3-2}). Since the B-F tritone dyad C_{6-11} necessary to complete the C_{3-2} (B-D-F-Ab) collection is not among these pitches, this C_3 collection is not complete. In order to complete this C_3 cycle, motion to the B-F tritone dyad must occur. The B-F tritone occurs first in the embedded linear figures of m. 16 and m. 67, then as a vertical interval in m.76, two measures away from the .618 Golden Section, i.e., the approximate two-thirds point in the prelude. The correspondence of this event with the Golden Section Proportion intensifies the importance of the B-F dyad in this prelude. The final statement of the initial thematic material, (m. 121) with this B-F tritone, unequivocally points to the significance of completing this dyad of the C_{3-2} cyclic partition.

Despite the appearance of the Db pitch, and the melodic segment Db-Eb-F in the last line, one octatonic set or interval cycle set does not appear to govern the motion and structure of "Les fées." The final materials in the prelude are instead a fusion of tritone dyads and cumulative octatonic and whole-tone interactions. One indication of this is the final combination of the

A-Eb, B-F, and G-Db tritone dyads from the C_3 collections into the whole-tone segment Db-Eb-F-G-A-B, in the return of the original texture (m. 109ff and m. 121). Moreover, the octatonic 2 collection (D-E-F-G-G#-A#-B-C#) could be posited as the result or "goal" of all interactions. This is possible since it contains both dyads of $C_{3\text{-}2}$ (D-F-G#-B), the Db (C#) pitch emphasized by the final melodic figure, and the implied Db key area connoted by the prevalent Db-major key signature. However, pitches Eb and Gb of the Db-major collection are not in octatonic 2, and no complete octatonic 2 scale occurs within "Les fées."

Collectively, these features point to the absence of a single governing set or means of transformation. The formative process throughout "Les fées" is instead a fusion of cyclic-interval transformations and white- and black-key relations that occur within the chromatic scale. The diatonic, whole-tone, and octatonic segments that result are the products of these interactions. Tonal forms are no longer explicit; they are simply one of many partitions of the twelve tones of the equalized chromatic scale.

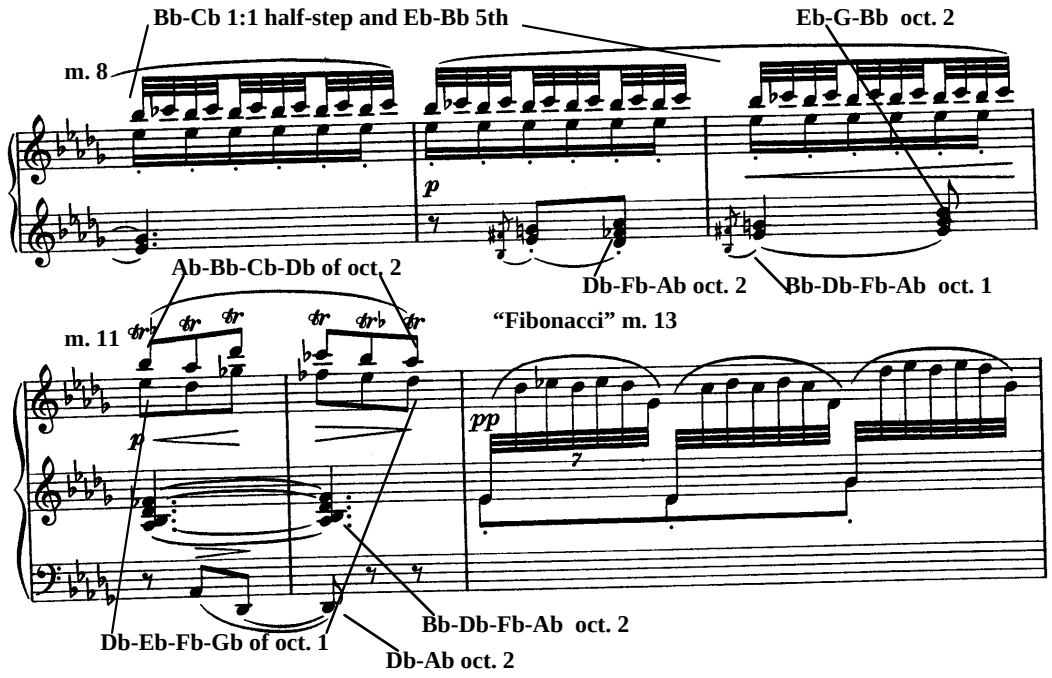
The expansion and contraction of the interval cycles allows for "intermediate" pitch collections, such as octatonic, to evolve. The resulting octatonic collections can be considered intermediate since they represent a transition between the semitones of the chromatic scale and the larger intervals of the whole tone, and finally diatonic/pentatonic scales. Pitch sets are in a constant state of transition through the process of expansion and contraction throughout "Les fées." This non-systematic technique allows

octatonic set fragments to yield to more complete octatonic collections, as well as to pentatonic and diatonic collections.

This first occurs in the section marked by Fibonacci measure numbers 5 and 8, where motion to octatonic 1 is instead thwarted by a move to octatonic 2. Pitches Eb, Bb, and Cb, and the intervals of a fifth and half step, are m. 5 expansions of the m. 1-4 thematic material. On the surface Eb-Bb is simply the fifth from the black-key, right hand figuration, and Bb-Cb is a fusion of white and black key spheres derived from the underlying chromatic scale. But F# and G are added to Eb-Bb in m. 6 to form the octatonic 1 fragment Eb-F#-G-Bb. After the relative staticism of m. 7-8, the collection shifts to a Db-Fb-Ab octatonic 2 triad in m. 9, and then to an Eb-G-Bb octatonic 1 triad in m. 10. The juxtaposition of these triads underneath the recurring, motoric Eb-Bb-Cb figure (m. 5) polarizes the Db-Eb whole step against the Bb-Cb(B) half-step, but also points to an expansion from the half step (1:1) to whole step (1:2) intervals. These interactions demonstrate a conflict between octatonic sets and the constantly evolving identity of pitch materials.

The interactions of m. 1-10 culminate with two tetrachords fused within the fifths Eb-Bb, Db-Ab, Gb-Db, and the casting of Fb-Cb as top-note trills in m. 11-12. Another indication of octatonic construction is that the trills in these measures change between half- and whole-steps. The lower notes, Db-Eb-Fb-Gb, form the first four notes of the octatonic 1 collection, while the upper notes, Ab-Bb-Cb-Db, form an octatonic 2 segment. An Ab-Db melodic

bass fifth in the lowest staff foreshadows the final Db melodic figure in the coda, and alludes to the tonic implied by the Db-major key signature. Another important association is that this Ab-Db melodic fifth and the middle staff Bb-Db-Fb-Ab seventh chord are found only in octatonic 2, not in octatonic 0 or 1.



