An exploration of octatonicism: From Liszt to Takemitsu

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An Exploration of Octatonicism: from Liszt to Takemitsu

Yagan Meyers Kiely

A thesis submitted in fulfilment of the requirements for the award of
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Edith Cowan University.

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Abstract

The octatonic pitch set can be found in the works of many composers since the early nineteenth century, often with different characteristics of the pitch set being exploited by the composers. Much of the literature on octatonicism relates to specific instances in compositions or a specific composer’s approach to it rather than exploring octatonicism from a more holistic perspective. This dissertation serves as a holistic resource for the characteristics of the octatonic pitch set; whether as a scale, especially with regards to common practice harmony; or an unordered set. It does this by considering the contextual historical implications of the octatonic pitch set; the historic lineage of octatonic usage; and, significantly, with the goal of extracting specific compositional devices from the works of various composers that come from a variety of stylistic, historical, and harmonic perspectives. These compositional devices are learnable methods, or conventions that a composer can modify, build upon or implement into their own work. The contextual historical information, along with the description of the characteristics of the octatonic pitch set and, especially, the compositional devices are all intended to be both a single pedagogical resource and starting point for composers in relation to developing new octatonic compositional techniques and a holistic theoretical overview of octatonicism. The evidence, retrieved from third party analysis of select composers’ octatonic works, finds learnable compositional devices from broad stylistic backgrounds that can be reinterpreted and expanded into individualised compositional methods.
I certify that this thesis does not, to the best of my knowledge and belief:

i. incorporate without acknowledgment any material previously submitted for a degree or diploma in any institution of higher education;

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Yagan Meyers Kiely
18/08/21
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Introduction

The octatonic pitch set is an eight-note pitch set of alternating semitone and whole-tone intervals which can be used as an ordered scale or as unordered pitches. Whilst the scale dates to the mid-nineteenth century, the term ‘octatonic’ was coined by Arthur Berger in his 1963 article *Problems of pitch organization in Stravinsky* (1963, p. 20). This precipitated a steady stream of analyses of octatonic works by various music theorists and musicologists. This malleable set of alternating semitones and whole-tones has been variously used by serialists, pan-tonal composers, modal composers, composers evoking folksong, and composers utilising common-practice harmony. As revealed below, the pitch set can be used as an ordered scale, as an unordered pitch set or as a foundation for form or structure. As a scale the pitch set can incidentally be found at the surface level of eighteenth-century composition which, while not considered octatonic, does evidence the analogous nature the pitch set has to common practice harmony.

The precise origin of octatonicism is difficult to definitively place,¹ nevertheless the octatonic pitch set can be traced through the works of composers from the mid-nineteenth

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¹ At which point can you definitively declare one harmonic experiment octatonicism and one merely a precursor?
Some, mostly early, experiments with octatonicism have a direct lineage through a succession of composers, be that through teachers imparting information on student composers, or composers learning of the pitch set through score study. This historical development of octatonicism is considered in this paper because it provides context for the wider developments of octatonicism. In Richard Taruskin’s two-volume book, *Stravinsky and the Russian traditions: a biography of the works through Mavra*, takes a somewhat bibliographical approach to Igor Stravinsky but mainly focuses on his music and the Russian lineage to his music up until the 1922 opera, *Mavra* (Taruskin, 1996). Taruskin traces the historical context of the octatonic scale from Schubert, through Liszt, Mussorgsky, and Rimsky-Korsakov to Stravinsky, placing considerably, if not nearly all weight, on Rimsky-Korsakov’s influence on Stravinsky. *Stravinsky and the Russian traditions* is an excellent resource for octatonicism but employs a distinctly Russo-centric approach. There is no resource that provides a broader historical overview of octatonicism and this dissertation seeks to fill this gap.

In defending his research and his historically contextualised theoretical approach (Taruskin, 2011, pp. 181–182), Taruskin refers to Robert Gjerdingen’s *schemata*: “compositional exemplars for emulation by the artisan apprentice” (Gjerdingen, 2011, pp. 191–192). Taruskin believes that *schemata*, also referred to as *Gebrauchs*-formulas, or compositional devices, where composers have learnt their craft from exercises, often based on previous composers, is important to reveal not just “how music works, but how composers worked” and provides a set of procedures to learn (Taruskin, 2011, pp. 181–182). Rimsky-Korsakov’s harmony textbook had exercises that, when completed, resulted in the octatonic collection. This dissertation seeks to elucidate many of these compositional devices and it is my hope that composers today, wishing to expand their craft and technique, may find insight and inspiration in these pages. The historical context – where or from whom a composer learnt about the octatonic scale, or how a composer was influenced by or developed the octatonic scale – is important in that it provides insights as to why a particular composer chose to adopt octatonicism into their music. Such context sheds light on the general purposes, goals, and uses (outside of the specific compositional devices) of the octatonic pitch set. Such decisions, I believe, can help new composers in relation to their own choices around octatonicism.
The first part of this dissertation examines the characteristics of the octatonic collection, especially with regards to common practice harmony. The second part of this dissertation is a historical overview of the octatonic works of composers; where they may have learned of the octatonic collection and who might have influenced them in this regard. This second section also reveals the various octatonic compositional techniques and more specifically, compositional devices that can be learned and potentially developed further.

The goal of this dissertation is to be a pedagogical tool for composers to learn about octatonicism from a variety of perspectives and approaches. It aims to do this by approaching octatonicism in a historical perspective and an analytical perspective. The questions this dissertation seeks answers for are:

1. Are there developments in octatonicism that can be described as compositional devices?
2. Can these compositional devices be traced throughout the history of octatonicism? and
3. How do these compositional devices relate to each other?

The reason behind the choice of composers in this dissertation is a pragmatic one. From the outset, this dissertation was to rely on third party analysis, with firsthand analysis always considered to be outside the scope of this dissertation. The choice of several composers is self-evident; Rimsky-Korsakov was the first composer to intentionally use the octatonic scale, the term ‘octatonic’ was coined due to its use by Stravinsky, and both Messiaen and Polignac wrote treatises on the subject. As for other composers, it was somewhat dictated to by the presence of analyses in the literature. This dissertation’s scope was never exhaustive and was never intended to seek out undiscovered octatonic composers. As one of the main purposes of this dissertation is to shed light on compositional devices that composers utilised, that the analyses were done under different analytical methods, should not be a factor. Regardless of which analysis elucidates a compositional device, the end result – that device – still subsists.
Part I:
The Octatonic Pitch Set
Ordered Scale or Unordered Pitch Set

The octatonic pitch set, at its most basic, is a series of alternating semitone and whole-tone intervals. This pattern creates a wide variety of available exploits of the pitch set for a variety of different purposes and thus, depending on the purpose or method of exploit, a different characteristic of the pitch set could be said to define it. In contrast to the major and minor scales, which have seven scale degrees, the octatonic scale has eight. In addition the scale can start with either a tone or a semitone. Composers made use of this scale in a variety of ways. The ‘ordered scale’ was used in forming distinctive melodies whilst the collection as an unordered pitch set was used as the basis for the creation of equally distinctive chords. Both processes, as we will later see, often happened simultaneously.

Limited Transpositions

One of the defining characteristics of the octatonic scale lies in its inability to be transposed more than twice. In Figure 1.1a, the first scale starts on B, the second on C, and the third on C#. The next transposition however—up a further semitone, starting on D—gives the same
pitches as the initial scale. Further transpositions will also result in repetitions of one of the previous scales. The ordered repeating symmetrical patterns in the scale gives rise to this peculiarity and ultimately the music resulting from the octatonic pitch set has its own unique ability to hold itself together. For Olivier Messiaen, this limited number of possible transpositions of the octatonic scale offered a ‘charm of possibilities’ and was to intrigue him from the late 1930s until the end of his life (Messiaen, 1956, pp. 58–59). There have been various attempts to explain and characterise the octatonic scale. In this dissertation I adopt Pieter van den Toorn’s terminology (Fig. 1.1b).

**Figure 1.1a**
Three transpositions of the octatonic collection

**Figure 1.1b**
(The semibreves represent the entire octatonic collections’ notes while the crotchet represents a return to the first note of the collection) (van den Toorn, 1983, p. 51)

Van den Toorn’s descriptors, Collections I, II, and III, are particularly useful for describing the notes in the unordered pitch sets of each collection. Conversely, the
terminology can often be limited when trying to analyse or discuss melodic fragments or establishing priority pitches.²

**Beginning the Scale with Either a Tone or a Semitone**

Whilst Berger conceived the scale as beginning with a semitone, an alternative form of the scale has a whole-tone between the first two scale degrees (Fig. 1.2). As we will see below, in relation to Rimsky-Korsakov (Chapter Two), this alternative version offers different characteristics, especially with regards to common practice harmony, or music analogous to common practice harmony. Richard Taruskin, in discussing the music of Rimsky-Korsakov, labels the scale starting with a semitone (S-T-S, or 0,1,3,5) as the harmonic scale, and the scale starting with a tone (T-S-T, or 0,2,3,5) as the melodic scale (Taruskin, 1996, p. 276).

![Figure 1.2](image.png)

**Pitch-centred Scales and Voice-leading Implications**

Scriabin, in Chapter Three below, perceived the three octatonic collections as having twelve distinct pitch-centred scales. Others have sought to impose common-practice voice-leading rules to each collection – whereby sharps lead upwards and flats resolve downwards. In addition, others treat the individual pitch classes as entities within themselves and freely interchange C#s for D♭s, for example, with the decision on which pitch chosen being based on ease of reading.

² Van den Toorn used E to start Collection I, F for Collection II, and F# for Collection III.
Another defining characteristic of the octatonic set lies in its symmetry. The scale can be symmetrically divided in multiple ways; at its simplest it divides the tritone into two separate tetrachords (Fig. 1.3) with the S-T-S scale dividing into two 0,1,3,5 tetrachords and the T-S-T scale dividing into two 0,2,3,5 tetrachords (Fig. 1.3b).

The minor tetrachord found in the T-S-T scale is also found at the start of the Dorian mode and the Aeolian mode (or the minor scale). It is because of this similarity to the first four notes of the minor scale that Taruskin – when discussing Rimsky-Korsakov – named the scale “melodic”. In a symmetrical sense the similarity is stronger with the Dorian mode as both the Dorian scale and the octatonic scale are made from two sequential minor tetrachords (Fig. 1.4). While the octatonic scale’s two minor tetrachords are found within the complete scale due to its eight notes, the Dorian scale’s two minor tetrachord are found only upon arriving at the octave. The other difference is where the axis is on this symmetrical partition which is the semitone interval between the two minor tetrachords in the octatonic scale compared with the whole-tone interval between the two minor tetrachords in the Dorian mode. In a Dorian mode on C the exclusive partition that maintains the minor tetrachord is an exclusive axis on F#. 

Symmetry
Figure 1.5a shows the C-Dorian mode with the F#, foreign to the pitch set, as the symmetrical axis. For a symmetrical partition of the octatonic Collection II to maintain the same C minor tetrachord that the C-Dorian mode has, the axis is an inclusive axis on F/G♭ (Fig. 1.5b). While an exclusive axis does exist in the octatonic scale, it will not maintain the minor tetrachord (Fig. 1.5c) and while the Dorian mode can have an inclusive axis, the inversions are not symmetrical (Fig. 1.5d). This also means that the last four notes of the same octatonic scale are the same as the first four notes of a Dorian mode a tritone away.

Figure 1.6 shows the interplay between the two overlapping octatonic scales and two Dorian modes based on this tritone connection. This highlights the semitonal and tritonal relationship between Dorian mode and the melodic octatonic scale. The octatonic scale’s similarity with the Aeolian mode is strong in a melodic sense within the context of common practice harmony (rather than modal harmony). The ascending melodic minor, as distinct from the natural minor, and harmonic minor shares the 6-23 hexachord with the appropriate octatonic collection (Fig. 1.7a). Superseding the F# in Figure 1.7 with an F♮ results in a 6-27 hexachord subset of the harmonic minor scale and extending Figure 1.7 with the addition of the F♮ would result in the 7-31 heptachord that allows for both harmonic minor and melodic minor sonorities.
While the scale is obviously partitionable at both the semitone and whole-tone symmetrical dyads (Fig. 1.8), the symmetrical partition that defined the scale for the first few decades of its use was its symmetrical divisions at the minor third. Such divisions occur regardless of which scale is used, whether it is the “harmonic” scale (Fig. 1.9a) or the “melodic” scale (Fig. 1.9b).

The harmonic outcome of each symmetrical minor third is a fully diminished seventh chord which leaves the remainder of the notes of the octatonic scale (whichever collection or version) as another fully diminished seventh chord (Fig. 1.10). As will be explained below, in relation to Franz Liszt (in Chapter Two), the historic origin of the octatonic scale comes from progressions of minor thirds with consistent passing notes between the minor thirds added in. Regardless of whether the passing notes are consistently a semitone up from the previous minor-third related note in the progression or consistently a whole-tone up from the previous minor-third related note in the progression, the resulting scale will always be the octatonic scale. The difference would only be whether a T-S-T or S-T-S scale is produced. One of the two fully diminished seventh pitch sets that make an
octatonic scale is also shared by another octatonic scale. This also demonstrates how half the total notes from one collection are present in either of the remaining two possible transpositions of the scale.

Figure 1.10
Minim represents a return to each octave; chords are respective vertical representation of each horizontal fully diminished seventh chord

Figure 1.11 shows how the fully diminished seventh pitch sets are distributed twice throughout the three collections representing each of the notes of the twelve-tone pitch set arranged as overlapping 0,3,6,9 sonorities. Likewise, the octatonic scale is also comprised of two French augmented sixth chords (Fig. 1.12). However, the French augmented sixth chords are distinct to each octatonic collection with no overlap, unlike with the fully diminished seventh chords (Fig. 1.13). This accounts for the three possible distinct fully diminished sevenths (and each of their three available enharmonic respellings and inversions) and the six possible distinct French augmented sixth chords (and the other single available enharmonic respelling and inversion for each).
Minim represents a return to the octave; semibreve chords are respective vertical representation of each horizontal French augmented sixth chord; minim chords represent common practice harmony inversions and enharmonic spellings of each of the two French augmented sixth chords.

The intervals within the scale differ depending on which degree of the scale is taken as the starting point. In Figure 1.14a (octatonic collection III) the first degree of the scale, C, produces, a minor second, a minor third, a major third, an augmented fourth, a perfect fifth, a major sixth, a minor seventh and a perfect octave (as well as their enharmonic equivalents). In Figure 1.14b on the same collection, but this time building intervals off the second degree, D♭, produces (enharmonically respelled) a major second, a minor third, a perfect fourth, an augmented fourth, a minor sixth, a major sixth, a major seventh and the perfect octave. When descending, the available intervals is respectively the opposite: In Figure 1.15a a descending interval starting from C would produce the same intervals as the D♭ produces when ascending in Figure 1.14b with the opposite also true for the D♭ descending in Figure 1.14b producing the ascending intervals from the C in Figure 1.14a.

This means that for ascending intervals the two starting points share only a minor third, tritone, and major sixth (which together produces one of the two fully diminished seventh chords). These interval quality distinctions give rise to two different subsets of possibilities.
In relation to common practice harmony the intervals in Figure 1.14b are more suited to generating melodies whilst those in Figure 1.14a more suited to forming chords.

**Figure 1.14a**
Intervals of Octatonic scale beginning with a semitone

**Figure 1.14b**
Intervals of Octatonic scale beginning with a tone

**Octatonicism in Relation to Common Practice Harmony**

Early use of the scale occurred within the context of common practice harmony, however, due to the nature of the octatonic scale the presence of a tonal centre is obscured. Common practice harmony often takes place within a progression of fifths but the octatonic has limited perfect fifths. Treating the first note in a scale as the pitch priority, a Collection III with a C start would only offer ascending perfect fifths on C, Eb, F#, and A; Db, E, G, and Bb do not. Likewise, in Collection II with a tonicized C start, a perfect fifth would not be available for it (or Eb, F#, nor A) but is available for B, D, F, and G#. This distinction is why Rimsky-Korsakov sometimes used the scales with different starting intervals differently. The harmonic scale, with a semitone start, offers a minor third, a major third, a perfect fifth, and thus a major triad or a minor triad on the designated pitch priority. The melodic scale cannot offer this. What the melodic scale does provide is a minor tetrachord (0,2,3,5) that is analogous to the first four notes of the common practice harmony minor scale. The melodic scale is melodic due to its consecutive intervals, beginning on the designated pitch priority,
that are analogous to common practice harmony. The harmonic scale is harmonic due to its
triadic intervals, beginning on the designated pitch priority, that are analogous to common
practice harmony. This does not solve the problem that perfect fifth progressions aren’t
possible with the octatonic scale. A set of minor third progressions are alternatively
employed, albeit limited to only three such progressions. This is not as tonally sound as a
progression of fifths, but the scale only functions analogously to common practice harmony
not alongside it.