Example 6-1: Les fées, m. 8-13

Structures at this point give a tantalizing glimpse of the later emergence of octatonic 2 and the Db-major diatonic area.

In keeping with the impressionist aesthetic of an shifting mosaic, these octatonic 1 and 2 structures prove fleeting. The recasting of previously introduced material continues in this section, particularly the Eb-Bb, Ab-Db, and Gb-Db fifths within the pentatonic collection in m. 13. Further, the

occurrence of this transformation at m. 13 is evidence that Fibonacci symbolism is a formal determinant. The recurrent Bb-Cb half step from the m. 5 trill figure persists, and changes first to Ab-Bb and Db-Eb wholes step in m. 13, and then into an Cb-Db in m. 14, landing on an Ab-Bb whole step trill in m. 15. These whole step transformations are an augmentation of the m. 6 half step trills. The overall expansion from half to whole steps reflects the ongoing process of interval expansion. At times pitches appear to converge in octatonic, while at other times within diatonic collections. An ephemeral shift in color and meaning, however, will unexpectedly switch the identity to pentatonic or whole tone collections.

Cumulative half- and whole-step interactions are blended into the octatonic 2 collection, Ab-Bb-B-(C#)-D-E-F-G in m. 16. Some editions omit the G-natural, but the octatonic 2 collection in part supports the assertion that it should be a G-natural. This collection is a fusion of the m. 6 half-step trills, and the m. 11 and m. 15 whole-step trills. The recurrence of octatonic 2, the only octatonic scale containing the Db-major tonic triad, is notable since it points to later Db interactions. Yet the means of progression throughout “Les fées” is far removed from traditional tonal procedures. Instead, a gradual process of pitch assimilation occurs in which seemingly unrelated pitches and figures are presented and then combined to create new collections.

The realignment of intervals or interval pairs to create new sets is only one process employed in “Les fées.” Another, which first occurs in the m. 24ff section, is the reinterpretation of intervals shared among sets. This is often

accomplished through stark, blocked moves to new collections, as in the m. 23-25 section. In m. 23, the linear octatonic 1 Eb-E-G-Bb collection (containing the recurrent Eb-Bb fifth) is contrasted with the m. 24 return of pentatonic Db-Eb-Gb-Ab-Bb material from m. 13. The Eb-Bb fifth from m. 23 is fused with the Ab-Eb and Gb-Db fifths of m. 18-22 to create vertical chords that embody the pentatonic collection. On one level, the pitches are simply individual notes extracted from the equalized chromatic scale. On another, the intervals and pitches evolve so the Eb-Bb fifth is cast in new light, with new meaning, in each successive collection it helps to form. The cumulative reinterpretation of this fifth, and the evolving pitch set contexts it creates, are striking elements of the impressionism of "Les fées."

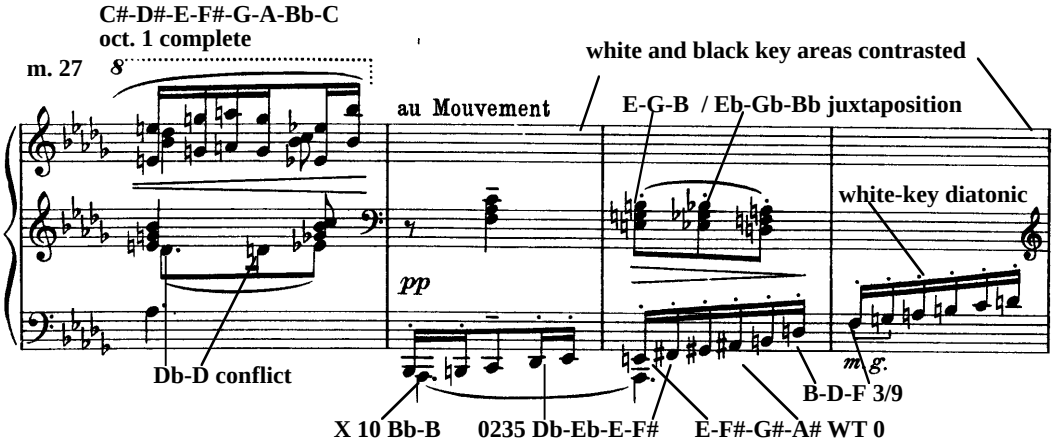
Pitch Assimilation

The generative process changes to pitch assimilation in m. 24-26, where the intrusion of pitches promotes motion to new pitch collections, at times with unity between linear and vertical levels. The pentatonic collection is gradually combined with added notes to yield the complete octatonic 1 collection in m. 27. The fused pitch collection of both the harmonic and melodic material in m. 25-26 is the Db-major scale, C-Db-Eb-F-Gb-Ab-Bb, an octatonic/pentatonic hybrid. A notable feature of this collection is its conspicuous presentation as a rising melodic line, in three octaves simultaneously. The vertical level is also unified within this collection since all of the underlying chords are also drawn from the C-Db-Eb-F-Gb-Ab-Bb collection. This hybrid pitch group contains the already mentioned Db-Eb-

Gb-Ab-Bb pentatonic collection, but also the C-Db-Eb-Gb-Bb pitches from the octatonic 1 collection. A sudden shift of content follows in m. 27, where the complete octatonic 1 collection C#-D#-E-F#-G-A-Bb-C is created by the addition of G-E-A. Although other half steps arise from this assimilation of pitches, the half-step conflict between pitches D and Db is notable. As will be demonstrated, later chromatic contrasts and chromatic interval cycle transformations are prepared by this D-Db conflict.

Pitch Set Juxtaposition

The material in m. 27 is a realization of octatonic 1 potential prepared in m. 11-12, but also a combination of interval 7, 2, and 1 cycle partitions of the chromatic set. Subsequent pitch material in m. 28-31 supports this assertion as it rapidly traverses the range of pitch-set protagonists found in "Les fées." The dense pitch content of m. 28-31 moves from the Bb-B half-step to the 0235 Db-Eb-E-F#, octatonic tetrachord, through E-F#-G#-A# of whole tone 0, and finally to F-G-A-B-C-D diatonic white key material. This linear unfolding of interval cycle protagonists, and liquefaction to purely linear white key material, is a salient reinterpretation of the m. 27 octatonic 1 material. These juxtapositions enable materials in the next section to contract from interval seven cycles, to interval 6 tritone cycles that embody symmetrical tritone constructions and Z-cells.