As mentioned above, the 6-z23 hexachord subset of the ascending melodic minor
is a common pitch subset to the octatonic collection. This offers some harmonic and melodic
exploits that are fully within the context of common practice harmony but can still be used
within an octatonic context. While typically in common practice harmony the descending
melodic minor reverts back to a natural minor scale (or Aeolian mode) the sound of this
ascending melodic minor hexachord is still familiar to ears used to common practice
harmony. Not only does it offer melodic similarities but there are harmonic similarities as
well. With an F#-G#-A-B-C-D 6-z23 hexachord common to both a melodic minor scale on A
and an octatonic collection II, assuming a functional tonal centre on A, then chord vii° (G#-
B-D)\(^4\) is available to the hexachord, as is #vi° (F#-A-C), IV (D-F#-A), ii\(^7\) (B-D-F#-A), and i\(^3\)
without the fifth (A-C). This gives functional harmony very close to common practice
harmony. Figure 1.16 is a short composed-out dual phrase melody and harmony
demonstrating that a fully tonicizing common practice harmony segment that has no foreign
notes to the octatonic collection II. Of course, this example takes it to the extreme and a

\(^4\) The half diminished vii G#-B-D-F#) is also available within the hexachord, and the full diminished vii (G#-B-
D-F) is also available in the full octatonic collection but neither of these have a common practice harmony
resolution as the E is an E\(\sharp\) in the octatonic collection II. Additionally, as there are eight degrees of the octatonic
scale, within the octatonic collection a chord built on the final degree of the scale (the term scale is used because
the first degree of the ordered pitch set is the designated priority) might be initially thought of as a iix° chord. As
this section is discussing analogies, similarities, and commonalities between common practice harmony and
octatonicism, using such a foreign roman numeral could be more confusing. Additionally, as in each octatonic
collection there is always one note that is bound to one note name (e.g., in collection II either F and F# or G and
G\(\flat\) share a letter) the roman numeral for these would likely indicate a raised or flattened degree based on that
letter. So, while Roman Numeral designations of chords are designed for common practice harmony and do not
accurately or neatly fit with the octatonic collection, they are used here because of the close analogous nature of
the discussion to common practice harmony and should be seen as analogous designations rather than technical
different octatonic designations.
phrase like this should always be read as a part of common practice harmony and not as octatonic. Still, this demonstrates how common practice elements and even resolving cadential elements can exist within the octatonic collection, although with caveats. Those main caveats being the exclusively ascending melodic minor sonority which creates uncommon but not unusual sixth and fourth scale degree chords,\(^5\) the omission of the tonic’s fifth leaving only a dyad minor third, and the omission of the root of the dominant seventh chord leaving only a chord vii\(^o\) to resolve to the tonic. Figure 1.16 shows a comparable composed out segment but this time fully within the octatonic collection while maintaining cadential moments of imperfect (vi-viib) and perfect cadences (vii\(^o\)-i). As mentioned above as well, a 6-27 hexachord subset of the harmonic minor scale (and the octatonic scale) would result in different harmonies to Figure 1.15, and the extended 7-31 heptachord subset of the octatonic scale would give the composer a choice between a minor third below the tonic or a major third below the tonic.

\(\text{FIGURE 1.15}\)
Composed-out common practice harmonies within the octatonic collection.

\(^5\) Based on an A melodic minor scale on A.
Edmond de Polignac, discussed below, devises an alternative dominant in the harmonic scale. Using the nearest neighbouring tones to what would be a dominant chord, resolve to a tonic (Fig. 1.17). This example by Polignac, in octatonic collection III, is a G-D♭-D#-A French augmented sixth but is treated completely unlike how a French augmented sixth would normally be treated in common practice harmony by ‘resolving’ to a C major triad. The enharmonic spelling here is unusual but is deliberate; its purpose is to show the leading notes of the cadence with the D# rising to an E, and the D♭ falling to the tonic C. The low G creates perfect fifth movement in the bass to the tonic (G-C), and the A falls to the G as well. This creates a strong tonal sense of C major thanks to the V-I style bass movement and the leading tones.

**FIGURE 1.16**
Common practice harmony cadences within the octatonic scale

---

**FIGURE 1.17**
Outside these mentioned and what Richard Taruskin would call “fictitious” methods of implying a tonal centre such as “beginning and ending, rhythmic or metric placement, statistical predominance, dynamics etc.” (Taruskin, 1996, p. 274), there are two other methods that are possibly less convincing than the above. The first method can be found in Scriabin, discussed below. Amongst the complex harmonies, Scriabin composes a major triad that “cadences” as a modulation. More simply, and outside of Scriabin’s complexities, a dominant seventh chord, e.g., G-B-D-F in octatonic collection I cannot perfectly cadence within the same octatonic collection (as note C is unavailable). To achieve perfect cadence within an octatonic context from this G V\(^7\) chord, the C major chord would need to be found in octatonic collection III. As such a modulation occurs during the cadence and while the modulation does have G as a common tone\(^6\), the principal connection is the very audibly diatonic V-I movement rather than the common tone. This sort of cadence would seem somewhat fictitious as well because it cannot be achieved outside modulation.

A final method of tonicization here, which Pieter van den Toorn might call a “terminating convenience” (van den Toorn, 1983, pp. 331–332), is where the octatonic scale is simply modified in the cadential moments to create the tonicization. This action is not uncommon in common practice harmony; some time was spent above describing the similarities between the octatonic collection and the melodic and harmonic minor scales. These melodic minor and harmonic minor scales historically exist for the purpose of tonicization and are modifications of the diatonic Aeolian mode which does not have a perfect V-I cadence. In cadential moments, the seventh degree of the scale is raised allowing for the (now major) dominant V. The melodic scale is an extension allowing for baroque flourishes on such cadential points without an awkward augmented-second interval. The analogy to this in octatonicism is, in harmonic scale, to raise the eighth degree\(^7\) and the second degree at cadential moments. Figure 1.18 is a composed-out phrase that is entirely within octatonic collection III and is not attempting to tonicize a C major triad outside of its influential presence in the bass as a pedal. The exception is made on the three chords in measure three and four with an asterisk above them. In these chords the second and eighth degrees of the scale rise allowing for a perfect V-I cadence. Had these notes not been lifted

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\(^6\) The E in the tonic triad would also be present in both collections but is not common to both chords.

\(^7\) Eighth of final degree before a return to the octave, analogous to the seventh degree in a diatonic scale.
the $v^0$-I progression would not have successfully tonicized C. It is worth noting that a proper dominant $V^7$ is not available even with these changes as the seventh note of the dominant V chord is a major seventh not a minor seventh. The fourth degree could also be modified, in this case flattened, to allow for a perfect $V^7$-I cadence, however, one of the core characteristics of the octatonic collection is its symmetry at the tritone. Removing this tritone could deteriorate the octatonic sonority. A dominant $V^7+$ could still be used, although more traditionally dissonant, and would still tonicize priority pitch, albeit less forcefully.

![Octatonic Collection III](image)

**FIGURE 1.18**

Non-collection tones at the asterisks (B♭ and D♭)

The octatonic pitch set also shares similarities with the whole-tone set. Several composers took advantage of both whole-tone and octatonic sets for similar purposes. Both scales or pitch sets were symmetrical, limited in transposition, and obscured tonality to an extent. Debussy took strong advantage of the whole-tone set, more than with octatonicism, as did Ravel, Crumb, Messiaen (to a lesser extent) and especially Bartók (as well as others). The whole-tone set shares the tritone axis as with the octatonic pitch set, and also has the French augmented sixth chord as a common chord.

The similarities and commonalities between octatonicism and common practice harmonies is what drew composers to the scale early on. They certainly sounded odd and different which likely accounts for frequent early use that attributed the scale programmatically with magic, or exoticism (which will be discussed in detail below). What was later an attractive characteristic of the octatonic pitch set was precisely the opposite. The octatonic pitch set can be used with tonally obscure music (or even music devoid of tonality) music to bridge the gap from tonal music (be that tonal with an actual priority pitch, or
through an analogical veneer). The former often took advantage of the symmetrical nature of the scale. Russian theorist, Boleslav Yavorsky, devised the concept of stable tritones which conforms to the tritone symmetry of the octatonic scale (Taruskin, 1996, p. 283); Stravinsky’s Petrushka chord is the tritone-related superimposition of two simple major triads; and Bartók will also be shown to break down the octatonic scale into symmetrical cells. When moving more towards serialism and twelve-tone atonalism, the octatonic scale was used structurally to create a coherent form for the work, something that the liberty of twelve-tones could make less clear. These devices will be described in more detail below.
Part II:
A Historic Overview of the use of Octatonicism
2 • Early Octatonicism

Historical Context Around the Octatonic Pitch Set

Before Rimsky-Korsakov used the scale in his symphonic poem Sadko (1867), and before the incidental ‘proto-octatonic’ use by Franz Liszt and Schubert with regards to progressions of the minor third,\(^8\) incidental use of the scale occurred in Mozart (Fig. 2.1a), Beethoven, (Fig. 2.1b) and Bach (Fig. 2.1c) as embellishments around a fully diminished seventh chord. While these examples might include all or most of an octatonic scale all these incidental occurrences of the scale come from embellishments of a semitone or whole-tone around an extended fully diminished seventh chord which is resolved properly within the context of common-practice harmony. Such a resolution is inevitably foreign to octatonic collections (Street, 1976, p. 820). Taruskin also notes that many of these incidental uses come from virtuoso keyboard music, where such embellishments are common in cadenzas (Taruskin, 1996, pp. 260-261). These incidental (or we might even say accidental) octatonic instances, moreover the ones that can easily be completely explained by common practice harmony, are not considered any further in this dissertation. The progressions around a minor third however, due to their distinction from common practice harmony which assumed progressions related by a perfect fifth, are considered briefly.

\(^8\) The same situation, but with major thirds, created the whole-tone scale (Taruskin, 1996, pp. 260-261).
There are many pitch sets that contain eight notes, indeed under Forte’s Set-name number conventions there are 42 eight-note sets, numbers 282–324. The term octatonic, when applied to the alternating tone-semitone pitch set, was first coined by Arthur Berger in *Problems of pitch organization in Stravinsky*, (Berger, 1963, p. 20). Berger codified the scale
in relation to his analysis of Stravinsky’s music – by this stage a well-trodden path highlighted with various technical approaches. Other analysts soon followed Berger’s lead. Agmon identified the first ‘intentional’ use of the scale in 1867 (Agmon, 1990, p. 2) (some see it dating as far back as 1753). Although there are 43 alternative eight-note pitch sets, the popularity and significance of this octatonic pitch set has entrenched it as the octatonic pitch set. Whilst Berger’s 1963 study marked the introduction of octatonicism into Anglo and American analytic circles, the scale was already familiar outside The West. Multiple composers utilised the scale and some even believed they had invented it; Edmond de Polignac believed he invented it in 1879, and Alexandre de Bertha in 1884 (Kahan, 2009, p. 82). Rimsky-Korsakov, in 1867, identified it in the music of Liszt. Thereafter, in Russia, the scale became widely known as the Rimsky-Korsakov scale. It was also known as the diminished mode, within the context of Boleslav Yavorsky’s model theories (P. A. Ewell, 2012, p. 1.2). In Holland the scale became known as the “Pijper scale” after the Dutch composer Willem Pijper (Slonimsky, 1972, p. 831). Other ‘inventors’ of the scale include the Austrian composer Felix Petyrek (Slonimsky, 1972, p. 926), and Ludomir Rogowski (Slonimsky, 1972, p. 873). Finally, the scale/pitch set became known through Olivier Messiaen as his second mode of limited transposition.

**Nikolay Rimsky-Korsakov (1844 – 1908)**

Nikolay Rimsky-Korsakov, a founding member of *Kuchka* or *The Five*, was one of Russia’s most influential composers (J. Nelson, 2013, p. 248–264). He was also influential as a theorist and especially as a teacher, whose impressive list of students included Stravinsky, Sergei Prokofiev, and Alexander Glazunov.
Rimsky-Korsakov described that he revealed the “semitone, whole tone, semitone, whole tone” scale (Rimsky-Korsakov, 1989, p. 78) directly from the works of Franz Liszt (Taruskin, 1996, pp. 279–280). In the final chapter, titled 'False Progressions Outside the Limits of a Tonality’, of his influential 1885 harmony textbook, Rimsky-Korsakov sets a problem for students to complete that would result in the octatonic scale – although he does not identify it. From this moment on Rimsky-Korsakov set about exploiting the scale in his own works.

The forging of a ‘Russian Style’ as a deliberate foil to the styles of Western European music was an important goal of The Five. Glinka’s adoption of Russian folk music, Russian stories, Russian cultural themes as well the use of Russian fantasies and fairy-tales was particularly influential. Equally influential was Rimsky-Korsakov’s adoption of Octatonic sounds and structures (J. Nelson, 2013, pp. 43–49).

According to Rimsky-Korsakov, Russian folksongs were ‘deficient’ when transported into the ‘Italianate style’, as this style removed the characteristic harmonic and metrical irregularities inherent in the source material (J. Nelson, 2013, p. 47). Consequently, in a conscious departure from Western-sounding tropes, The Five began their experimentations with alternative harmonies. Glinka began first, with his experimentations with the whole-tone scale. This led to Rimsky-Korsakov’s later experiments with the octatonic scale. On Russian folk music and Rimsky-Korsakov, Richard Taruskin noted (emphasis added):

We have here a very rare instance – for Rimsky-Korsakov – of the octatonic scale partitioned not into triads or other tertial formations but into minor tetrachords (T-S-T). This is the melodic basis of a great deal of Russian folk music, as Rimsky surely knew better than anyone. The melodic octatonic scale offers minor tetrachords at each of its four nodal points, but the tritone is the obvious transposition interval of preference in the present context. With specific reference to the piece at hand, it coincides with the prime structural, tonality-defining harmonic unit in the opera. And more generally, the tritone transposition offers complete pitch variance, as well as complete representation of the octatonic collection (Taruskin, 1996, p 292).

That the T-S-T minor tetrachord is subsumed so completely and succinctly within the octatonic scale no doubt had some influence in Rimsky-Korsakov’s use and development of
the scale, even if the split at the tritone was a later development first seen in *Kashchey the Deathless* (1902) with a “basic little theme in the Russian spirit colours in the picture of the snowstorm with a special native tint” (Campbell & Stuart, 1994, p. 64). The “basic little theme”, which fits within the T-S-T minor tetrachord, is rather plainly transposed and repeated a tritone away (Fig. 2.2). This rare tritone tetrachordal transposition by Rimsky-Korsakov is not found in traditional Russian folk music but, as we will later see, is relevant to how Stravinsky used the octatonic scale (Taruskin, 1996, p. 295).

![Figure 2.2](Rimsky-Korsakov, Kashchey the Immortal (1902), scene ii, fig. 38 (Rimsky-Korsakov, 1902))
These tritone related phrases harken to another element of “Russian style”: that being a “preoccupation” with common-tone progressions, and especially common-tone progressions that oscillate between, or exploit, a common tritone. Examples can be found in the Coronation scene from Musorgsky’s *Boris Godunov* (1872), and in Rimsky-Korsakov’s *Sheherazade* (1888) (Fig. 2.3a and 2.3b). The tritone can be a significant defining feature of the octatonic scale: Fig. 2.4 shows the four tritones available. It is interesting to note Rimsky-Korsakov’s experimenting with harmonically stable tritone oscillations (see especially Russian music theorist, Boleslav Yavorsky) (Taruskin, 1996, p. 283).
This stable tritone, which Yavorsky called a “tonic tritone”, as a melodic point of rest as well as a root progression, can be found at the end of the second scene of the opera Sadko (1898) (Fig. 2.5).

Taruskin (1996, pp. 286–287) also makes note of Rimsky-Korsakov’s explicit use of perfect fifth intervals (sometimes written as diminished sixths) that act as “dissonant appoggiaturas” that resolve to the diminished fifth. This additionally implicates the tritone as being employed in a tonically stable manner, something which the octatonic scale conforms to and harmonises with well (p. 291).

The Fig. 2.6 passage from Sadko is also notable due to the presence of both versions of the octatonic scale; one in which the first interval is a semitone (S-T-S) in Collection III and another where the first interval is a whole tone (T-S-T) in Collection II. Evidence that Rimsky-Korsakov was aware of these two forms reveals itself in one of his commonplace sketchbooks whereby the two forms, written one after the other, are labelled “the one scale” and “the other scale” (Taruskin 1996, p. 276). Rimsky-Korsakov labelled the T-S-T scale as “the one scale” and exploited it primarily as a generator of melodies.

This ‘melodic’ scale, as Taruskin likes to identify it as, whilst offering diatonic possibilities in melodic lines, fails to generate the requisite triads to be useful in generating common diatonic harmonies. Figure 2.5 shows the all available common practice harmony root position triads available to the harmonic scale. The pitches with an asterisk do not have a perfect fifth above them (although none of the chords have a perfect dominant chord). Of note is how the pattern of available root position chords repeats itself on each of the nodal points a minor third apart.
The melodic scale, however, lacks common harmonies (on relevant roots) that would otherwise be useful in music attempting to be analogous to diatonic harmony. There is no perfect fifth that can be built on top of the starting note; attempting to make a triad build on the starting note will end up either as a diminished chord (C – Eb–F#/Gb) or diatonic a first inversion bVII chord (C – Eb– G#/Ab). This is clearly “less flexible”, as Taruskin puts it (Taruskin, 1996, p. 276), than the harmonic scale (or “the other scale” according to Rimsky-Korsakov), beginning with a semitone (Fig. 2.7).

**FIGURE 2.6**
Rimsky-Korsakov, *Sadko* (opera) (1898), Act I, scene ii, fig. 120 (Rimsky-Korsakov, 1929)
The octatonic harmonic scale, by comparison, provides more traditional sounding diatonic harmony including a major and minor triad on the first degree. Rimsky-Korsakov used these different octatonic scales and used them simultaneously. Figure 2.5, while also showing tonic tritones that do not attempt to resolve, also very simply illustrates the use of the melodic and harmonic scales. The harmony notes are half diminished-seventh chords, transposed up a minor third at the start of each phrase; A# Dim⁷, C# Dim⁷, and E Dim⁷. The melody line (sung by the Sea King and doubled in the bass), clearly presents a melodic scale phrase, with a rhythmically clear starting note. However, the sevenths of the diminished-seventh chords, G#, B, and D respectively, are not present in the melodic scale and instead are taken from the harmonic scale. The two scales, when combined, also allow for all twelve tones of the chromatic scale to be used within an octatonic setting. Taruskin credits this discovery, and the use of the two scales for different purposes and simultaneously, as Rimsky-Korsakov “signal contribution to the development of octatonicism” (Taruskin, 1996, p. 276).

Rimsky-Korsakov’s grappling with harmony is often in marked contrast to the forms and procedures of mainstream Europe. Inevitably, like all others, he has to come to terms with Wagner’s work. A letter to Vasilii Yastrebtsev is interesting in this regard:

Here I can’t seem to get started on anything, so meanwhile I have been zealously going through the score of Siegfried, which I have bought for myself. As always after a long interval, Wagner’s music has become alien to me, and I had to get used to it. Now that I’m a little used to it, I started to like it, but then I again experienced something akin to disgust. I began to grow indignant at all his blunders of the ear, and his constant crossing of the boundary of what is possible in harmony—to put it simply, the nonsense and the falseness that you find strewn about Siegfried at every step… Could my musical ear be better than Wagner’s?… No, of course, not better; maybe even worse; but I have a musical conscience, to which I am obedient, and Wagner frittered his conscience away in his quest for grandiosity and novelty… It’s terribly hard to define the limits of what is possible in music; it’s a much too complicated question, into which everything must be reckoned: not only harmony, but melodic and rhythmic considerations. I could not hope to solve it, but I feel that I am right. Where Wagner is peerless is in instrumentation (Taruskin 1996, p. 289).
And later:

In the last few days of June, I started work on another opera—archfantastic, modest in length: in two acts (four scenes). I cannot tell you its name, for I gave the librettist my word that I would not… I think that by the end of the summer it will be all sketched, or nearly so, for the material all came into my head in one fell swoop… The form will be Wagnerian; there will be abrupt transitions and chords with incoherent voice leading… (Taruskin 1996, p. 290).

Taruskin (1996, pp. 290-291) notes in Act II, scene I of Siegfried (1871) a consistent use of settling⁹ on a C-F#/Gb tritone while also ending the scene on the tritone (and indeed starting the scene in the same manner). Obviously analogous to Rimsky-Korsakov’s experimentations with the tritone as a tonic, allowing the “sea of harmony” with “tonally suspensive ambience” (Taruskin 1996, pp. 291–292) without resorting to “incoherent voice leading” that Rimsky-Korsakov discussed in his letter to Yastrebtsev above. And while Wagner’s intended application here with the use of tritones and his general harmonic procedures are frequently described as prolonged dominant harmony (Taruskin (1996, p. 290), the Rimsky-Korsakovian approach (via Liszt), intended to tonicize the tritone rather than treat it as a dominant (Taruskin pp. 296–297). Richard Bass, et al, make note of the “[h]armonic progressions that contribute to a tonal disorientation at the musical surface in Liszt’s Lieder” being based on a variety of devices including

progressions involving third-related harmonies, both diatonic and chromatic, and especially chromatic mediant progressions in which the triads share a single common tone”, that are “often organized into large-scale tonal schemes, such as chromatic third-related keys that tend to partition the chromatic pitch-class space symmetrically, suggesting hexatonic (major thirds) or octatonic (minor thirds) organization; postponement or avoidance of the tonic harmony (Bass et al., 2013, p. 6).

Certainly this is comparable to the “sea of tonality” that Rimsky-Korsakov desired. Not only did Liszt (Rimsky-Korsakov’s inspiration in relation to octatonicism) create a feeling of tonal

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⁹ Taruskin did not go so far as to say that Wagner cadenced on the tritone, just that it was the “tonic” (Taruskin added the quotation marks) and that the tritone tonic ends the scene.
ambiguity, but he achieved that through devices manifest in the octatonic scale, distinct from the Wagner’s usual prolongation of the dominant.

Rimsky-Korsakov, in his harmony textbook wrote out a series of “false progressions” of major thirds, instructing his students to fill the root movement with chromatic passing notes to create the “whole-tone scale” (Taruskin, 1996, pp. 302–303). The same assignment is also given with false progressions of the minor third kind. While this scale is not named, any student completing the exercise would end up writing an octatonic scale (Taruskin, 1996, pp. 304–306).

Mussorgsky’s famous bell chords in the Coronation scene from Boris Godunov were also to prove influential. This music features dominant seventh chords a tritone apart, making six notes, or a hexachord, from the full set, and according to Taruskin, making a “peculiarly Russia[n]” sound (Taruskin, 1996, p. 283) (Fig. 2.2a). By the 1870s, the tritone was already a significant characteristic of The Five’s music (Yastrebtsév, 1985, pp. 73–74) and it is simpler to attribute the development of Mussorgsky’s bell chords to this rather than an intentional octatonic harmonic device.

A possible late development by Rimsky-Korsakov, which he scribbled in a notebook, relates to the subsequently Stravinsky-associated device of vertically superimposed tritone-related thirds (Fig. 2.8) (Taruskin, 1996, pp. 402–406). In this example a non-octatonic circular progression at the tritone of a passage where the top harmony is a B major chord, is placed over a low harmony of F major. Due to the tritone transposition, when the phrase progresses, the roles are reversed, with the high F major harmony and low B major harmony. Taruskin believes this notebook directly influenced Stravinsky while acknowledging but dismissing comparable vertical stacking by Ravel even earlier than Rimsky-Korsakov’s example (1996, p. 771). Baur takes issue with Taruskin’s dismissal and instead implicates Ravel as the inventor (Baur, 1999, pp. 561–568). Another thing that Baur pointed out is that both Rimsky-Korsakov and Stravinsky attended a concert of a Ravel work that prominently featured this device. Regardless, of whether Rimsky-Korsakov invented it first or borrowed it from Ravel, or whether Stravinsky borrowed it from either, it was still a technique that Rimsky-Korsakov was likely intending to implement into his works.
Ultimately, between when Rimsky-Korsakov discovered the scale by way of Liszt and used it in his 1867 symphonic poem, *Sadko*, and his death, his development of the scale, past minor third progressions, tritone partitioned tetrachords, and almost exclusively ordered use, didn’t amount to much. While the scale was quick to become known as the Rimsky-Korsakov scale, and while he certainly kept using the scale, he passed on the responsibility of developing the scale rather early. Possibly, his self-imposed adherence to strict and coherent voice leading held him back.

![Figure 2.8](image)

**Figure 2.8**
*Franz Liszt (1811–1886)*

Franz Liszt predates Rimsky-Korsakov and contributed to France’s awareness of *The Five* and of Rimsky-Korsakov’s music\(^\text{10}\) (Poleshock, 2010, p. 22). However, his harmonic experiments and contributions within common practice harmony eventually led to Rimsky-Korsakov’s intentional experiments with the octatonic scale. Because Liszt’s contributions to octatonicism were still within common practice harmony, introducing octatonicism through

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\(^{10}\) Of Rimsky-Korsakov Liszt wrote in 1872: “Are you familiar with the Russian musical youth and their notable leaders Balakirev, Cui, Rimsky-Korsakov? I’ve read recently many of their works: they deserve attention, praise, and propagation” (Poleshock, 2010, p. 23). Liszt was well acquainted with several of Rimsky-Korsakov’s works, including the *Sadko* symphonic poem, so it is entirely possible that Liszt was circularly influenced by Rimsky-Korsakov’s Octatonic works.
Rimsky-Korsakov, who intentionally and explicitly experimented with the scale in depth, before backtracking to Liszt is believed to be an easier learning experience even if less smooth. The idea is to provide the proper context and general understanding of octatonicism before looking back towards its predecessors.

The octatonic pitch set was already present in Western music before Rimsky-Korsakov. Indeed, Taruskin has found the octatonic pitch set in the music of Chopin, Weber, and Bach (Taruskin, 1996, p. 268); Donald Street, in Mozart, Beethoven and Reicha (Street, 1976, p. 820); and Suben in Brahms, and in Wagner’s Tristan chord (Suben, 1980, pp. 13–14). Importantly, however, these instances were incidental and a by-product of specific common practice harmonic devices. While Street also states that Liszt was the first to consciously use the octatonic set, Taruskin does not go so far. Rather Taruskin credits Liszt with the first functioning octatonic scale (Taruskin, 1996, p. 266). While embellishments of a fully diminished seventh chord fit comfortably within the realm of common practice harmony, many of the manifestations within the works of Liszt are outside common practice harmony and occur as a result of harmonic devices that exist outside of octatonicism. With the exception of Liszt’s symmetrical divisions of the octave that influenced Rimsky-Korsakov, much of Liszt’s octatonic-related experiment occurred in his late piano works, and since Liszt’s late piano works were unpublished until 1927, how much currency or influence can they have had on his contemporaries? What subsequent composers (before 1927) were influenced by the works? Toth anticipated this problem: “The fact that Liszt’s late piano works were unpublished until 1927 does not mean that early twentieth-century composers could not have been influenced by them, for Liszt’s numerous pupils carried his legacy all around the world” (Toth, 2016, p. 153). Surely other composers could have been influenced via students, but this is a fairly long bow to draw and is merely speculation. Additionally, Toth’s citation with this statement is only of reference to Liszt being a prodigious pedagogue, not anything that might corroborate the students espousing octatonicism learnt from Liszt (in fact the reference seems to imply the opposite):

Indeed, one is hard-pressed to think of an innovative composer of the early twentieth century who was not influenced by Liszt’s music, especially in its departures from traditional harmonies and novel approaches to form and formal unity (but contrary to musicological myth, the experimental late works were not known until 1927, and thus could not have influenced early twentieth-century innovators like Schoenberg or Bartók). Beyond the notes themselves, at least four other factors ensure Liszt a
lasting legacy: (1) His commitment to pedagogy meant that a host of students (400, by one count) carried the legacy of Liszt to all corners of the world, passing it on through life and recorded performance and teaching. (2) He encouraged the development of national schools of composition, in France, Russia, Bohemia, Hungary and Scandinavian countries, through friendships with the composers and his own model of nationalist composition. (3) The ongoing public love affair with the piano meant that Liszt’s piano music would remain in circulation and continue to serve a living part of the European cultural legacy. (4) Finally, Liszt was a fascinating person, one of the most paradoxical and complicated figures of the nineteenth century, and as such he has consistently attracted considerable interest from the general public and scholars (Deaville, 2005).

The submediant was increasingly being used by early Romantic composers, especially Schubert and especially the flat submediant (Taruskin, 1996, p. 256) and while Schubert did extend its use beyond an interrupted cadence with some symmetrical progressions that have descending major thirds in the bass, Schubert’s use was still within the realm of common practice harmony, even if it was transgressing its conventions. These symmetrical progressions were increasingly being used to transform the tonal system of common practice harmony (Toth, 2016, p. 151) and were significant to the harmonic developments of Liszt. A progression of major thirds with connecting notes was used to form the whole-tone scale in Schubert’s *Octet, Op. 166, D 803*, and Taruskin (1996, pp. 260-261) suggests that this passage is the earliest intentional whole-tone scale. The major third is but one symmetrical division of the octave; the second being the minor third and the last being the tritone (which is a subset of the minor third division and is mentioned above with Rimsky-Korsakov). It is this minor third relation where the octatonic scale is, similarly to the whole-tone scale, achieved. By inserting connecting notes in a consistent manner between the minor thirds we arrive on an octatonic scale, precisely the same way the whole-tone scale was developed (Taruskin, 1996, p. 266). Taruskin, who called this “triadic octatonicism” (1996, pp. 273–274) points to Liszt’s 1831 *Mountain Symphony* (“Ce qu’on entend sur la montagne” (Fig. 2.9)) with its descending minor third progression with connecting notes in the bass that form the S-T-S of the octatonic scale (the ‘harmonic’ version of the scale) as the first “functioning”11 instance of octatonicism (Taruskin, 1996, pp. 266–267). It is also this

11 Quotation marks on the word functional were included by Taruskin but not for the purpose of a quote.
work that Rimsky-Korsakov cites as the inspiration for his interest in this “semitone, whole tone, semitone, whole tone” scale:

What musical tendencies guided my fancy when I composed this symphonic picture? The Introduction – picture of the calmly surging sea – contains the harmonic and modulatory basis of the beginning of Liszt’s “Ce qu’on entend sur la montagne” (modulation by a minor third downward). The beginning of the Allegro 3/4, depicting Sadko’s fall into the sea and his being dragged to the depths by the Sea King, is, in method, reminiscent of the moment where Lyudmila is spirited away by Chernomor in Act I of Ruslan and Lyudmila. However, Glinka’s scale, descending by whole [tones], has been replaced by another descending scale of semitone, whole tone, semitone, whole tone-a scale which subsequently played an important part in many of my compositions (Rimsky-Korsakov, 1989, p. 78).

This also notes Rimsky-Korsakov’s acknowledgement of what manifested the octatonic scale within the works of Liszt; the “modulation by a minor third downward”. Rimsky-Korsakov also acknowledges the similarities with how the whole-tone scale came to be. These third-related root progressions are what Yavorsky, after Rimsky-Korsakov, would call “chain mode”. Specifically, major third dyads with minor third root progressions; in this the upper note of the preceding major third dyad is succeeded by the lower note of the next major third dyad a minor third up. This creates the interlinking that associated it with chain links (Taruskin, 1996, p. 292).

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FIGURE 2.9
Liszt, *Ce qu’on entend sur la montagne*, S.95 (1831), 16 before Y (Liszt, n.d.)
Understandably, as the subject of the book is Stravinsky, Taruskin does not delve too deeply into Liszt and octatonicism,\(^\text{12}\) and certainly not as much as Rimsky-Korsakov, which again is understandable as Taruskin, where the octatonic set is concerned, is singling Rimsky-Korsakov out as a major, if not the major influence on Stravinsky (where the octatonic set is concerned); though his appreciation for Liszt’s contributions is still apparent. While other analysts do seem to insinuate that Liszt intentionally used the scale, most do not go so far as to actually make the claim.\(^\text{13}\)

Like Rimsky-Korsakov after him, Liszt often composed to be tonally ambiguous, something that is very explicit in *Bagatelle sans tonalité*, S.216a (1885). While Rimsky-Korsakov would have not been influenced by this work, as the work remained unpublished until 1956 (Berry, 2004, p. 231), it does indicate Listz’s intentional use of the octatonic, as distinct from simply filling-out minor-third progressions. Liszt, as early as 1859, was already very interested in scales and modes outside of common practice harmony, especially those related to his homeland. In his ethnographic study, *Des Bohémiens et de leur musique en Hongrie*, he makes note of the connections between Greek scales and the exoticism of Hungarian gypsy music, with specific attention to scales that begin with a semitone (Kahan, 2009, p. 39). While these scales have no direct connection with the octatonic scale, it nevertheless does indicate Liszt’s interest with more exotic scales.