Example 6-2: Les fées, m. 27-30

Juxtaposition and contraction govern the contrasted white- and black-key material of m. 32-41. The pitches gradually realign so that the dual-tritone, octatonic 0 construction F#-C-D-G# can emerge as the only collection in m. 40-41. This set is created by the progressive conflict between G and G# in m. 32-34 that also produces the contraction from the C#-G# fifth to the C#-G tritone. Concurrently, D#-D juxtapositions occur in preparation for the D natural within set F#-C-D-G#. More fusion, stemming from a temporary convergence of materials, creates three collections of importance in m. 35, adjoining number 34 in the Fibonacci series. The first, C#-D#-E-F-F#-G#-A-B, is closely related to octatonic 1. The second is the B-F dyad from octatonic 0 and 2, and the third is the A-D# dyad from octatonic 0 and 1. The C-F# tritone dyad from octatonic 0 and 1 occurs in the predominantly white key m. 37 and 39, and is contrasted in m. 38 with black key material and the A-D# dyad. Notably, the C-F# and A-D# dyads occur only within octatonic 0. An

upward half-step transposition of the A-D# dyad creates the D-G# tritone dyad, which is combined with F#-C in m. 40 to yield the fused, F#-C-D-G# octatonic 0 collection.

True to the mercurial identity of pitches within "Les fées," this convergence is itself subject to reinterpretation. After the m. 42 return of the Db-major key signature, the F#-C-D-G# tritone construction is respelled as Gb-C-D-Ab to allow motion to the black-key sphere. Gb then becomes G natural in m. 43 while C-E-G, a white-key diatonic triad found in octatonic 1, occurs in m. 45. Ironically, of all the pitches, only the low Ab pedal reflects the key signature and forecasts subsequent black key transformations. To this point, interval transformation has evolved from the m. 1-4 fifths and thirds to the m. 32-41 tritones and now the thirds that create the C-major triad in m. 45. Cumulative motion through interval cycles, not the tonal transformations based on functional harmony, creates this unexpected white-key diatonic emergence.

Pitch segment duality

The white-key identity of the C-major triad of m. 45, which itself stems from the C-major pitches of m. 30-31 and m. 37-9, establishes the white- and black-key dichotomy of octatonic 1 in the next section. Once established in m. 45, these white-key materials quickly dissolve in the relentless, almost stream-of-consciousness process of pitch set modification in "Les fées." The C-major triad does not form the basis for further white-key diatonic manipulations. Instead, it generates a larger segment of octatonic 1,

C-E-G-Bb in m. 46ff. and creates conflict between white key E-G, and black key Eb-Gb within the octatonic 1 collection in m. 48-52. This event converges with the m. 48 secondary Golden Section. The black- and white-key duality inherent in octatonic 1 is proving to be a potent structural determinant throughout "Les fées."

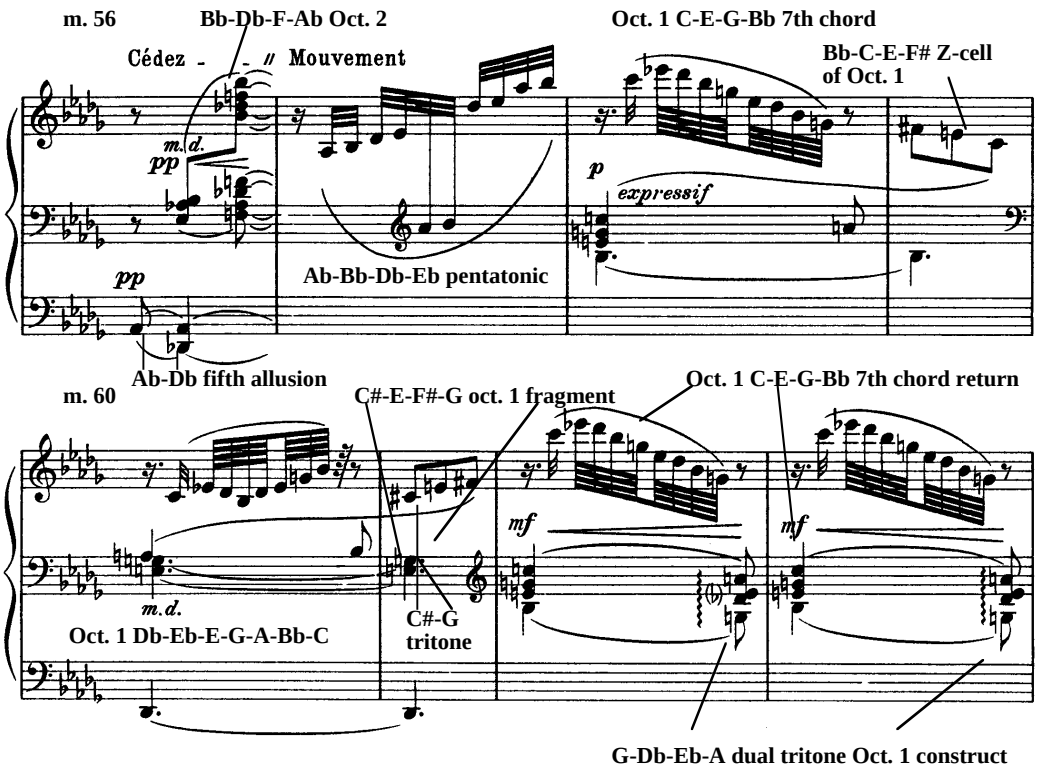
Chromatic respelling of non-inflected note names, i.e., G-B respelled as G-Bb, demonstrates the chromatic mutability of pitch meaning in the next sections. The resulting means of progression is not generated by functional tonal means, but by half-step chromatic alterations. Initially, the Ab pedal shifts to Db in m. 52-61 to reflect the Db key signature, while an F-Bb melodic figure evokes the Db-major key area. Of more interest is the half-step, chromatic shift from the m. 53 Ab-Db-F-Bb chord, to the m. 54 Ab-D-F-Cb(B) dual-tritone of octatonic 0 and 2. The closeness of this chord to measure number 55 of the Fibonacci Series is further evidence of Fibonacci and symmetrical correspondences within "Les fées." This chord implies motion to either octatonic 0 or 2 could follow, since octatonic 1 does not contain the F-B tritone. This expectation is fulfilled in Fibonacci m. 55, where this middle-staff chord is respelled as the octatonic 0 dual-tritone set from m. 40-41, Ab-D-F#-C.