Berry (2004, p. 235) makes note of the first reprise (m.87) of the opening melody of *Bagatelle sans tonalité*. The opening melody (Fig. 2.10, mm.5-14) accounts for six of the eight notes of the octatonic set, but the reprise completes the full set by adding the A♭ and

\(^{12}\) As can also be ascertained by Taruskin’s tentativeness to infer intention.

\(^{13}\) See Linda Popovic who states “Through these techniques, I have shown that an octatonic basis exists within Liszt's harmonic language, that octatonicism is clearly discernible on various structural levels, and that this non-tonal basis is often superimposed over a traditional tonal background. Of course, one still might question the use of a pc set analysis, since many of the sonorities do play an important role in tonal music. Most notable is pitch set class 4-27, which is better known as a dominant seventh chord or, inverted, as a half-diminished seventh chord – perhaps the two most significant sonorities of nineteenth-century European music” (Popovic, 1996) which surely comes close to having a narrative that Liszt intentionally engaged with the octatonic scale but also offers an out to such a claim by showing the devices by which he also may have employed which simply result in the octatonic set.
Bb. This is achieved by transposing the opening (Fig. 2.11, mm.12-13) up a minor third in the reprise (mm. 95-96). This minor-third progression, as we have previously noted, is not unfamiliar.

An interesting octatonic passage is found between measures 45-58 (Fig. 2.12). Here, in contrast to Rimsky-Korsakov, the tetrachords from both the melodic and harmonic scales are used in subsequent segments. In the first segment, mm.45-46, the S-T-S tetrachord is used (with the addition of A♭ and the anomalous G) but in the second segment, mm.47–48,

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14 Rimsky-Korsakov did partition the octatonic scale into minor tetrachords, such as in Fig. 2.1, however, this was the single melodic version of the scale split at the tritone in immediately succeeding passages.
it is the T-S-T tetrachord that is used. This partitioning and use of the two types of the octatonic scale anticipates how later composers, such as Stravinsky, used the scale. On the surface, this might be seen to be a clear example of intentional octatonicism, however, as Berry points out (p. 235), the device used by Liszt to achieve this octatonic passage, the shifting of one or more notes of a repeated segment by a semitone, is not uncommon in Liszt’s otherwise non-octatonic works. Ramon Satyendra dubs this as *inflected repetitio* (Satyendra, 1997, p. 219). Matthew Cataldi observes more global octatonic connections within the piece, in that the same octatonic set is used at the start, the climax, and the end (Cataldi, 2014). Additionally the piece ends with a full diminished 7th chord (built from the same set) which, of course, harkens to Rimsky-Korsakov’s use of tonally stable tritones.

In sum, octatonicism seems to function in the Bagatelle as a foil to diatonicism, contributing to the sense that the piece operates outside the realm of tonality. If there is a deficiency in interpreting the music in these terms, it is that the reading primarily engages selected melodic passages, describing tonal circumvention on more-local levels; not all melodic segments or harmonies can be so reconciled, and an overarching interpretation of the work’s syntax is not suggested (Berry, 2004, pp. 237–238).

![Figure 2.12](Liszt, Bagatelle sans tonalité, S.216a (1885) mm.45-48 (Liszt, 1984))

![Figure 2.13](Liszt, Bagatelle sans tonalité, S.216a (1885) mm.139-14 (Liszt, 1984))
The octatonic scale is found throughout *Bagatelle sans tonalité* (see Cataldi (2014, pp. 30-35), Garcia (2006) and Berry’s (2004) full accounts) with the left hand from mm.139, (Fig. 2.13) showing Collections I and II. The stepwise descending minor triads here, however, will “always produce an octatonic set, of one kind or another” (Garcia, 2006, p. 7), which is reminiscent of the mechanism of Yavorsky’s “chain mode”. Garcia continues:

In general, the Bagatelle does not feature any systematic use of the octatonic scale. Analysis can identify octatonic constructions, but it never seems to be a concern of Liszt’s that the scale is actually perceived. Octatonic thinking is insufficient to provide us with either structural or perceptual insights into the piece. This is not to say that Liszt did not think of it—we would not be surprised to learn that he in fact was aware of octatonicism in some of the melodic cells, and even that when devising some of them, in the absence of other leading ideas, he consciously appealed to the octatonic scale. But it seems unlikely that his structural planning (conscious and pre-compositional or otherwise) was affected by octatonicism to any noticeable degree (Garcia, 2006, p. 7).

Allen Forte comes the closest in ascribing intent to Liszt’s proto-octatonic works (emphasis added):

The extent to which the composer was aware of all these relations is perhaps moot. However, this passage [from Liszt’s *Blume und Duft*], and the entire song, prefigure the modern music of his very last period, a period in which the evidence of conscious manipulation of such structural properties seems incontrovertible. Liszt was certainly aware of the unusual nature of his experimental music; consider the amusingly defiant gloss that appears in his handwriting at the end of the manuscript of the experimental work, *Ossa arida* (1879).

This comment from Liszt is then immediately quoted by Forte (emphasis added):

Professors and apostles of the conservatories most strongly disapprove of the dissonance of the of the continuous thirds-construction of the first twenty bars, which is not yet customary. Nevertheless, so has he written. Liszt (Forte, 1987, p. 216).

This unequivocally demonstrates that Liszt was certainly aware of the major and minor third progressions that he wrote, but this is something that should be impossible for the composer to not be aware of. That he was subsequently aware of the octatonic scale that these progressions can manifest is not yet determined.
Regardless of whether Liszt used the octatonic scale intentionally or not, it is in his use of harmonic devices – such as the filling out of, and the extensive use of, minor third progressions (similarly with major thirds for the whole-tone scale) and the desire for ambiguous tonality, as well as partitioning of tetrachords – that make his contributions relevant to this study.

Prince Edmond de Polignac (1834–1901)

A sickly aristocrat (a dilettante? (Taruskin, 2011, p. 179)) and an academic disappointment, is an unlikely source of early research into the Octatonic collection, but Polignac’s somewhat disjointed treatise on the subject A Study on the Sequences of Alternating Whole Steps and Half Steps (and on the Scale Known as Major-Minor) (Kahan, 2009, p. 157)\(^\text{15}\) is most likely the first serious academic account to discusses the octatonic collection. The treatise was written in 1879 with additions and sketches in subsequent years.

Polignac was the son of Prince Jules de Polignac who was once minister to King Charles X of France. The aristocratic family was fraught with political intrigue, including associations with Marie-Antoinette as well as involvements in plots to overthrow both Napoleon and the Bourbon monarchy. Polignac showed little ability in business and little interest in following in the aristocratic footsteps of his family, instead preferring the Arts and the life of letters. This marked Polignac as a somewhat pitied and eccentric member of the family. As a composer, Polignac was relatively un-prolific, with few pieces being published or even surviving, with most of what is available being held in private estates. Despite this, 

\(^{15}\)In the original French “Etude sur les successions alternantes de tons et demi-tons (Et sur la gamme dite majeure-mineure)”.
Polignac was still considered by Parisian composers to be “one of them”\textsuperscript{16} (Kahan, 2009, p. 29).

From a historical perspective Prince Edmond de Polignac is not all that relevant as there is no evidence that any other composers, educators, or otherwise took on board what Polignac wrote and discovered. As sad as it sounds, he was a dead end. But it would be remiss to discuss octatonicism without talking about someone who wrote the earliest academic text on the scale (a year before (Taruskin, 2011, p. 178) Rimsky-Korsakov wrote his harmony textbook which had exercises regarding minor third and major third progressions – under the title of “false progressions”) (Taruskin, 1996, pp. 302–303). Due to a lack of historical validation, there is also very limited literature on Polignac and much of his works and texts are in private collections. The exclusive exception being Sylvia Kahan’s extensive book “\textit{In Search of New Scales (Prince Edmond de Polignac, Octatonic Explorer)}” which is dedicated to the composer’s life, his discovery of the octatonic scale, identification of compositions of his that utilise the scale, and a translation and overview of his treatise on the scale. Because of this, the bibliography in relation to Polignac is accordingly also very limited. So, while the variety is low, the detail and especially historic context is relatively high.

How Polignac discovered the octatonic scale is unknown. Polignac was, however, familiar with Liszt’s music, and likely familiar with Liszt’s 1831 \textit{Des Bohémiens et de leur musique en Hongrie}\textsuperscript{17} which explores loosely octatonic-adjacent scales – including Greek scales beginning with a semitone step.\textsuperscript{18} Early exploration of octatonic-adjacent scales by Polignac was through various Greek scales, specifically with what he called the Greek Dorian mode.\textsuperscript{19} This can clearly be seen in his 1884 work, \textit{Fantasie-Tanz} (Kahan, 2009, pp. 44–45). Kahan hypothesises the possibility of Liszt’s study being influential to Polignac, in addition to a general interest in exoticism and mysticism being a part of the zeitgeist of the period.

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{16} Indeed, Polignac was mentioned by George Bizet alongside Gounod, Reyer and Camille Saint-Saëns as a composer to become acquainted with (Kahan, 2009, p. 29).
\item \textsuperscript{17} Published twenty years prior to Polignac’s first octatonic work.
\item \textsuperscript{18} These Greek scales were also being written about by contemporaries of Polignac’s. Such a book was Polignac’s personal library (Kahan, 2009, p. 42).
\item \textsuperscript{19} This mode is the equivalent to a modern Phrygian mode with a raised sixth degree. E.g., B C D E F# G# A (B) or E F G A B C# D (E). The bracketed notes indicated a return to the start of the scale.
\end{itemize}
\end{footnotesize}
(Kahan, 2009, pp. 39–40). Polignac would obviously not have been alone in associating a sound of mysticism and exoticism with octatonicism. Although again admittedly pure speculation on the part of Kahan, she does make a logical hypothesis that there was at least a good *chance* that Polignac was able to hear and study Rimsky-Korsakov’s *Sadko* (1867), which was one of Rimsky-Korsakov’s early works to prominently feature octatonicism. Kahan argues that Russian music, during the period when Polignac would have been impressionable, was prominently discussed and featured in Paris. Indeed, a performance of *Sadko* (1867)\(^{20}\) was conducted three times in three months by an acquaintance of Polignac’s, and the score was also one of the few Russian works available at the Paris Conservatoire’s library (Kahan, 2009, pp. 41–42). Consequently, it is not difficult to see the cultural milieu in the Paris of this time directly influencing Polignac’s octatonic theorising and composing.

Polignac, in a letter from April 1879, mentions that he has almost completed two religious works. The first was likely his first work incorporating the octatonic scale – although he describes it as Phrygian. The second of the two pieces, however, is more prominently octatonic in nature (Kahan, 2009, p. 50). Here the scale was again used to represent exoticism. Also dating from 1879 are two of Polignac’s notebooks. The first, “*Cahier de Gammes A. B. C.*” (“Notebook of Scales A, B, and C”) of which there is no surviving copy, is referenced in the second notebook “*A Study on Sequences of Alternating Whole Steps and Half Steps*”. It is in this second notebook that Polignac writes out his treatise on the octatonic scale along with accompanying musical examples and compositional sketches (Kahan, 2009, p. 50). It is in these notebooks, that Polignac first describes the three transposable versions of the octatonic scale as “Series A, B, and C” and dubs these “chromatico-diatonic scales”. May 1888 saw a public performance of Polignac’s octatonic “*La Danse du Serpent*” (1884) which was noted on the program as being ‘in a new scale’ (“*en une gamme nouvelle*”). A critic, tellingly, described the work being in a “*new scale where a whole step is invariably followed by a half-step*” (Kahan, 2009, p. 63). Even more significant was the publication of the scores of the work by a Parisian newspaper, with an explanatory note that briefly introduces to the world, or at least to the readers in Paris, the octatonic scale, possibly for the first time.

\(^{20}\) Which garnered a cool reception at best – notable because it shows the work was being discussed in Paris’s musical circles at the time.
Six years later, in 1894, and fifteen years after Polignac started his notebook, and much to the dismay of Polignac, Hungarian musicologist Alexandre de Bertha published in Paris a theoretical thesis titled *A System of New Scales* (Kahan, 2009, p. 82) where he describes three scales of alternating whole tones and semitones, which he confusingly called “the enharmonic scales” (Kahan, 2009). Bertha was for a time a student of Liszt and so it would not be far-fetched to consider that Liszt’s music may have influenced Bertha’s discovery. Bertha, however, states that he discovered the scale through “mathematical combinations” (Kahan, 2009, p. 86) and considered the scales to be middle ground between diatonic and chromatic scales.\(^{21}\) Comparably to Rimsky-Korsakov’s reservations about Wagnerian harmony, Bertha perceived “a halt in the development of harmonic progression” and “the abuse of the modern use of dissonance”, especially by Wagner and he considered the scales could “marvellously express the floating psychological state of our era” (Kahan, 2009, p. 83). While Bertha is not actually describing tonality, Rimsky-Korsakov’s accusations of Wagner’s “incoherent voice leading” and his want of a sea of harmony certainly are reminiscent of, respectively, the spirit behind “[Wagner’s] abuse of modern dissonance” and “floating psychological state”. Kahan describes Bertha’s treatise as being more scholarly and theoretical than that of Polignac’s, which works more as a composers’ handbook. Kahan also notes that Bertha considered Rimsky-Korsakov’s two versions of the scale (Kahan, 2009, p. 83).

Polignac’s works continued to be performed in intimate locations, including, on at least one occasion, in the presence of Claude Debussy, who he was introduced to in February 1894, (though it was not one of Polignac’s octatonic works) (Kahan, 2009, p. 91). Polignac was also introduced to Ravel at this time, who on numerous occasions attended Polignac’s music salon up until at least 1899. Two years later Ravel would write what Kahan considers his first octatonic work, *Jeux d’eau*.\(^{22}\) While again speculation, Kahan does bring up the possibility that Ravel found octatonicism through the works of Polignac at the salon, while also acknowledging Ravel’s contact with the Russian composers that were already familiar with the “Rimsky-Korsakov scale” (Kahan, 2009, p. 91). Kahan tries to show the historic validity of Polignac’s octatonic contributions, but while those contributions are

\(^{21}\) Polignac’s term “chromatico-diatonic scales” would suite this consideration nicely.

\(^{22}\) Although, as we shall see, it is possible that the 1895-piece *Un Grand Sommeil noir* likely has a stronger stake to that claim.
certainly relevant from a timeline perspective, from a practical perspective it is unlikely that Polignac’s contributions had any impact on other composers, no matter how “tantalising” or “tempting” such speculation might be, especially when simpler explanations exist (“in light of Occam’s razor” (Taruskin, 2011, p. 178)).

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Polignac wrote five octatonic works in addition to his treatise. Three of these are predominantly octatonic while the first two have octatonicism interacting with diatonicism (Kahan, 2009, p. 113). Additionally, there were many, mostly unimportant, sketches that Kahan only notes as reaffirming Polignac’s association of octatonicism with exotic or orientalist subjects.

Kahan provides a useful summary of the elements of Polignac’s compositions:

- tone centers do not function as “tonics” emanating from a tonal context;
- minor 3rds and tritones are emphasized as structural elements; the tritone often acts as an “axis” between two symmetrical iterations of all or part of the collection, or creates a polarity between one section and another;
- there is a high degree of interaction and correlation between diatonic passages and the octatonic collection, and common pitch-class contents of the two systems creates both stability and tension; major and minor triads and “dominant 7th” chords can be extracted from the collections; while these may refer to tonality, they do not “function” tonally, and they do not “resolve”;
- the form of the scale beginning with a semitone (0,1,3,4) is used more frequently to create harmonic structures, while the form of the scale beginning with a whole step (0,2,3,5) is used to create melodies, specifically diatonically referential tetrachords that evoke the first four pitch classes of a diatonic minor scale (Kahan, 2009, p. 114).

Early examples of Polignac’s compositions feature prominent common-tone associations with other scales (such as the Dorian mode) and also took advantage of minor third progressions (Kahan, 2009, p. 121). Polignac starkly uses octatonicism to portray “viperous
Pharisees” and avoids it when portraying a more spiritual atmosphere. Octatonicism was certainly a device that was being utilised for programmatic purposes. These were not pieces of absolute music; the octatonic scale is very much embedded within Orientalist, Semitic, evil, barbaric, magical and exotic subject matters – all things that are cast in a negative light in Polignac’s works. Kahan also notes this similarity with Rimsky-Korsakov’s and other Russian contemporaries’ utilisation of the scale (Kahan, 2009, p. 122). This was very much deliberate as Polignac considered this a naturalist approach to music by adapting the characteristics of music to the drama (Kahan, 2009, p. 123). Polignac’s interactions between the different modes (e.g. Dorian, Lydian), octatonic scales and diatonic music mostly involves swapping between them when the drama demands such characteristics; there is little overlap between them (Kahan, 2009, pp. 123–129).

Polignac does introduce key signatures to match the transpositions of the octatonic scale, starting with an A♭ and a C# in his 1886 composition, *La Danse du Serpent* (Fig. 2.14). Kahan remarks that while Polignac stated that in the work “[t]he desired systematic exclusion of every conventionally tonal harmonic device, throughout this piece, can be justified by a logical bias towards avoiding, when adapting a scene from the ancient Orient, our modern tonality, which took hold only after the fifteenth century of our era” and while Polignac also introduces the new key signatures “giving us … the fixed scale of sounds employed to the exclusion of all others (from the beginning, marked [scale] C up to the letter A, [pitch-class] G being used here as an arbitrary point of departure or an imaginary tonic”, that the work does indeed lean heavily into pitch-centricity of G and D with the minor tetrachord – diatonically related – also playing an important role (Kahan, 2009, p. 134). As such, while Polignac may have intended for the work to be “sans tonalité” he didn’t accomplish that goal.

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23 Kahan makes a poignant note of such anti-Semitic depictions and points to Klára Móricz’s *Sensuous Pagans and Righteous Jews: Changing Concepts of Jewish Identity in Ernest Bloch’s Jézabel and Schelomo* which discusses the topic (Móricz, 2001).

24 A year after Liszt’s aforementioned *Bagatelle*.

25 This is also the work that included the first publication and description of octatonicism mentioned above.
In *La Danse du Serpent* Polignac also splits an octatonic scale into two non-symmetrical tetrachords (Fig. 2.15) with D-E-F-G to with the opening phrase and G-A♭-B♭-B♮ for the second. Both the tetrachords are from the same scale but are not split at the tritone as Rimsky-Korsakov did, but are interconnected, with Polignac choosing both the T-S-T and the S-T-S tetrachord with the latter beginning on the last note of the former (Kahan, 2009, p. 135). This is a different approach from any octatonicism we have seen thus far and is quite distinct from the more logical partitions used by Liszt, Rimsky-Korsakov and others. Of course, this partition does also allow for an interval of a 4th (or 5th) between the two phrases as opposed to a tritone.
Polignac’s octatonic treatise was not an organised document. Rather, it was a jumble – as when Polignac ran out of space, he would continue wherever space was to be found. Half baked ideas often find addenda many pages later. It was barely legible in places; the notation was sloppy, and it was clear that he was conceiving of the ideas as he was writing. He used nineteenth-century diatonic terminology to explain octatonicism. Kahan made the decision to “socialize” the treatise to a certain extent including fixing sloppy notation (Kahan, 2009, pp. 146–147). The first part of the treatise deals with the characteristics of the octatonic scales. He names the three transposable versions of the S-T-S scale A, B, and C (Fig. 2.16). After this introduction to the scales, the treatise demonstrates all the major third triads that can be found within the scale, names the collection “chromatico-diatonic scales”, and notes that the collection can be divided into two tetrachords at the tritone while acknowledging that the scale can start with a semitone step or a whole tone step. Polignac also uses the French terms “dominante” to identify and denote the starting points of the diatonically referential tetrachords on the S-T-S scale (scale degrees 2, 4, 6, and 8) which are a perfect fifth above the relevant “tonique” for scale degrees 1, 3, 5 and 7 which make up the rest of the scale and where both major and minor triads can be built (Kahan, 2009, pp. 154–169). Polignac also later notes that melodic patterns can be transposed by minor thirds, tritones, or major sixths (on these “toniques” or nodal points) and still retain the exact intervallic pattern (Kahan, 2009, p. 176). Two pages later Polignac creates a table to demonstrate that if a melodic pattern is transposed to other than those nodal points, then there is a pattern as to what happens to the intervals: major seconds contract to minor seconds and minor seconds expand to major seconds etc (Fig. 2.17). Polignac then discloses his invented key signatures to correspond with the three scales (Fig. 2.18) and starts listing the intervallic content of the scale.

26 “Part” is probably too formal for the almost stream of consciousness style to the treatise.

27 Taruskin calls these “nodal points” (Taruskin, 1996, p. 276)

28 As close as possible as accidentals will be necessary in every octatonic scale e.g., both an F and an F#.
One can make other tables, from a major 2nd or whole step, major 3rd etc. (see the above text), from whence derive the following examples:

Figured basses and key signatures

Each minor chord will be indicated by a 5, to distinguish it from a major chord 5.

Actually, in scale A, taking (the pitch) C as the point of departure, we encounter neither F, nor B, nor D. E and G can be flatted in the course of a piece, and the C and the A can be sharpened.*

The same remarks are applicable to Scale B, if we take F as a point of departure, and in Scale C if we take G.

*If a piece is conceived in minor it will be good to note the key by a flat or a natural depending on the case. Thus, in scale A, E for C minor, A for F, G for E minor. It would be the same thing in the cases of pieces in which major chords frequently appear—for example, writing C# for the A major chord, etc.

Polignac introduces the concept of new key signatures, but he uses them rarely and erratically. As in previous pages, Polignac mixes diatonic and octavonic contexts. Here, he creates special octavonic key signatures for the three collections, and yet thinks to add additional accidentals to identify pieces as being “major” or “minor.”
After this, Polignac begins more demonstrations of the scale, including methods of ‘modulating’ between scales as well as experiments with melodic and contrapuntal figures that start moving more into actual compositional examples, some with programmatic elements applied (Kahan, 2009, pp. 148–149). The modulations that Polignac conceives are simply melody-based common tones between scales A, B, and C (Fig. 2.19). Polignac also includes the tritone common tone which, taken as a whole, produces the Spanish Phrygian mode. In practice, Polignac uses these common tone modulations to create a subject in one scale with the traditionally perfect-fourth transposed answer in a different octatonic scale. This allows Polignac to avoid the non-perfect intervallic patterns when transposing to other than on the nodal points (Kahan, 2009, pp. 202–203).

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**FIGURE 2.19**

Polignac Treatise tr-p 18 (Kahan, 2009, p. 177)
Thinking still in terms analogous to diatonic music, Polignac attempts to find cadential moments or ‘resting points’ within the Octatonic Scale. A diatonic perfect cadence is impossible within an octatonic pitch set without simply forcing the cadence with non-pitch-set tones as a “terminating convenience” as Pieter van den Toorn puts it (van den Toorn, 1983, pp. 331–332). Polignac’s approach, however, is to borrow chords from other octatonic sets, not unlike a Neapolitan chord or a bVI in diatonic music. In this “resting point” progression, Polignac has a major third progression using major triads either side of the implied tonal centre (Fig. 2.20). Polignac’s intent here is to allude to a diatonic I-IV-I-V-I cadential structure; he considered a C major triad to an Ab triad to create the same “feeling of repose” as the diatonic C to F perfect cadence would and also that a C major triad to E major triad would create a “feeling of interrogative superimposition” of a diatonic C to G imperfect cadence would (Kahan, 2009, pp. 186–188). Kahan considered this to be the “most revelatory in the entire treatise” and theorises that Polignac came to this conclusion from his teacher Henri Reber:

Reber writes about “the relative tonal influence of consonant chords,” explaining that “when several different chords follow each other, the result is a relationship of sounds that determine more or less promptly a ‘tonal sensation’ which, however, is only complete when the ear is able to recognize the ‘tonic’ chord that this succession of chords confirms or prepares” (Kahan, 2009, p. 188).

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29 Taruskin notes that there are ‘fictitious’ ways of implying a tonal centre such as “beginning and ending, rhythmic or metric placement, statistical predominance, dynamics etc” (Taruskin, 1996, p. 274).

30 Which might be comparable to Taruskin’s ‘fictitious’ implication of a tonal centre through “statistical predominance” in the preceding footnote.
Of course, one could easily borrow a perfect cadence from the other scales as well; a diatonic I-IV-I-VI\textsuperscript{7}-I cadence can be procured from the same scales Polignac chose: (using C as the tonic) I from scale “A” (C-E-G), IV from scale “B” (F-A-C) and VI\textsuperscript{7} from scale “C” (G-B-D-F). If the approach is to borrow from other octatonic scales, why borrow these major-third-related chords when the proper diatonic chords they are analogous to are available? Possibly this is because using such strongly diatonic cadences would sound decidedly not octatonic but so relying on these analogous chords with similar feelings does not take the music back into common practice harmony. Similarly, Polignac would, later in the treatise, mention that dominant 7th chords do not sound “Hebraic” or “Oriental” in character because they are too firmly grounded in Western tonality (Kahan, 2009, p.210). These major third progressions are also reminiscent of how the whole-tone collection was conceived (see the Liszt subsection above). Such progressions are also decidedly not octatonic, however, the octatonic and whole-tone scale do share similarities, particularly with how they interact with diatonicism\textsuperscript{31} (Bass, 1994, p. 157). Later in the treatise Polignac also considers alternative cadences within one of the octatonic scales that still bares the perfect fifth intervallic movement in the bass of a perfect cadence. To accomplish this, he essentially

\textsuperscript{31} Debussy would also fluctuate between the two scales in his later works (Forte, 1991, pp. 136–137)
finds the nearest neighbouring tones to the major triad (that is to be the tonal centre) to be used for the analogy to a dominant V chord. With a C major triad as the tonal centre, Polignac chooses G-Db-D#-A as the “dominant” chord maintaining the perfect fifth G-C movement in the bass. This chord should be recognised as having the same intervallic content as a French augmented sixth chord\textsuperscript{32} (Fig. 2.21a) and while it does not have the upward leading semitone to the tonal centre, it does have the downward leading semitone and also leans heavily on other leading tones. Polignac notes that the cadence is “easier with appoggiatura” which Kahan interprets as being that the tonal centre stands out better “when approached by an upper neighbor tied over the barline” (Kahan, 2009, p. 227). This actually makes the cadences more in line with a diatonic ‘weak’ cadence, but it does emphasise the leading tones which helps with establishing the tonal centre. As mentioned in Chapter One, the French augmented sixth chord is comparable to the fully diminished seventh in that the octatonic pitch set is divided equally into two of them and is also symmetrically invertible. As such, the same cadential French augmented sixth chord that Polignac is using as a dominant is also able to ‘resolve’ in the same way a tritone apart when inverted (Fig. 2.21b).

\textbf{FIGURE 2.21}
Polignac Treatise tr-p 52 (Kahan, 2009, pp. 226–227)

\textsuperscript{32} The French augmented sixth is already, essentially, a dominant seventh chord with a flattened fifth but this wouldn’t “cadence” within the same octatonic scale as Polignac’s cadence does. If this dominant seventh chord with a flattened fifth would be considered analogous to a V-I cadence, Polignac’s cadence is more directly analogous to a V-III interrupted cadence.
There is a moderate interlude where he starts to discuss the major-minor mode.\(^{33}\) The rest of the first half of the treatise is concerned with compositional devices, such as interval sequences, progressions, and analogies to conventional cadences (including describing some progressions as “retaining a diatonic feeling” (Kahan, 2009, p. 173)). For the last half of the treatise, Polignac seems to get distracted with more personal projects such as the use of octatonicism with settings to religious texts. Much of these experiments with the characteristics of the octatonic scale are covered generally (without specific reference to Polignac) in Chapter One above but Polignac’s experiments were relatively thorough with regards to exposing available chords and intervals.

Kahan notes that, like many pedagogical works (of which this may have intended to be at some point), many of the examples are in Scale A which starts on pitch-class C. As well Polignac’s focus was more on constructions based on minor thirds rather than with melodies and so many of the examples are in the Harmonic T-S-T version of the scale, and only “alludes in passing to the “diatonic qualities” that resulting [sic] from the utilization of the tone/semitone (0,2,3,5) form of the collection” (Kahan, 2009, p. 149).

Polignac’s approach to composing in the octatonic scale are very much voice leading\(^{34}\) and harmonically driven as opposed to being driven lyrically or melodically. With Polignac’s focus on liturgical works and his studies of Gregorian chant, the music sounds post-Fuxian and contrapuntal. He also never moves too far from conventional tonality, repeatedly attempting to find characteristics of octatonicism that were analogous to diatonic music, whether that was in cadences or in progressions. Indeed, his own compositions were never purely octatonic, and he consistently kept octatonic music within the realm of Orientalist, Semitic, evil, barbaric, magical and exotic. This, naturally, meant that when the drama was not exotic he resorted back to simple diatonicism. His revelations include his attempts at modulating between octatonic scales; his experiments with cadences, especially with regards to borrowing from other octatonic scales; and his invented key signatures. In

\(^{33}\) Which is not within the purview of paper and is thusly not considered.

\(^{34}\) Philip Ewell considers “voice leading” to be a misnomer for purely octatonic works arguing that it represents diatonic concepts that no longer apply. Within purely octatonic writing, Ewell suggests “voice clinging:” instead (P. Ewell, 2002, p. 221).
comparison to Rimsky-Korsakov Polignac’s experiments were much more in depth. He was a thinker, a theorist, and a composer, who in many ways was well ahead of his time.
Russian music was introduced to Paris in the 1840s (Poleshook, 2010, p.22) and was promoted by Liszt in the 1870s. In 1879, six years after he entered the Paris Conservatory, Debussy was first introduced to Russian music by Nadezhda von Meek, a patroness of Pyotr Ilyich Tchaikovsky (Poleshook, 2010, p. 20). Hector Berlioz also visited Russia and performed Russian music in Paris subsequent to his 1847 visit (Poleshook, 2010, pp. 23–24).

From 1873 the music of The Five was becoming more accessible to Parisian composers and audiences, and by 1893 there were 177 Russian scores available at the Paris Conservatory (the first set of scores that were made available in 1874 also included octatonic works) (Poleshook, 2010, p. 26–27). After the Franco-Prussian War in 1892, both Russia and France were seeking national identities for their art which had been under the stylistic influence of foreign countries, especially Germany. This mutual goal to nationalise their music and shake off German influence brought the two countries closer together (Poleshook, 2010, p. 25) and it was the music of The Five that was seen as novel and bringing freshness and new sonorities to France. Between 1878 and 1884, Rimsky-Korsakov’s early octatonic symphonic poem, Sadko, was the only orchestral composition of The Five played in Paris (Poleshook, 2010, p. 28). Debussy was known to be curious about new sonorities, and such a predilection connected with possible Russian influences which were plentiful in the late 1870s and early
1880s (Poleshook, 2010, p. 30). Debussy may even have read Cesar Cui’s (from The Five) essay in a Parisian music journal on the whole-tone scale and the third-related harmonies in Rimsky-Korsakov’s works (Baur, 1999, p. 537). These potential influences came at crucial formative points in Debussy’s musical life as it was around this time that he was making trips to Russia as well as deciding to pursue a career in composition. His interest in new sonorities would have been somewhat satiated by the exotic sounds coming from Russia at the time (Poleshook, 2010, p. 31). Indeed, during these trips Debussy did become acquainted with the music of The Five, including the works of Rimsky-Korsakov. In 1889, the Exposition Universelle performed several Russian works that were conducted by Rimsky-Korsakov. Poleshook states that “Russian music was perceived as picturesque, colorful, inventive, barbaric, strange, rich, exotic and at the same time modern” (Poleshook, 2010, pp. 37–38). While it is “virtually certain” that Debussy was aware of octatonicism through Rimsky-Korsakov’s works, he didn’t emulate the methods by which Rimsky-Korsakov exploited octatonicism, but instead was probably more influenced by Mussorgsky’s music and accompanying theorising (Forte, 1991, p. 158).