Chromatic Recasting and Reinterpretation of Pitch Segments

The facile process of chromatic recasting and realignment of the underlying chromatic set reveals the twelve-tone, chromatic identity of this prelude. Chromatic reinterpretation of this kind is not possible within the

system of hierarchical meaning inherent in tonality. Equalization of the twelve chromatic tones allows for equivalent chromatic and interval cycle transposition. Ironically this process creates the not only the symmetrical structures, but also quasi-tonal forms that arise in “Les fées.”

The clarity of octatonic 0 does not last, however, as the swirling kaleidoscope of pitches shifts in m. 56 to the octatonic 2 chord Bb-Db-F-Ab. This chord is yet another chromatic manipulation of the octatonic 0 “version” of these note-names from the last section. Chromatic reinterpretation of pitches dominates this section, at first within the black-key pentatonic sphere. The A, B, and D note names are cast within the Db key signature in the m. 57 pentatonic fragment Ab-Bb-Db-Eb in order to infer pentatonic meaning. Immediately following, the Bb pitch is fused with the prior m. 45 C-E-G triad to create the m. 58 octatonic 1 dominant-7th chord, C-E-G-Bb. The m. 58 addition of Db and Eb to the G-Bb third from the C-dominant-7th chord creates the predominantly black-key, Eb-dominant-7th G-Bb-Db-Eb. This shift in chromatic light, precipitated by the addition of thirds, forms the combined octatonic 1 pitch collection Eb-E-Gb-G-A-Bb-C, with only C# missing. Cumulative motion appears to be a contraction away from tritone interval C_6 and perfect fourth interval C_5 formations, to the C_3 and C_4 thirds that form octatonic 1.



Example 6-3: Les fées, m. 56-62

Chromatically manipulated octatonic 1 content is explored throughout the m. 59-66 section. The juxtaposition of octatonic 1 and 0 implies octatonic areas are relative points of stability throughout the constant chromatic shifting of equalized pitches. Overall, the technique of shifting, reinterpretation, and chromatic respelling of pitches in this section reflects the mosaic construction found in an impressionist painting. The shift to octatonic 1 emphasis is confirmed by the dual tritone, Bb-C-E-F# pitch content of m. 59, and the Db-Eb-E-G-A-Bb-C content of m. 60, from which only F# is absent. The F# is added in m. 59-61, where a descending m. 59 F#-E-C# figure is followed by a

rising, retrograde m. 61 C#-E-F# figure that forms octatonic 1 fragment C#-E-F#-G. Within this fragment the C#-G tritone is notable, as is the revisited triad C#-E-G. This triad is a product of the chromatic conflict between C and C# and the C-E-G triad from octatonic 1 transformations in the m. 48 Secondary Golden Section. The chromatic conflict between C and C# is intensified in the m. 61-64 manipulation of the traditional C-major triad. While this common chord is represented as C#-E-G in m. 61, it is "corrected" by the half step C#-C shift and transformed into the C-dominant-7th, C-E-G-Bb of octatonic 1 in m. 62-64. Functional tonal means play no part in this transformation. This basic C-E-G chord is simply one step in the motion to the C-E-G-Bb dominant seventh and, more importantly, other octatonic structures which arise from chromatic interactions.

The reiteration of the m. 58 Eb-seventh and C dominant seventh chords serves a dual function. It enables both their striking alternation in m. 65-66 and combination with pitch "A" of the last eighth-note beat of m. 58. This combination forms the dual tritone, octatonic 1 construction, G-Db-Eb-A on the last eighth-note beats of m. 62 and 63. This cell, a fusion of G-Db from octatonic 1 and 2 and Eb-A from octatonic 0 and 1, forecasts interval expansion to fourths, fifths, and octaves in m. 67.

Before the intervals expand, they contract to chromatic G-Ab-A (m. 66) to reiterate the underlying twelve-tone set. The equalization of pitch content to this three-note chromatic segment prepares for the next shift away from explicit octatonic 1 content, to octatonic 0 and 2. The chromatic

respelling of white-key pitch names B-D-F-A allows for the shift between octatonic 2, Bb-D-F-Ab, to octatonic 0, B-D-F-Ab. Although pitch-set protagonists are in a constant process of evolution, the process of chromatic respelling to alter identity among pitch sets persistently creates reflexive meaning and forward progression within “Les fées.”

The octatonic 0 set emerges throughout the m. 67-72 section. The intrusion of pitch “A” into the collection, through the F-A-C white-key triad, allows pitches C-D-Eb-Gb-A to emerge with prominent tritone dyads C-Gb, and Eb-A of octatonic 0 and 1. The addition of the F-A-C, octatonic 0 triad to these tritones suggests a fleeting octatonic 0 emphasis. Chromatic alternations of Ab to A between measures reflect the continual process of chromatic transposition that intensifies in this section with the m. 71 return of Bb-D-F-Ab (octatonic 2) and B-D-F-Ab (octatonic 0). In addition m. 72 repeats the material from m. 68, and moves by white key whole step D-C octaves to the white key A-B trills of the next m. 73-100 section.

This section, marked *En retenant*, is the fullest realization of the m. 5 Bb-Cb trill and cumulative interval expansions. At this point, this trill is cast as the whole step A-B found only in octatonic 0, and is emphasized as the sole interval in m. 73-4. Chromatic transformation quickly follows, however, as chord G-A-C#-F# is chromatically transposed to Gb-Ab-C-F in m. 75 to highlight the shift between white and black key spheres, and liquefy octatonic 0 identity into the smaller, interval 1:1 chromatic collection. Throughout “Les fées,” chromatic “equalization” of pitches leads to consequent fused

collections, as is the case in the emergence of white key A-B-E-F-G in m. 76-78. The Golden-Section, the two-thirds ratio measure 78, corresponds with this diatonic material, and is contrasted with the secondary Fibonacci ratio .318 m. 48, C-E-G-Bb collection. While C-E-G-Bb is wholly contained in octatonic 1, A-B-E-F-G forms a diatonic fragment common only to the chromatic collection, and none of the octatonic sets. The occurrence of a G-B-F partial dominant seventh chord of C-major in m. 78 refers to the C-E-G statement in m. 48 and suggests that the white key diatonic sphere is an important transitional collection throughout "Les fées."