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Poleshook states that Debussy’s octatonic output rarely employed the octatonic scale in melodic form, scalar or otherwise (ordered or unordered), in the manner of Rimsky-Korsakov (Poleshook, 2010, p.71). Instead, Debussy’s approach was closer to the approach Mussorgsky took in his bell chords, by having pairs of distinct chords played successively. Common pairings included two major triads a minor third apart, and dominant sevenths a tritone apart (variations of which can remove or add pitches to the chord) (Poleshook, 2010, p. 72). Forte, however, does not entirely share this observation (emphasis added):

The distinction between ordered and unordered subsets of octatonic 8- 28 enables an important interpretation to be made. If one of the ‘ordered’ set classes appears in a work it seems likely that Debussy had in mind the octatonic scale as a fixed referential collection. If one of the unordered set classes appears, we can assume

35 Polignac was introduced to Debussy in 1894, well after Debussy familiarised himself with the works of Rimsky-Korsakov and as Taruskin said, it is a far more simple explanation that Debussy was influenced by Rimsky-Korsakov through his study of those scores than by a somewhat passing acquaintance with Polignac (Taruskin, 2011, p. 178).
another, perhaps contextual and basically more harmonic, origin. *Remarkably, both modes of occurrence are amply represented in the composer’s oeuvre* (Forte, 1991, p. 127).

However:

…it is important to recognize Debussy’s procedure of grouping two chords together, often as a repeated succession, to form a composite harmony. This is the form in which short-term octatonic passages often appear in his early music and *is a consistent stylistic feature of his entire oeuvre* (Forte, 1991, p. 128).

This interpretation by Forte is in accordance with the reasoning of Taruskin when he did not characterise Mussorgsky’s Coronation Bells as octatonic. The Coronation Bells passage does not, by itself, demonstrate that the composer had the octatonic pitch set in mind. The scalar, or ordered version of the octatonic set, however, does tend to demonstrate octatonic thought behind the writing (except possibly, where other harmonic devices can be shown to be the driving force as with Liszt’s minor third progressions with passing notes). Forte calls these pairings “combinations” and considers “triads that offend norms of traditional progression” (such as the two major triads a minor third apart) to be characteristic of how Debussy uses them (Forte, 1991, p. 128). Forte also makes an interesting observation that the hexachord frequently used by Debussy is the one Hexachord that is not inversionally symmetrical (contrasting with how symmetry is one of the defining characteristics of the octatonic scale) which demonstrates that the symmetry of the pitch set is not something that Debussy extensively exploited. Both Rimsky-Korsakov’s use and Liszt’s proto-octatonic use of the octatonic scale yielded exploits that took advantage of the symmetry. Interesting as well, and especially distinct from Liszt, Debussy seemed to avoid the diminished seventh chord (Forte, 1991, p. 128).

For Forte, Debussy’s implementation of the octatonic scale is more fundamental than just a mode the composer wrote in:

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36 Forte makes sure to say “combinations that result in octatonic formations” rather than octatonic combinations. He clearly wants to actively avoid ascribing octatonicism when it cannot be properly demonstrated.

37 Much of Forte’s analysis of octatonicism within the works of Debussy revolves around set analysis. This identifies sections of the music that conforms to the octatonic set (or subsets of the octatonic set) but this doesn’t
“…the octatonic is more than an accessory feature in Debussy’s music. It has fundamental links with the other harmonic spheres which are so characteristic of his harmonic genius and may, indeed, be regarded as a core referential pitch collection, in specific terms of the genera interconnections just discussed” (Forte, 1991, p. 133).

Forte, through his Genera matrix, found in the octatonic set that “harmonies belong primarily to harmonic spheres that are not usually regarded as octatonic” and states that “these nine trichords and tetrachords may serve to link surface octatonic features with remote harmonic areas – and that is exactly what occurs in many of Debussy’s works” (Forte, 1991, pp. 132–133).

Like the Russian composers before him and Polignac also, Debussy tended to employ the octatonic scale in certain programmatic or evocative settings. For Rimsky-Korsakov and Polignac this was decidedly for exotic dramatisations, Debussy, however, had a “general propensity” to reserve the octatonic set for “moving or unexpected textual-poetic expressions” (Forte, 1991, p. 137). Also, like composers before him, Debussy did not write strictly octatonic works (or even predominantly octatonic works). Octatonicism was still a tool to use within a predominantly diatonic framework, and even that framework weakened and took on more of these tools later in Debussy’s life. Suben mentions that Debussy did not “free his music from pitch hierarchy … even when the pitches adhere strongly to octatonic structure” (Suben, 1980). In L’ombre des arbres (1885), from Debussy’s Ariettes oubliées song cycle Forte identifies the full octatonic collection (with the exception of the foreign E♭ as a chromatic passing note in measure two) in the first six measures. The octatonic passage ends with the D# in measure six. Forte (1991, p. 138) identifies the functionality of the chord in measure one as a I (or a I+6) and the chord that we eventually get to in measure six as V⁹ (though it does not resolve) demonstrating Debussy’s incorporation of the diatonic framework within which the octatonic sits and still somewhat functions:

The extraordinarily beautiful and complex song ‘L’ombre des arbres’ demonstrates Debussy’s developing predilection for certain octatonic sonorities, and, even more important from the musical standpoint, exhibits the tension between octatonic and

distinguish between intentional octatonic music, and separate harmonic devices that merely result in or manifest an octatonic set.
diatonic-tonal domains that will become a major harmonic-stylistic feature of his later music (Forte, 1991, p. 138).

Debussy explores a similar diatonic/octatonic relationship in *La mer est plus belle que les cathedrals* (from *3 Mélodies de Verlaine*) (1891) but in this instance, Debussy employs two separate octatonic sections while still incorporating a functional diatonic structure. Debussy also uses a perfect cadence from one octatonic set into another (Fig. 3.1). Measure one from Forte’s reduction is allowed to complete its perfect cadence due to the tonic residing in a different octatonic scale. This is something Scriabin also does, as will be shown below, and was touched on in Part 1 above.

![Figure 3.1](image)

**FIGURE 3.1**

Forte’s reductions of mm.3-11 of Debussy’s *La mer est plus belle que les cathedrals* (3 Mélodies de Verlaine) (1891) (Forte, 1991, p. 140)

In *Dans le Jardin* (1903) (Fig. 3.2) we see Debussy taking advantage of the already established octatonic device of cycling through minor thirds (mm.42-49 with the only exception of the E♮ in the voice of m 45). As this can only be done three times, it produces a fully diminished seventh chord in the bass notes. Even so, Debussy still maintains the diatonic framework; this fully diminished seventh in the bass also appropriately tonicizes the home key of the piece, E Major, and eventually leads to a perfect cadence into it (Suben, 1980, p. 16). Suben, did not consider that Debussy used octatonicism within a diatonic framework, but rather that the functional tonality ornamented the octatonicism (1980, p. 19).

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38 Without the full octatonic pitch set, only subsets.

39 From a more traditional analytical perspective, rather than Forte’s or Parks’s (Parks, 1980) set theory analysis, Steven Baur states that, until *La Mer* in 1905, every work in Forte’s article (Forte, 1991) can be explained by this triadic octatonicism (Baur, 1999, p. 536).
The octatonic segment of *L’ombre des arbres* (Fig. 3.3) from *Ariettes Oubliées* (1885) does not conform to the simple nodal progressions, or strict tritone partitioned tetrachords, as other composers had already done, but is still contained by diatonicism. There is, however, a tritone-laden bass line (C#-G-C#-G before eventually reaching the ‘dominant’ G#). Additionally, the pitch content of measures one and two are a tritone apart, with B♮ and an E# (F) being the common tones. These two axial-point notes are featured predominantly in the vocal line. Such expressive tritone usage was something Forte considers to be a fondness of the composer (Forte, 1991, p. 139).
Importantly, Forte does ask the question whether Debussy was conscious about the octatonic elements of the passage but does not go so far as to explicitly answer the question. Forte does, however, note that the vocal line, which is fairly ordered, does contain all pitches of the same octatonic set as the piano line, with the exception of the ‘tonic pitch C#, which is reserved for its key-defining function in the piano part’. While skirting the question, Forte also notes that Debussy created the octatonic passages with familiar materials, “notably triads and seventh chords, especially the dominant seventh and its inversion” (Forte, 1991, p. 139).

Forte subsequently makes arguments about Debussy’s incorporation of small subsets of whole-tone, octatonic (as well as octatonic-adjacent sets (Forte, 1991, p. 147)), and diatonic collections within small passages of music, citing the opening of *Prelude a l’après-

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40 It is worth noting the date of this piece, 1880, coincides with Debussy’s Russian travels, increased availability of Russian scores, and his desire to find new sonorities.
midi d’un faune as well as other pieces, and observes that Debussy’s incorporation of these three “harmonic domains are highly charged with dramatic significance” (Forte, 1991, p. 141). Such relationships, the modulations between them and how they can exist together forms much of Parks’ book that considers diatonic, whole-tone and octatonic sets Debussy’s music from a highly technical perspective (Parks, 1989). Forte also notes that the same passage from Prelude a l’après-midi d’un faune, stripped of extraneous passing notes, conforms to the full octatonic collection (with the exception of an A♯), which might be a simpler explanation (Forte, 1991, pp. 140-141). These passages, which sometimes become an “essentially atonal structure”, also offer a connection with other octatonic experimentalist composers, such as Stravinsky and Bartók (Forte, 1991, p. 147). While these observations might be true from a set-theory perspective, they do not imply any conscious effort on the part of Debussy. Indeed, by Forte’s own admission, Debussy was not a “systematic” composer but relied on “very finely tuned harmonic sensitivity” (Forte, 1991, p. 159) which discredits, or at least undermines such techniques being intentional on behalf of the composer. However, even if Debussy did not intend for these micro incorporations of octatonic, diatonic and whole-tone harmonies it presents as a compositional device all the same, much like how Rimsky-Korsakov saw the octatonic scale within the minor-third progressions of Liszt.

Another observation of Forte’s is how Debussy will cycle through different octatonic sets one after another (Fig. 3.4a and 3.4b from Pelléas et Mélisande (1898)) which Forte believed to be a “unique hallmark” of Debussy’s usage of octatonicism. Only in the very late works of Debussy do we start to see the octatonic scale being used without any diatonic support (Forte, 1991, p. 151).

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41 The octatonic nature of the opening of Prelude a l’apris-midi d’un faun was also noted, by Suben (Suben, 1980, pp. 3–6). Forte considered the third note of his Debussy text (Forte, 1991, p. 125) that Richard Parks’s Pitch Organization in Debussy: Unordered Sets in “Brouillards” (Parks, 1980) to be the first writing associating Debussy with octatonicism. The article was published in Spring 1980 (which would indicate March 1980 the earliest). Suben’s doctoral dissertation, written 1979, however, was from the 1st of February 1980.

42 Forte describes how a combination of octatonic, and octatonic by complementation (6-28 and 8-28) combine to form 7-32 which creates an “atonal structure” (Forte, 1991, p. 147).

43 For an example of octatonic and whole-tone interactions in Debussy’s work, see the George Crumb section in Chapter Five below.
Debussy was certainly aware of the octatonic scale, most likely from Rimsky-Korsakov, but seemed more interested in how Mussorgsky’s music incorporated the scale, particularly with stark pairings of chords that, together, make up the octatonic set, or a subset of it. While Debussy did still exploit the natural symmetrical points the scale after the fashion of Rimsky-Korsakov, Liszt and Polignac (triadic octatonicism), he wasn’t as drawn to ordering the scale in a systematic way as these figures were. He, like The Five, used the tritone for expressive purposes, and exploited the tension between the quasi-diatonic sounds.
of the octatonic set and diatonicism, often in response to moving on unexpected drama in the
text or programme. Debussy interlinked other harmonic generators, such as the whole-tone
scale, with the octatonic scale. Even though the later music is more experimental, in his
earlier music Debussy’s octatonic passages grow from within within diatonic structures and
cadences.

Maurice Ravel (1875–1937)

In her book on Polignac and his octatonic treatise, Kahan considered Jeux d’eau⁴⁴ (1901) to
be Ravel’s first octatonic work, more than two years after first meeting Polignac (though only
speculation on behalf of Kahan links these two occurrences). However, instances of
octatonicism, including “likely” intentional octatonicism began to show up as early as 1893
and especially 1895, before Ravel met Polignac. From 1897 Ravel was already well read and
interested in the music of The Five including Rimsky-Korsakov (Poleshook, 2010) and had
plenty of opportunities to study Russian octatonic works through attending the Paris
Conservatory. Steven Baur credits Rimsky-Korsakov and Liszt as inspirations for Ravel’s
octatonic works, while Bartok assumes a Mussorgskian influence (Antokoletz, 2011, p. 121).
Debussy, while exhibiting the octatonic set in his work from the 1880s, first consciously used
the octatonic scale in 1885, several years before Ravel’s experiments. However, even though
Ravel was criticised early in his career for imitating Debussy, it was unlikely that Ravel,
 twelve and a half years his junior, ‘borrowed’ the octatonic scale from him; rather they likely
shared the same source materials and external stimuli (Baur, 1999, pp. 534–535).

While Russian interest was prevalent during Debussy’s years in the Paris
Conservatory, by 1889, when Ravel entered, it had increased manifoldly (for example, at this
date there were 127 Russian scores in the library). His closest acquaintance at this time was
Spanish pianist Ricardo Viñes who played and read through the compositions of four of The
Five alongside Ravel. Indeed, Viñes premiered some of these works (and later some of
Debussy’s) (Poleshook, 2010, pp. 39–40). By 1898, Ravel was again being accused of

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⁴⁴ Where Jeux d’eau does become relevant again is that it was the first documented contact between Stravinsky
and one of Ravel’s octatonic works.
imitating another composer, this time Rimsky-Korsakov (Baur, 1999, p. 541). While Ravel’s first octatonic piece may have been *Jeux d’eau*, he was employing third-related progressions which manifested in the whole-tone and octatonic sets before that with Baur noting occurrences in *Sérénade grotesque* (1893) and *Un Grand Sommeil noir* (1895) (Baur, 1999, pp. 451–543). However, though difficult to determine, Baur does believe it likely that *Un Grand Sommeil noir* was intentionally octatonic. The piece (Fig. 3.5) has triadic octatonicism and tritone partitions but the strongest argument for this being intentional by Ravel is the strictness of the mediant progressions and the voice leading (Baur, 1999, p. 544).

![Figure 3.5](image)

**FIGURE 3.5**
Ravel, *Un Grand Sommeil noir* (1895), mm. 28-38 with notes from Baur (Baur, 1999, p. 545)

In 1900 Ravel and Viñes, engaged with other artists and musicians, and increased their study and interest in Russian music; they sight read scores and even used Russian music as a password of sorts (Baur, 1999, 546). During this period Ravel wrote the cantata *Alyssa* for the Prix de Rome. With similar subject matter to Rimsky-Korsakov’s *Sadko*, Ravel inserts
a stark, unharmonized ordered octatonic scale (Fig. 3.6a). During the cantata, Ravel employs the octatonic scale at times where the drama is mystical, much like how Rimsky-Korsakov did (who employed a similar, but much less stark, pure octatonic scale) (Fig. 3.6b). In Shéhérazade, Ravel uses minor tetrachords, but unlike examples shown so far that partition the scale at the tritone with two distinct minor tetrachords, Ravel overlaps the tetrachord, using all four minor tetrachords of the octatonic scale at each of the nodal points (Baur, 1999, 547).

According to Baur (1999, p. 556), the novel advances that Ravel made with octatonicism, are those which have been previously accorded to Stravinsky, namely, vertical superimpositions from octatonic components (Taruskin, 1985, pp. 140-141). In his Introduction et Allegro the woodwind line is comprised of the descending minor tetrachord from Eb above the high strings line which is comprised of the descending minor tetrachord
from A, a tritone away (Ex. 3.7). The passage is repeated once in mm.194–196 but at 197–199 the same phrase is transposed by a minor third. This demonstrates not only the use of minor tetrachords at each nodal point but also, and more saliently to Baur, the superimposition of one octatonic tetrachord, partitioned at the tritone, vertically over another. This vertical superimposition of tetrachords a tritone apart can be compared to the vertical superimposition of major triads a tritone apart that form Stravinsky’s *Petrushka* chord (van den Toorn, 1983, p. 37) which will be discussed more in Chapter Four.

Taruskin (1996, pp. 477–480) when discussing Stravinsky’s *The Nightingale* (1914) credits to Stravinsky an invention that Baur calls “manipulation of octatonically complementary diminished seventh chords” (1999, p. 557) which produces dominant ninth chords (Fig. 3.8). This too, Baur argues, was something Ravel experimented with before Stravinsky (see again his *Introduction et Allegro*). Using the same melodic line in the high strings of Figure 3.7 (although this time it is F#-F♭-E-E♭) at mm.201, it is repeated and transposed downward by a minor third on the downbeat of the bar, four times, forming an F#-E♭-C-A diminished seventh chord. This is superimposed over the complimentary G-B♭-C♯-E

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45 Which prominently features Rimsky-Korsakov’s ladder-of-thirds or “chain mode”.
diminished seventh chord and, as with the Stravinsky example from Taruskin, forms
dominant ninth chords on each downbeat. Unlike Stravinsky, however, Ravel does not adjust
the enharmonic spellings of the chords to reflect the
different chord roots (such as the lower bar in Figure
3.8). The lack of enharmonic spelling means that it is
difficult to determine whether Ravel intended for this
interaction to result in dominant ninth chords or whether
it was just a superimposition. So whether Taruskin or
Baur are correct in their assertions is still questionable.
Regardless, incidental or intentional, the device can still
be found in Ravel.

It is worth noting that Baur does not assume Stravinsky learnt of these techniques
from Ravel (though, naturally, he does not rule it out either) as there is no evidence to suggest
Stravinsky was familiar with *Introduction et Allegro*. Instead Baur suggests it likely that both
composers arrived upon the devices by themselves (1999, p. 561), expanding on the work of
Rimsky-Korsakov as Taruskin explains (Taruskin, 1985, p. 141). Not that Stravinsky’s
eavesdropped on Ravel’s recipe, but rather “Ravel was in on the ‘secret’” (Baur, 2000).

In *Jeux d’eau* both Baur and Taruskin acknowledge the *Petrushka*-like
superimposed tritone related triads on C and F# in the cadenza (m. 72) and that it serves a
diatonic purpose with the F# root of the lower triad. The implementation of this by Ravel
(Fig. 3.9a) which does not properly vertically superimpose the chords (instead oscillating
between them) is strikingly similar to the implementation of a comparable superimposition in
*Petrushka*, after the first introduction of the *Petrushka* chord in the piano (Fig. 3.9b). While
Taruskin believes this to be a result of a French augmented sixth and a prolongation of the
pre-dominant super-tonic (1996, p. 771), Baur considered it to be another example where,
this time, the superimposed tritone related triads are octatonically related to local passages
(1999, p. 564). While Stravinsky’s true *Petrushka* chord was within a more octatonically
governed movement, it served no diatonic function and existed as a stable tritone (though the
implementation is more sophisticated than how Rimsky-Korsakov used stable tritones) (Baur,
1999, pp. 564–565). Much of *Jeux d’eau* is contained within simple diatonic functions, but
on top of these prolonged functions are embellishments in different pitch sets, including the octatonic (Baur, 1999, p. 565). In the first movement of *Rapsodie espagnole*, Ravel superimposed harmonies on three octatonic nodes, and used timbre rhythm and register to separate each of them throughout the movement (Baur, 1999, p. 576).

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**Figure 3.9a**
Ravel, *Jeux d’eau* (1901), m. 72 (Ravel, 1902)

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**Figure 3.9b**
Stravinsky, *Petrushka* (1911), three measures before rehearsal mark 50 (Stravinsky, 1912)

A different approach to experimenting with the relationship of diatonic and octatonic sets is found in Ravel’s 1922 *Sonata for Violin and Cello*. Here Elliot Antokoletz shows how the opening violin part is ambiguous in its pitch set with either octatonic or diatonic as viable options due to the notes that are not present (Antokoletz, 2011, p. 219). On its own the line (Fig. 3.10a) implies an A minor tonality until it cadences in D Major at m 17. The notes of the violin line make a pentatonic ostinato with A-[ ]-C-C#-[ ]-E-[ ]-G. The two pitch sets being implied here are the bimodal A-dorian/mixolydian (A-[B]-C-C#-[D]-E-F#-G)
and the octatonic (A-[B♭]-C-C#-D#-E-F#-G). Depending on the modality of the accompanying counterpoint, either sets could be prioritised (Antokoletz, 2011, p. 219). In the opening phrase the A-minor bimodality is prioritised, but in mm.106–107 (Fig. 3.10b) the octatonic is prioritised.

**FIGURE 3.10a**  

**FIGURE 3.10b**  
Interestingly, Taruskin notes that Rimsky-Korsakov had written down sketches of superimposed tritone related triads in a notebook that were subsequently quoted by Rimsky-Korsakov’s son-in-law, Maximilian Steinberg (1883-1946), in his Prélude symphonique (footnoted that they were Rimsky-Korsakov’s sketches) (Taruskin, 1996, pp. 402–406). While Baur points out the fact that prior to this Rimsky-Korsakov and Stravinsky attended a concert of Ravel’s Jeux d’eau, a work that prominently features this device (Baur, 1999, p. 567), Taruskin also determined that Stravinsky attended a memorial concert for Rimsky-Korsakov where Steinberg’s Prélude symphonique (1908) was performed. Taruskin is speculating that Steinberg’s musical quotation from Rimsky-Korsakov’s sketchbooks leaves “no doubts, if any remained” as to the “historical patrimony” of vertically superimposed tritone related triads (Taruskin, 1996, pp. 405–406). Bauer, however, is pointing out that both Stravinsky and Rimsky-Korsakov attended a concert of Ravel’s Jeux d’eau (which rapidly oscillates between tritone related triads) before Rimsky-Korsakov made the sketches and suggests that it is highly coincidental that Rimsky-Korsakov only conceived of vertically superimposed tritone related triads within three months of attending the concert; the same concert is also the first earliest documented contact Stravinsky had with Ravel’s octatonic music (Baur, 1999, pp. 561, 566). Baur is thus speculating that either Rimsky-Korsakov or Stravinsky was directly inspired by Jeux d’eau or that the “patrimony” was indeed Ravel, even if it passed through Rimsky-Korsakov before reaching Stravinsky. Although, of course, Stravinsky was still a student of Rimsky-Korsakov’s at the time. While much can be said about Rimsky-Korsakov’s octatonic influence generally and with regards to Stravinsky (all of which Taruskin certainly has said), as Taruskin evoked Occam’s razor in response to Kahan’s wishful speculation with Polignac (Taruskin, 2011, p. 178), it can be similarly evoked here. Not to claim that Stravinsky was directly inspired by Ravel, but rather that it could have been either or neither and that wouldn’t undermine Rimsky-Korsakov’s heavy impact on the octatonic world. More of this discussion will be found in the chapter on Stravinsky.

In Ravel we again see more development of octatonicism. Sharing a similar timeline with Debussy, Ravel employs the same basic characteristics of octatonicism, such as minor third progressions and tritone relationships (Baur, 1999, p. 564). It is obvious that Ravel intentionally used octatonicism, but the question this started has no clear answer. From 1895, in Un Grand Sommeil noir, Ravel seems to be writing octatonic music with intent (Baur, 1999, p. 544). Almost all of Ravel’s works, especially his early works, much like
Debussy, involve non-diatonic, including octatonic, pitch sets within a diatonic structure (Baur, 1999, p. 565). His major developments in regards to octatonicism are the partitioning (and overlapping) of the minor tetrachord at minor thirds, rather than just at the tritone (which was favoured by Rimsky-Korsakov); and three more that have also been attributed to Stravinsky: the “manipulation of octatonically complementary diminished seventh chords” (Baur, 1999, p. 557); the vertical superimposition of tritone related tetrachords and tritone related chords. These advancements of octatonicism are numerous, regardless of whether or who they directly influenced, and Ravel should be seen as a more significant figure in the development of octatonicism.

**Alexander Scriabin (1871–1915)**

Octatonicism has come to be prominently associated with both Alexander Scriabin and Stravinsky (Boulay, 1996, p. 40). Stravinsky had low regard for Scriabin, possibly even stooping to slander him with falsehoods (Taruskin, 1996, pp. 791–792) and while Rimsky-Korsakov and Scriabin were well acquainted, Rimsky-Korsakov had respect for the Scriabin’s skill as a composer but at the same time trepidations with the man (Taruskin, 1996, pp. 791–792). Stravinsky’s first documented meeting with Scriabin occurred in early 1909 and by this time Scriabin was the “acknowledged leader of the modernist faction in Russia” (Taruskin, 1996, p. 794). The influence of octatonic music on Scriabin is not well reported, but with his relationship with Rimsky-Korsakov and the rather widespread awareness and use of the “Rimsky-Korsakov” scale in Russia, especially later when Scriabin started using the octatonic scale extensively, would be obvious influences. Indeed, Taruskin theorises that Scriabin’s sudden interest in octatonicism around 1910 was related to his return to Russia a little earlier, and to Scriabin’s closer contact with Rimsky-Korsakov and other composers (Taruskin, 1988, p. 164). Scriabin was, however, relatively poorly read and unaware of contemporary music (Taruskin, 1996, p. 797) so the idea that Ravel or Stravinsky’s early

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46 In one account by Stravinsky, Scriabin and he often encountered each other in Rimsky-Korsakov’s house while Stravinsky was the old master’s pupil. Stravinsky then made accusations of Scriabin’s character based on these encounters and yet Scriabin, during the whole time Stravinsky was a pupil of Rimsky-Korsakov, was in continuous residence abroad (Taruskin, 1996, p. 791).
work (he was only aware of Stravinsky’s from “hearsay”) would suggest that these contemporaries offered little influence on his use of octatonicism. Additionally, while Stravinsky may have taken some influence from Scriabin, he was composing his octatonic works contemporaneously with Scriabin.

Like Stravinsky, Scriabin has been a composer that has been a challenge to analyse, with early attempts having categorised some of the octatonic works as atonal (Taruskin, 1988, p. 159 and Taruskin, 1996, p. 809, and Reise, 1983, p. 220). It wasn’t until the early 1980s, through analyses by Reise (1983), Herndon (1983), and Perle (1984) that octatonicism was established in the works of Scriabin. It is now clear that Scriabin is one of the more comprehensive octatonic composers. The sixth Piano Sonata, Op. 62 (1911-1912), is the Scriabin sonata that Cheong Wai-Ling believes should be referred to as the “octatonic sonata”. Indeed, the sixth Piano Sonata is, by Wai-Ling’s calculations, 58.8% octatonic compared to the seventh Piano Sonata at 45.2% and Guirlandes, op. 73 at 72.8% (Wai-Ling, 1996). To that date, only Polignac has come close to writing anything as thoroughly octatonic as Scriabin. Ravel, Debussy and Rimsky-Korsakov might have various passages of mostly or purely octatonic music but never to the extent that the scale pervades much of the music from the last five years of Scriabin’s life.

Scriabin’s approach to octatonicism generally treats the different octatonic collections as if they were different keys, to borrow from a diatonic vernacular, even ending the octatonic works in the same collection they started in (Taruskin, 1985, p. 99) and modulating between collections using common-tone pivots (Taruskin, 1996, p. 809). He avoided the triadic octatonicism, especially in his later works, and tended not to have diatonic and octatonic interactions. He also liked to emphasise “major/minor triadic cognates” (Taruskin, 1996, p. 807). Scriabin also fastidiously spelled out notes in accordance with the octatonic collection he was using, spelling A-major triads with a D♭ instead of a C# in his seventh Piano Sonata, Op. 64 (1912)47 (even going so far as to use different spellings for the four possible transpositions of the 7–31 heptatonic scale derivable from a single octatonic collection according to Perle (1984)). This is, of course, familiar to some of Polignac’s thoughts on the scale some thirty-three years earlier. Polignac went so far as to create custom

47 A sonata that was well regarded and familiar to Stravinsky (Taruskin, 1996, p. 807–809)
key signatures for each collection, and he too derived the notion of modulating between collections with common tones.

Scriabin also created a new octatonic device early in his seventh *Piano Sonata* that rotates through the octatonic collections (Fig. 3.11). The structure in the opening several measures has the end of one phrase’s octatonic collection cadence into a different octatonic collection in the subsequent phrase. As perfect cadences within a single octatonic collection are impossible, Scriabin uses a perfect V-I cadence as a modulation between collections.

In the opening three measures in Figure 3.11, the right hand is predominantly featuring the A-major triad of Collection III, which tonicizes a D-major/minor chord at the start of measure three in Collection II. With the rotation to a new collection, this passage is repeated a whole-tone higher. Simultaneously, in the left hand in measure one, there is an F#-major triad that has a relation to the new triad at the beginning of first rotation in Collection II (B-major), namely a V-I relationship. With the new rotation, this too is repeated with the G#-major in the bass now acting as a V-I to the C#-major triad (Collection I) at the start of the second rotation on measure eight. At this point the piece comes full circle back to Collection III and the right hand’s C#-major triad acts as a V-I back to an F#-major triad, this time in both hands. Essentially, outside the right hand’s mini V-I ‘cadences’ there is an overall structure of triads build on F#-G#(B)-C#-F#. Essentially tonic, subdominant, dominant, tonic (Taruskin, 1996, p. 811). So, while the work is completely octatonic it still expresses a diatonic structure bore out by rotating through the three collections twice.
The whole-tone and the octatonic scale are historically linked, harmonically linked at the tritone, and harmonically linked in terms of obfuscating traditionally acquired tonal centres. Scriabin combined the two, somewhat, adjusting the octatonically derived 7-31 heptatonic scale mentioned above (which Scriabin establishes first) by raising the final 7th degree by a semitone (Fig. 3.12). This gives the scale a whole-tone inflection (Perle, 1984, pp. 104–105).
The fastidious enharmonic spelling in the octatonic works of Scriabin was done in a “self-analytical” way, akin to enharmonic spellings of diatonic music pointing to tonal functionality (Perle, 1984, pp. 101–102). With Scriabin, he used these enharmonic spellings to show the pitch class he was using, including which octatonic collection and within each octatonic collection. Expanding on Taruskin’s notion of treating each collection as a “key”, Wai-Ling determines that the enharmonic spellings actually represent “octatonic referents” at each node of each collection (Wai-Ling, 1993, pp. 55–56). Wai-Ling defines an octatonic referent as:

… in essence, an octatonic collection with a built-in hierarchy. One of its eight pcs assumes a tonic-like status to which others are subordinate. An important aspect of this hierarchy resides in its orthography – an asymmetric spelling pattern which singles out one of its four ‘triadic roots’ as the centre. The pattern arranges all seven letters as an ascending scale, with the same letter occupying the third and fourth positions, and thus alludes inevitably to the conventional major and minor scales. There are therefore only three octatonic collections but 12 octatonic referents and more if we include other enharmonic possibilities (Wai-Ling, 1996, p. 213).