Another layer of meaning is evident within the Golden Section diatonic collections. The final material of "Les fées" presents tritone dyads A-Eb, B-F, and G-Db, in m. 121. The m. 48 material emphasizes the E-Bb dyad, while the m. 78 collection emphasizes the B-F dyad originally missing from the first section. Tritone dyad G-Db of octatonic 2 still needs to be assimilated through chromatic transformations of the third/fifth pairs. Octatonic 2 tritone E-Bb has been transformed to tritone B-F m. 78, which forecasts the motion to the m. 121 statement of the B-F and G-Db dyads and the assertion of Db. Significantly, all of these pitch materials belong to octatonic 2.

This is further supported in Fibonacci measure number 89, where the A-B trill combines with the D-F third to recreate the B-F tritone dyad. The overall effect casts the white-key diatonic area as a "subdominant" preparation that functions as a transition between sections and pitch sets. The underlying

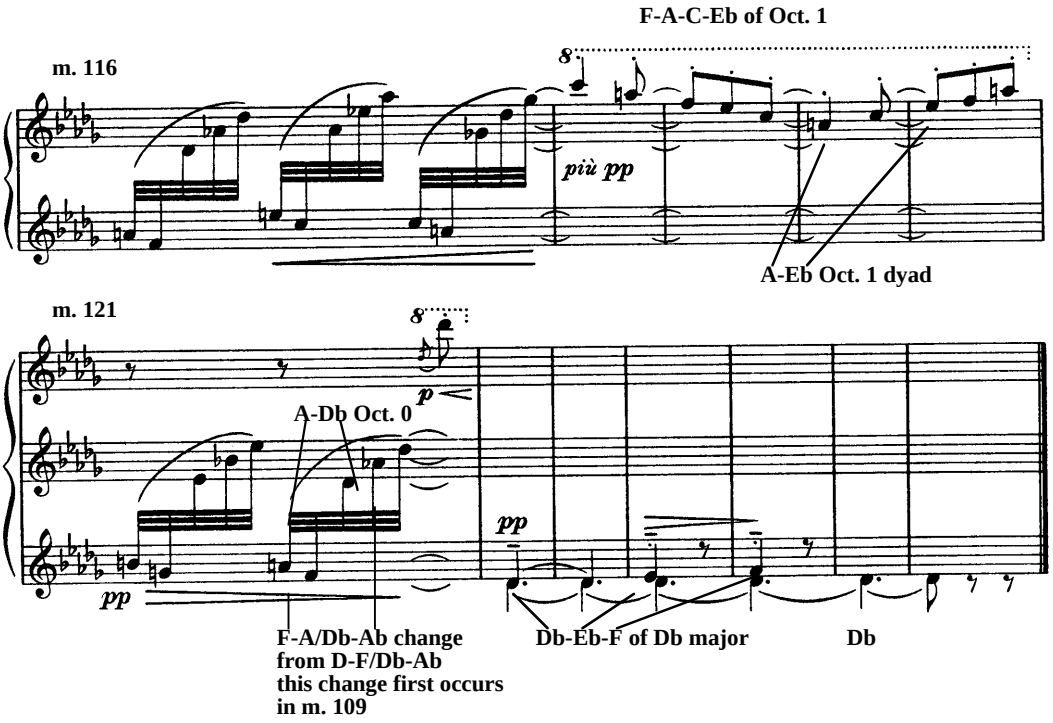
chromatic set allows for any partition, whether it is one of the recurrent octatonic sets or this white-key diatonic allusion. Although these Fibonacci correspondences suggest the white-key sphere is an intermediary pitch set, all pitches and collections are transitional in the equalized twelve-tone world of "Les fées."

This quasi-diatonic area (m. 73-100) is implied by the A-B trill, D-F third, and a recurrent G pedal, and bears comparison with a similar structure in "La terrasse des audiences du clair de la lune." In both "La terrasse" and "Les fées," G-B-D-F chordal material emerges at the two-thirds Golden Section points. In m. 89 of "Les fées," the G pedal combines with the D-F third and B from the trill to form the embedded G-B-D-F dominant seventh chord of C-major, while this chord is explicit in m. 28 of "La terrasse." In both preludes, cyclic interval constructs figure prominently in the dissemination of form and motion, and diatonic results are created by symmetrical and octatonic transformations.

White-key material dominates for the final time in m. 100, which ends the section with a tied F and the A-B trill. This unifies the F-B dyad within white-key diatonic material for the final time, before it will emerge within black-key material in m. 121. The C#-E and C#-F thirds of m. 79-83 and 96-99, which first seemed to be chromatic aberrations, actually have structural significance. The alternation of the E-F half-step points to the generation of materials from chromatic pitches, while the alternation of the minor/major third recalls the cyclic interval expansion. These features lead to the return of

the original, m. 1 major and minor thirds motive in m. 101, and point to the striking unity among the pitch elements in “Les fées.”

The return of the first theme area in m. 101-105 is a strict repetition of m. 1-5, and an interesting parallel in numbers. The shortened restatements of m. 1 in m. 106, and m. 5 in m. 107 break the pattern and enable the order and pairing of thirds and fifths to shift. Initially, the material simply breaks the pattern by repeating third and fifth complements. However by m. 109, the F-A third, not D-F, is matched with the fifth Db-Ab. This single shift in third-fifth complementation allows A to be juxtaposed against Eb of the G-B/Eb-Bb figure, and thereby create the octatonic 1, A-Eb tritone dyad.



Example 6-4: Les fées, m. 116-127

This dyad returns in the melody of m. 117-120, where pitches F-A-C-Eb emphasize the A-Eb dyad and the octatonic 0 set. The maximally white key and octatonic 0 pitch content of this chord recalls and integrates with prior Fibonacci white-key sections. It also alludes to the m. 71-100 section with no sharps or flats in the key signature. The metamorphosed pairing F-A/Db-Ab recurs for the final time in m. 121 to reiterate the octatonic 1 A-Db dyad. This promotes closure and provides the Db pitch necessary for the terse Db area articulation in the final measures.

The shift from the D-F/Db-Ab third/fifth complement to F-A/Db-Ab removes the D/Db chromatic conflict and allows Db to emerge in the final Db-Eb-F melody. The duration of the tied Db, over six measures, asserts this pitch as a goal or ending point for the prelude. No octatonic set emerges; the Db goal is instead the result of chromatic and octatonic transformations that lead to an implied diatonic area. Only three pitches, Db-Eb-F invoke the Db area, a feature that reflects the process of allusion and implication that shapes "Les fées." In an abstract, long-range unification of form, the order from the second beat of the second measure is broken when the white key sphere is used to transpose D-F to F-A. A further twist is that this interval does not remain aligned with the white-key sphere but is reinterpreted as Db-F of the black-key sphere and octatonic 2. This transformation employs three important procedures found in "Les fées." One is the change in interval complementation, the second is cyclic interval expansion, and the third is the mutation in chromatic, white-key and black-key identity.

Despite similarities, the Db "tonal" area implied at the end of "Les fées" does not receive the emphasis that F#-major does in the end of "La terrasse." The convergence of elements into diatonic forms is the explicit result of symmetrical transformations throughout "La terrasse." The final Db octave figure and Db-Eb-F melodic line in "Les fées," in contrast, are results of interval cycle transformations. In a symbolic manner, they also are a vague realization of Db-major key area implied by the underlying Db-major key signature. Nevertheless, this key signature does not signify the final Db material; it instead allows for facile motion from the white-key diatonic transitions to black-key areas. The Db key signature facilitates the pervasive, generative half-step transposition, one that pervades all levels of "Les fées."

The abstract form and sound of "Les fées" is a representation of the underlying non-traditional pitch language. The five-note groupings, trills, and sudden texture changes all contribute to an impressionist landscape of intimation and shimmering colors. The iridescent play of texture and harmony presents a convincing depiction of the ephemeral motions of the fairies.

Chapter 7: Conclusion

The purpose of this study was to identify and clarify the development of pitch relations that have supplanted the tonal system in selected piano preludes by Claude Debussy. Octatonic, pentatonic, whole-tone, chromatic, and modal structures forge unique relationships within each prelude that requires they be examined as self-contained systems of reflexive elements. Even so, universal structures and procedures were identified that have had far-reaching consequences. The means of progression and texture in these works affected 20th-century composers and contributed to the dissolution of the tonal system.

This study has revealed how interval cycles based on the equalization of the twelve chromatic tones and interactions among octatonic, modal, pentatonic, and whole-tone structures were selectively combined to portray the programmatic content of each prelude. While each prelude is an individual entity with specific features, several questions arise in connection with each prelude. Foremost is whether vestiges of tonality exist, and if so, whether the traces contain functional connotations. Traditional tonal works not only follow chords prescribed by harmonic progressions, but also have explicit melodic and harmonic components that delineate form and meaning.

Throughout Debussy's *Préludes,* harmonic and melodic levels combine or separate in a fluid manner unique to the context of each prelude. Individual melodic notes are usually not separated from their accompanying harmonies. Moreover, "hybrid" melodic/harmonic structures, rather than invoking one single pitch set, render the identity of seemingly fundamental forms ambiguous and open for interpretation.

Likewise, Debussy's musical language is often a cohabitation of tonal, modal, octatonic, chromatic, and abstract symmetrical forms. While Bartók's music, for instance, does not differentiate harmony and melody, Debussy's musical style represents an intermediary stage in the transition from purely tonal melody and accompaniment to purely abstract melodic and harmonic constructions. The presence of modality, non-functional triads, and hybrid mixtures that include triads, complicate the discernment of the basic harmonic means in the *Préludes.* Precisely this fluidity of form and vagueness of structure, the characteristics of Impressionism, make the analysis of the *Préludes* a difficult task. At times it is unclear whether a layer or texture serves a melodic or harmonic function. In addition, the presence of odd pitches, or notes without a clear pitch meaning, also confuses pitch set identity. I have endeavored to make interpretive choices in the analyses that best reflect the landscape and content of each prelude.

Two important issues in this study, the role of proportional schemes, and the Golden Section ratios of Ernó Lendvai, are invoked by Roy Howat's book *Debussy in Proportion.* Lendvai explored proportional schemes in his

study *Béla Bartók, An Analysis of his Music* and laid important foundations for 20th-century analysis. Howat, however, remains the only theorist to undertake a comprehensive, formalized approach to the use of Golden Section Proportions and Fibonacci Series in Debussy's works. In many instances, the formalized schemes resulting from these symbolic number relations in Debussy's *Préludes* replace traditional formal structures.

Another musicologist who was invaluable to this study is Elliott Antokoletz. His work with interval cycles and the role of octatonic, whole-tone, pentatonic, and chromatic interactions as a replacement of tonal forms were governing principles in my analysis. Antokoletz's books, *The Music of Béla Bartók: A Study of Tonality and Progression in Twentieth-Century Music*, and *Twentieth-century Music* are important resources for anyone studying the diversified language of 20th-century music. Likewise, the writings of Antokoletz's teacher George Perle, including *Serial Composition and Atonality*, and with Paul Lansky the article "Atonality" in *The New Grove Dictionary of Music and Musicians*, are excellent studies in non-tonal pitch relations.

While I tried to be as comprehensive as possible, there are areas which I could not explore. I did not closely examine tonal implications of these preludes. I believe the pervasive use of non-tonal forms complicates consideration of the *Préludes* from a purely tonal perspective. However, others might find a tonal analysis illuminating if they consider these preludes as harbingers of the dissolution of the tonal system.

The implications and meaning of consonance and dissonance within pitch sets and the system of interval cycles could be touched upon in another study. However, in my opinion the pervasive equalization of the twelve-tones limits the relevance and application of this notion. Tonal forms have as their foundation a notion of consonance and dissonance that abstract pitch structures and equal treatment of the twelve tones invalidate. My intention has been to examine pitch set interactions and the systems of meaning they create, divorced from tonality and tonal associations. Even the triadic forms that result appear in most cases to transcend tonal function, and with that, the relation of consonance to dissonance.

The purpose of this treatise was to examine the different pitch materials and systems of organization within five preludes. Each one casts a different light on Debussy's musical impressionism, and warrants a review of the processes uncovered.

"Ondine" develops by means of an expansion of the initial G-A-Bb cell, and scale formation within the larger background-level context of the two whole-tone cyclic partitions. The octatonic collection, like the modes, appears to be an intermediary stage in the whole-tone interactions, and in the process of expansion from smaller to larger intervals. The two whole-tone partitions in "Ondine", D-E-F#-G# representing whole-tone 0, and G-A-B-C# representing whole-tone 1, serve as the underlying foundation of all other pitch-set interactions. The pitch collections that progressively emerge include chromatic, octatonic, pentatonic, and D- and Eb-Lydian. The conflict between

whole-tone partitions ultimately causes whole-tone 0 and octatonic 0 to overshadow whole-tone 1 and octatonic 1. The D-Lydian mode is central to the conflict between these whole-tone scales, serving as a confluence of the two whole-tone collections. The D-Lydian collection is created by the half-step transformation of G to G#, the central ratio 1:1 transformation, that allows the fusion of whole-tone 0 and 1. Moreover, the final D and F# Major diatonic juxtaposition is also a product of the progressive fusion of whole-tone 0 and 1, initiated in the Bb-B half-step motion of m. 1.

"Les sons et les parfums dans l'air du soir", creates a musical landscape which absorbs the diatonic, octatonic, chromatic, and whole-tone "primary colors" into the emergence of A-Lydian as the governing pitch set. The constant respelling and realigning of shared pitch elements creates a fluid motion of ambiguity that gradually reveals the A-Lydian identity of the set segments. A close examination of the convergence of shared pitch elements, and "missing" and "wrong" notes at Fibonacci measure numbers, demonstrates how A-Lydian is implied from the inception of this prelude. The Fibonacci series 0,1,2,3,5,8,13,21,34,55 and continuing, at times corresponds with the measure numbers in which cumulative pitch sets and thematic statements emerge in "Les sons et les parfums tournent dans l'air du soir."

The last prelude, "Feux d'artifice", transforms the three-note germ fragments of whole-tone 0 and whole-tone 1 and the octatonic implications of the D-Ab tritone into a complex work which explores virtually all pitch set combinations. The initial whole-tone material leads to chromatic, octatonic,

pentatonic, and a final Db diatonic area in a dual process of cyclic interval expansion, and the creation of new collections from shared pitch elements. These “modulations”, which move toward increasing density and back, continually and progressively realign and recombine pitches from the initial whole-tone collection. In some instances, the 2/3 ratio of Golden Section proportions, and measure numbers 1, 2, 3, 5, 8, 13, 21, 34, 55, and 89 of the partial Fibonacci series correspond with important thematic, pitch, and structural events.

The subtle, evocative form of “La terrasse” is created through partitions of non-traditional pitch collections, particularly octatonic set segments that create the illusion of traditional tonal forms. Moreover, the octatonic sets themselves are created by the convergence of whole-tone elements, diminished-seventh chords, and tritone dyads. “La terrasse” leaves the process of traditional tonal progression far behind to explore a language derived from twelve equal tones in a non-twelve-tone, non-serial context. Octatonic sets, which are dissolved and later reformed by the introduction of new pitches, are part of a process in which diatonic and other intervallic by-products result. These diatonic results create an illusion of tonal forms and an allusion to traditional means of progression throughout “La terrasse.” Both the C-E-G and F#-A#-C# quasi-tonic triads that result are products of octatonic interactions among octatonic 0, 1, and 2. Central to the form and meaning, these triads are specific partitions of octatonic 1, C#-D#-E-F#-G-A-Bb-C.

"Les fées sont d'exquises danseuses" represents the most harmonically non-traditional prelude in this study. While key signatures, chords, and the final statement of a Db-Eb-F line suggestive of a Db tonic establish references to traditional tonality, the process is far removed from traditional means. Even the technique of symmetric or octatonic partitioning to invoke tonal allusion that characterizes "La terrasse" and "Les sons et les parfums " is supplanted in "Les fées". The means of progression is determined by the entire set of relations possible within the chromatic collection, divorced from a priori schemes. These include new types of pitch constructions such as interval cycles and the relations within compound cyclic sets, including the three octatonic sets. Three important procedures are used to manipulate the underlying chromatic continuum in "Les fées." These include changing interval complementation, cyclic interval expansion, and shifting white- and black-key identity.

The results of this study support the contention that Debussy was one of the most influential composers in the first fifteen years of the twentieth-century. His position in musical evolution is best interpreted in two ways. First, Debussy's organization of pitch-sets and use of the equalized chromatic scale are concurrent with the developments of his contemporaries. Debussy was part of a broader movement that left the structures of tonality, including triads, functional relations, and melodic/harmonic dichotomy behind. The modality, pentatonicism, and chromatic structures all reinforced and echoed the approaches of other composers. Second, Debussy's legacy stems from his

stylistic influence on later generations of composers who adapted his Impressionist textures of blocked chords and layered planes of sound.

Various sources acknowledge the pivotal role Debussy played in the music of the 20th-century. *The New Grove Dictionary of Music and Musicians*, for instance, comments: "If one omits Schoenberg, who quite failed to recognize his rival's stature, a list of 20th-century composers influenced by Debussy is practically a list of 20th-century composers *tout court*.[39]

Debussy influenced a wide range of 20th-century composition. Among the diverse composers affected were Debussy's contemporaries Stravinsky, Bartók, and the experimentalist composer John Cage. *The New Grove* even suggests the parameters of electronic music stem from the boundaries set at the beginning of Debussy's *Prélude à l'Aprés-midi d'un faune* (1894). Another source, William Austin's celebrated book on 20th-century music, uses Debussy and his legacy as a point of departure for the examination of later composers and styles.

The following brief discussion of some of the composers influenced by Debussy is intended to place Debussy and the *Préludes* in historical context. Space precludes mention of all the descendants of Debussy's stylistic legacy. However, works by Albéniz, Bartók, de Falla, Granados, Griffes, Ives, Delius, Schreker, Scriabin, Stravinsky, Vaughan Williams, and even Varèse reflect stylistic traits found in Debussy's oeuvre.

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[39]Roger Nichols, "Debussy," *The New Grove Dictionary of Music and Musicians*, ed. Stanley Sadie (6th ed., London: Macmillan, 1980), p. 310.

Béla Bartók studied Debussy's music closely after 1907 and was impressed by the "pentatonic phrases," which he posited were influences of Eastern European and especially Russian folk music. The second of Bartók's *Quatre nénies* (Four Dirges) Opus 9a pervasively employs pentatonic constructions. Whole-tone and modal constructions similar to Debussy's are found in Bartók's *First String Quartet* (1908-09), and the opera *Duke Bluebeard's Castle* (1911), which shares the impressionist and symbolist context of *Pelléas et Mélisande*. On the other hand, Debussy's pianistic figuration defines the harmonic language in the first of the *Eight Hungarian Folksongs* for voice and piano (1907-17). The underlying triads and seventh chords that unfold chromatically are a projection of the linear pentatonic properties of the folk tune. This mixing of melody and harmony within the accompaniment is a further breakdown of the tonal system that is amplified by the modal pitch collections that result. Bartók integrated linear and harmonic elements in the piano part, much like Debussy did in the *Préludes*.

Igor Stravinsky shared a close affinity with the stylistic elements and pitch materials that characterize Debussy's *Préludes*. Debussy and Stravinsky carried out substantial correspondence and shared friendship and mutual admiration of their works. Stravinsky applied Debussy's mosaic and block constructions in works such as *Faun and Shepherdess* (1906) and *The Rite of Spring* (1912). Debussy's "Impressionist" treatment of sonorities, his transformation of modal and pentatonic structures into hybrid and new forms, and a textural staticism are transformed into the primitivistic idiom. Blocks

and layers created often violent, mechanical effects in Stravinsky's music. Likewise, Stravinsky explored octatonic structures and modal forms concurrently with Debussy.

The piano preludes and sonatas of Alexander Scriabin (1872-1915) reflect knowledge of Debussy's pitch materials and style. Scriabin likewise reflects the influence of Chopin, including the *Nocturne in Db*. The chromaticism, imaginative use of texture, and blocking of sections and layers in the *Nocturne* are prominent features throughout Debussy's *Préludes*. After 1903, Scriabin incorporated these elements in a mystical, subjective style that employed whole-tone, quartal, and super-tertian constructs. Moreover, his experiments with the relationships between color and musical sound are an outgrowth of the Impressionism of Debussy. Works such as the *Sonata No. 7 "Messe blanche"* Opus 64 (1911) and *Prométhée, le poéme du feu* (1908-10) reflect these traits and contain Scriabin's "mystic chord", a quartal construction based on the overtone series.

The American composer Charles T. Griffes (1884-1920) shared Debussy's penchant for Eastern Asian elements. Griffes' original style fused, among other forms, Eastern Asian sounds and colors, American Ragtime, and Russian pitch forms with Impressionist features of Debussy's *Préludes* including whole-tone, free forms, parallel harmonic progressions, and fluid rhythms. From 1911 onwards, Antokoletz contends, Griffes was more preoccupied with the Impressionist style of Debussy. One work, *The Three Tone Pictures*, Opus 5, contains titles such as "The Lake at Evening" (1911),

"The Vale of Dreams" 1912) and "The Night Winds" (1912) that mirror the evocative lines which accompany Debussy's *Préludes*. Perhaps "The White Peacock," (1915) from *Roman Sketches* Opus 7 best exemplifies the mosaic construction and Impressionist style of Debussy. In this work, arpeggiated figures and selectively paired phrases combine with planed layers to recall the style and manner of a Debussy *Prelude*. Moreover, interactions between diatonic and whole-tone spheres, as found in Debussy's "Feux d'artifice" and other *Préludes,* characterize this striking work.

Ralph Vaughan Williams (1872-1958) reflects the early 20th-century preoccupation with assimilating varied sources while expressing Nationalist tendencies. The *Sanctus* from the *Mass in G minor* (1920-21) features an undulating, imitative motion in the alto and soprano lines that recalls the alternating textures in Debussy's *Pelléas* or some of the *Préludes*. The texture, which follows the French Impressionist style, is further characterized by dominant-tonic punctuation of all the voices within the polymodal structure. This alternation and fusion of modal and tonal structures is a further reflection of Debussy's style.

Debussy's treatment of modal harmonies and nationalistic elements shaped the music of three Spanish composers, Isaac Albéniz, Manuel de Falla, and Enrique Granados. Isaac Albéniz (1860-1909), like Scriabin, also reveals the influence of Chopin and Debussy. Albéniz' earlier works, including the *Mazurkas de salón* Opus 66 (1887), suggest an interest in salon music and Chopin. An 1893 move to Paris brought Albéniz into contact with Debussy

and allowed him to absorb elements of French Impressionism. Albéniz also influenced the works of Debussy, who praised Albéniz's *Suite Iberia* (1906-09) for the piano. *Iberia,* is characterized by a fusion of Spanish and French elements, modal constructs, and non-functional parallel seventh-, ninth-, and other modal harmonies.

The Spanish composer, Manuel de Falla (1876-1946), employed several elements of Impressionism. As part of his blending of national folk elements into his music, he explored modal constructions, polymodally chromatic contexts, and a process of fusion that Debussy employed in the *Préludes.* The folk song *Tus ojillos negros* (1902) is an early work composed in de Falla's national style that reflects these traits.

Another Spanish composer who reflects elements of Debussy's style is Enrique Granados (1867-1916). Like his compatriots Albéniz and de Falla, he successfully fused Spanish folk elements with international influences and modal forms. In particular, his *Goyescas* (1911) weaken traditional tonal functions with pervasive modal forms that nonetheless express European Romantic traits. Polymodal chromaticism, as found in de Falla, also reflects the harmonic idiom of Debussy's *Préludes.*

Ottorino Respighi (1879-1936) seems on the surface an unlikely descendant in Debussy's lineage, but his Symphonic Poem *The Fountains of Rome* (1914) reflects the orchestration as found in Debussy's *Prélude à l'Aprés-midi d'un faune,* among others. The programmatic title, blocked textures, and planed layers all echo characteristics common to Debussy's

orchestral music as well as the *Préludes*. Respighi's later Dorian quartet (1924) explores the modal sphere of Debussy but does not transcend the texture and melodic emphasis that defines Romanticism.[40]

Two other composers that reflect impressionist elements of Debussy's style are Frederick Delius (1862-1934) and Franz Schreker (1878-1934). The transparent textures and static chromaticism of Debussy influenced some works by Delius, including the *North Country Sketches*, 1913-14, and *Eventyr* 1917.[41] Schreker's opera *Der ferne Klang* (1912) also exhibits impressionist techniques. Grove notes this work "has a striking absence of Wagnerian or Straussian influences" and contains non-functional and coloristic harmony. The style of *Der Ferne Klang* is instead an example of highly ambiguous tonality and orchestration that explores the subtlety of nuance.[42]

Debussy was an important catalyst for musical innovation throughout the early twentieth-century. The imaginative use of color, texture, figuration, and post-tonal pitch materials in the *Préludes* is worthy of extensive study. Overall, this treatise sheds light on pitch relations in Debussy's *Préludes* that broaden the theoretical, analytical and performance considerations of this standard part of the twentieth-century piano repertoire.

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[40]Austin, William W., *Music in the 20th-century* (New York: W.W. Norton & Company, 1966), pp. 116-117.

[41]Anthony Payne, "Delius," *The New Grove Dictionary of Music and Musicians*, ed. Stanley Sadie (6th ed., London: Macmillan, 1980), p. 340.

[42]Nicholas Chadwick, "Schreker," *The New Grove Dictionary of Music and Musicians*, ed. Stanley Sadie (6th ed., London: Macmillan, 1980), p. 740.

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Vita

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