This is contrary to Perle’s heptatonic theory, however, Wai-Ling outlines the consistency by which Scriabin applies this. Keeping the borrowed “key”, this would make twelve “keys” (Table 1). Had Polignac thought of this, maybe he would have come away with twelve key signatures as well. These twelve keys might also be considered an expansion, structurally, of the triadic octatonicism that Scriabin avoided; even if treated differently they are still rooted in triadic content (Wai-Ling, 1993, p. 66).
### Table 1

The 12 octatonic ‘keys’ used by Scriabin

<table>
<thead>
<tr>
<th>Octatonic Collection</th>
<th>Octatonic Referent</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-28 on i</td>
<td>(I, ii, iii, iv, v, vi, vii, viii)</td>
</tr>
<tr>
<td><strong>Collection I</strong></td>
<td></td>
</tr>
<tr>
<td>(1,2,4,5,7,8,10,11)</td>
<td>8-28 on C#</td>
</tr>
<tr>
<td></td>
<td>(C#, D, E, E#, F*, G#, A#, B)</td>
</tr>
<tr>
<td></td>
<td>8-28 on E</td>
</tr>
<tr>
<td></td>
<td>(E, F, G, G#, A#, B, C#, D)</td>
</tr>
<tr>
<td></td>
<td>8-28 on G</td>
</tr>
<tr>
<td></td>
<td>(G, Ab, Bb, B, C#, D, E, F)</td>
</tr>
<tr>
<td></td>
<td>8-28 on Bb</td>
</tr>
<tr>
<td></td>
<td>(Bb, Cb, Db, D, E, F, G, Ab)</td>
</tr>
<tr>
<td><strong>Collection II</strong></td>
<td></td>
</tr>
<tr>
<td>(0,2,3,5,6,8,9,10)</td>
<td>8-28 on D</td>
</tr>
<tr>
<td></td>
<td>(D, Eb, F, F#, G#, A, B, C)</td>
</tr>
<tr>
<td></td>
<td>8-28 on F</td>
</tr>
<tr>
<td></td>
<td>(F, Gb, Ab, A, B, C, D, Eb)</td>
</tr>
<tr>
<td></td>
<td>8-28 on G#</td>
</tr>
<tr>
<td></td>
<td>(G#, A, B, B#, C*, D#, E#, F#)</td>
</tr>
<tr>
<td></td>
<td>8-28 on B</td>
</tr>
<tr>
<td></td>
<td>(B, D, D, D#, E#, F#, G#, A)</td>
</tr>
<tr>
<td><strong>Collection III</strong></td>
<td></td>
</tr>
<tr>
<td>(0,1,3,4,6,7,9,10)</td>
<td>8-28 on C</td>
</tr>
<tr>
<td></td>
<td>(C, Db, Eb, E, F#, F, A, Bb)</td>
</tr>
<tr>
<td></td>
<td>8-28 on Eb</td>
</tr>
<tr>
<td></td>
<td>(Eb, Fb, Gb, G, A, Bb, C, Db)</td>
</tr>
<tr>
<td></td>
<td>8-28 on F#</td>
</tr>
<tr>
<td></td>
<td>(F#, G, A, A#, B#, C#, D#, E)</td>
</tr>
<tr>
<td></td>
<td>8-28 on A</td>
</tr>
<tr>
<td></td>
<td>(A, Bb, C, C#, D#, E, F#, G)</td>
</tr>
</tbody>
</table>

These twelve octatonic referents also imply a tonality on the first degrees of each scale even if this is done, as Taruskin might put it, “fictitiously” (Wai-Ling, 1993, p. 56). Expanding on Taruskin’s assertion that the collections are analogous to diatonic keys with
regards specifically to how Scriabin subdivides the collections into four more “keys” Wai-Ling argues that these each have a tonal implication:

Of the three octatonic collections, collection I obviously stands at the peak of the hierarchy. But the prominence of collection I is brought through the engagement of its octatonic referents, which are in turn arranged in a second hierarchy, with centricity assigned to 8-28 on G and more specifically to the note G. In this sense, 8-28 on G assumes a key-like function, with G acting as ‘tonic’, and the sonata-form layout of this piece is articulated ‘tonally’ through a systematic exploration of the hierarchical possibilities (Wai-Ling, 1996, p. 227).

Wai-Ling’s 1996 article on the Scriabin’s sixth Piano Sonata demonstrates a structural component of the octatonic keys with the octatonic scale on G as the “home key” after which Scriabin “smoothly” modulates to other octatonic referents and collections. When the modulation is not smooth Jeffrey Yunek posits that “transpositions between distinct octatonic collections serve not only as harmonic contrasts, but as harmonic disruptions” (Yunek, 2017, p.401). This adds a subtlety to the “key” changes in Scriabin’s music that is again analogous to diatonicism:

The change in viewing Scriabin’s collections as keys – rather than chords – is paramount because it fundamentally alters the perception of his late music. Rather than a static progression of dissonant chords his music becomes a series of exotic keys weaving in and out through a series of smooth transpositions. Any violation of this smooth stream through distantly related transposition creates a musical problem, which is resolved in the course of the work. This change in perspective allows the listener to hear Scriabin’s music in the same way as we hear other late-Romantic works: highly chromatic and featuring a few dramatic key changes (Yunek, 2017, p. 411).

Scriabin’s interest in octatonicism arrived late but arrived quickly. His octatonic works come after his return to Russia and an increased familiarity with Rimsky-Korsakov’s works but while skipping the developments of Ravel and others he quickly modified the Rimsky-Korsakov scale to such a degree that for years analysts failed to identify the pitch set. Nevertheless, the same minor-third relations from Rimsky-Korsakov still present themselves even if in a more structural way. His contributions, though in a vacuum of sorts, are nearly all very structural in nature. He does not cast away tonality, but rather uses it structurally within purely octatonic passages by modulating between collections. He also uses it “fictitiously”,

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within a set, by expanding the three octatonic collections into twelve octatonic keys with scrupulous spellings at each node of the three collections and modulations between them (building on, unknowingly, the work of Polginac).
If any composer can be regarded as the poster child of octatonicism it is surely Stravinsky. Even though there is much debate regarding the actual distribution and frequency of octatonicism in his works, his music and difficulties in analysing it was the catalyst to Berger’s influential article that opened a can of worms which even Berger himself has expressed regret in opening:

During the symposium that followed the lecture, as Craft recalled, “I remarked that I found the vogue of octatonic analysis tiresome,” whereupon “Arthur [Berger], the acknowledged discoverer of Stravinsky’s use of the device, chimed in with ‘So do I. I wish I had never mentioned it.’” (Taruskin, 2011, p. 183)

Berger’s original article, which dubbed the pitch set or scale “octatonic”, was the start of Western research and understanding of octatonicism (Berger, 1963, p. 20). The

48 “Anyone who undertakes an investigation of the essential relationships of tones in the works of Stravinsky may find himself somewhat at a disadvantage as a result of the fact that no significant body of theoretical writing has emerged to deal with the nature of twentieth-century music that is centric (i.e. organized in terms of tone center) but not tonally functional.” (Berger, 1963, p. 11)
almost fifty-year timeline of major articles surrounding Stravinsky’s octatonicism has come in waves (Table 2). The 1980s and the 2010s were the most productive. In the 90s there was only Taruskin’s two-volume epic, before some activity in the early 2000s. The research indicated with an asterisk in Table 2 are works that contribute new theories to octatonicism generally or with regards to Stravinsky specifically. The rest can be categorised as back-and-forth arguments about such contributions whether that is from the standpoint of criticism or a defence of said criticism (the longer these back-and-forth discussions went on the more uncivil they got). Ewell’s 2012 article “Rethinking Octatonicism: Views from Stravinsky’s Homeland” offers both new ideas and some criticism.

Table 2
Timeline of prominent texts regarding octatonicism in Stravinsky

<table>
<thead>
<tr>
<th>Year</th>
<th>Author/Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>1964*</td>
<td>Berger’s article (<em>Problems of pitch organization in Stravinsky</em>) introducing the octatonic scale via Stravinsky (Berger, 1963)</td>
</tr>
<tr>
<td>1975</td>
<td>Van den Toorn’s article (<em>Some Characteristics of Stravinsky’s Diatonic Music</em>) reaffirming Berger’s octatonic theory (van den Toorn, 1975)</td>
</tr>
<tr>
<td>1982</td>
<td>Straus’s article (<em>Stravinsky’s “Tonal Axis.”</em>) dismissing Berger’s and van den Toorn’s assessment of Stravinsky’s octatonicism (claiming it is “merely an unordered collection of pitch classes”) (Straus, 1982)</td>
</tr>
<tr>
<td>1983*</td>
<td>van den Toorn’s book (<em>The Music of Igor Stravinsky</em>) expanding on Berger’s article and introduces the T-S-T scale in addition to Berger’s S-T-S scale (van den Toorn, 1983)</td>
</tr>
<tr>
<td>1984</td>
<td>Straus’s review (<em>Review: The Music of Igor Stravinsky by Pieter C. van den Toorn</em>) of van den Toorn’s book that claims van den Toorn “exaggerated the extent of octatonic usage in Stravinsky” (Straus, 1984)</td>
</tr>
<tr>
<td>1985*</td>
<td>Taruskin’s article (<em>Chernomor to Kashchei: Harmonic Sorcery; Or, Stravinsky’s “Angle.”</em>) tracing the scale’s lineage and origins from Schubert via Liszt and Rimsky-Korsakov to Stravinsky (Taruskin, 1985)</td>
</tr>
<tr>
<td>1987</td>
<td>Van den Toorn’s article (<em>Taruskin’s Angle</em>) addresses his concerns about historical relevance in Taruskin’s 1985 article (van den Toorn, 1987)</td>
</tr>
<tr>
<td>1987</td>
<td>Taruskin’s article (<em>Forum: Reply to van den Toorn</em>) is a reply to van den Toorn’s critique (Taruskin, 1987b)</td>
</tr>
<tr>
<td>1987</td>
<td>Taruskin’s article (Chez Petrouchka: Harmony and Tonality “chez” Stravinsky) (Taruskin, 1987a)</td>
</tr>
</tbody>
</table>
1996* Taruskin’s Stravinsky book (Stravinsky and the Russian traditions: a biography of the works through Mavra) which included the 1985 article as a chapter but investigates further influence and discusses Stravinsky’s octatonic works (Taruskin, 1996)

Tymoczko’s article (Stravinsky and the Octatonic: A Reconsideration) is a criticism of the theories posited by Berger, Taruskin and van den Toorn (Tymoczko, 2002)

2003 Van den Toorn’s article (Stravinsky and the Octatonic: The Sounds of Stravinsky) is a reply to Tymoczko’s 2002 article (van den Toorn, 2003)

Tymoczko’s article (Octatonicism Reconsidered Again) is a reply to van den Toorn’s 2003 reply (Tymoczko, 2003)

2011 Taruskin’s article (Catching Up with Rimsky-Korsakov) is a fiery partisan recap some of the arguments so far and a defence of his own position (Taruskin, 2011)

Tymoczko’s article (Round Three) is a reply to Taruskin’s 2011 recap (Tymoczko, 2011)

Agawu’s article (Taruskin’s Problem(s)) is an inflammatory reply to Taruskin’s recap and criticism of him and his research on Octatonicism (Agawu, 2011)

2011 Van den Toorn’s article (Catching Up with Taruskin) is a reply to Taruskin’s 2011 recap (van den Toorn, 2011)

2012** Ewell’s article (Rethinking Octatonicism: Views from Stravinsky’s Homeland) provides some Russian context in light of the discussions (P. A. Ewell, 2012)

More than twenty years after Berger coined the term “octatonic” scale, Taruskin, in his 1996 study, attempted to trace the historical origins of the scale, something he considered lacking in the research of Berger and van den Toorn’s The Music of Igor Stravinsky.49 Taruskin’s lineage tracing is where much of the information we have on Rimsky-Korsakov (via Liszt and Schubert) comes from. Taruskin’s major assertion is that Stravinsky, who later dismissed Rimsky-Korsakov’s teachings as “a few flimsy enharmonic devices”50 (Taruskin, 1996, p. 292), was influenced by Rimsky-Korsakov’s development of the scale. Indeed, he goes so far as to say that most of what had thus far been attributed to Stravinsky could be traced to Rimsky-Korsakov. Such assertions, though well researched, caused push-back. Although some of Taruskin’s threads are a little speculative and thin, some

49 Such historical focus ended up proving controversial with some theorists.
50 Taruskin provides numerous examples throughout the book, some glaring ones with regards to Scriabin (Taruskin, 1996, pp. 791–792) paint Stravinsky as an unreliable narrator of sorts.
are indeed quite strong. Taruskin’s dismissal of influences outside of Rimsky-Korsakov also seem rather flippant. An example of this is Ravel’s *Jeux d’eau* (Baur, 1999, p. 564). Taruskin acknowledges that Ravel did indeed compose superimposed tritone related triads in the piece, but because Ravel’s superimposed tritone related triads (on C and F#) are *functionally* different from the *Petrushka* chord’s superimposed tritone related triads (on C and F#) he dismisses any connection between them, as discussed in Chapter Three. Quite paradoxically, Taruskin states in his 1987 article:

> By understanding the origins of Stravinsky’s triadic-symmetrical octatonicism in Rimsky-Korsakov’s work and teaching, one can distinguish his “*Petrushka* chord” from the ones in Ravel’s *Jeux d’eau* (1901), for example, or in Strauss’s *Elektra* (1908), which have very different historical backgrounds and different functional explanations, but which an analyst unarmed with historical perspective might be tempted to adduce as precedents for Stravinsky’s usage (van den Toorn, 1987, p. 268).

And then in his 1996 two-volume book:

> Although certain aspects of Ravel’s harmonic practice in *Jeux d’eau*, the Quartet, and a few other works from around the turn of the century bear a superficial resemblance to the Stravinskian practice that culminated in *Petrushka* (owing to a common patrimony in Liszt and, secondarily, in Rimsky-Korsakov), at a deeper level the resemblance disappears (Taruskin, 1996, p. 771).

If Ravel’s harmonic octatonic works share common patrimony in Liszt and Rimsky-Korsakov, which has been confirmed in the Ravel section above, how can they have “very different historical backgrounds … which an analyst unarmed with historical perspective might be tempted to adduce as precedents for Stravinsky’s usage” as Taruskin’s says above? Such a narrow outlook does not help his cause. Regardless, overall Taruskin’s approach is in-depth and informative. He chooses a historical perspective on octatonic theories because he sees this approach to be more enlightening into the “insight into practice—methods, routines, *Gebrauchs*-formulas, devices of composition, including flimsy enharmonic ones (Taruskin, 2011, p. 180). The *Gebrauchs*-formulas that Taruskin references are what Robert Gjerdingen describes as “compositional exemplars for emulation by the artisan apprentice” (Gjerdingen, 2011, pp. 191–192); teaching “usages” rather than theory (Taruskin, 2011, p. 175). In this sense Taruskin, in his historically backed research, wanted to elicit practical useful information rather than theoretical data and it is worth quoting him in length:
I take particular encouragement from Robert O. Gjerdingen’s recent treatise, *Music in the Galant Style*, whose subtitle, delightfully emulating the style it treats, identifies it as “An Essay on Various Schemata Characteristic of Eighteenth-Century Music for Courtly Chambers, Chapels, and Theaters, Including Tasteful Passages of Music Drawn from Most Excellent Chapel Masters in the Employ of Noble and Noteworthy Personages, Said Music All Collected for the Reader’s Delectation on the World Wide Web.” Gjerdingen’s study is a rich combination of historical investigation with what used to be called style criticism. It takes style to be not an idea or an entity, hence not something to be objectified, but rather a set of communicative behaviors, and investigates the manner in which such behavior is imparted and assimilated. Its basic premise is that Bach was not born Bach nor Mozart Mozart. Rather, Bach learned to be Bach and Mozart learned to be Mozart, as all composers learn their trade, and the chief instrument is example. It is thus primarily a book about pedagogy, and it has contributed a new term to the active theoretical and critical vocabulary of academic musicians: *partimento*, basically a thoroughbass exercise, or, more particularly, “instructional basses from which an apprentice was expected to re-create complete compositions at the keyboard,” as Gjerdingen has defined it. It is the sort of exercise composers learned from as long as textbooks were written to instruct composers in current, as opposed to obsolete or *stile antico*, idioms, and what one learns from such exercises are what Gjerdingen calls *schemata*, which are nothing other than what Lazare Saminsky called *Gebrauchs*-formulas. One of the latest textbooks to use exercises of this kind to instruct composers in current practices was Rimsky-Korsakov’s, where I found the exercises—the latterday *partimento*—from which the pupils at the St. Petersburg Conservatory, as well as Stravinsky, studying *extra muros*, educed the octatonic scale—not as a concept, but as the outcome or resultant of a set of procedures. Stravinsky learned to be Stravinsky the way Mozart learned to be Mozart—just as every mediocrity of Stravinsky’s or Mozart’s time learned to be mediocrities. The difference between the genius and the mediocrity was a difference in the excellence and the resource with which they applied the principles of their common patrimony and built upon it. Studying the common patrimony at its source, Gjerdingen implies (and of course I enthusiastically agree), is the way one apprehends the ground from which unique genius sprouts, and provides the yardstick by which one can take its measure sans mystique (Taruskin, 2011, pp. 181–182).
This tangent explains why Taruskin considered the historical perspective vital to what he was trying to achieve, and the narrow outlooks around Rimsky-Korsakov do not undo that. Such a perspective also accounts for why Taruskin was so taken aback by van den Toorn’s “What do we really gain by Russianizing Stravinsky to the bone?” (van den Toorn, 2000, p. 448). Taruskin’s answer to this, and to others’ hostility towards Rimsky-Korsakov being instrumental in the octatonicism of Stravinsky is by implying Russophobia as a bias that they cannot see past. A more apropos answer, although he does eventually get there, is simply that knowing the historical context makes more evident the insights, methods, routines, and devices of composition. Something less abstract and more actionable; something that a composer can easily learn from.

That Stravinsky learned of the octatonic scale from Rimsky-Korsakov (or due to Rimsky-Korsakov), however, is almost beyond question. The Rimsky-Korsakov scale was well known and well utilised in Russia during Stravinsky’s studies at the University of Saint Petersburg, during which he was a pupil of Rimsky-Korsakov’s from 1905 until the teacher’s death in 1908 and Stravinsky was intimately familiar with his works (van den Toorn, 1983, p. 21). While van den Toorn takes Stravinsky at his word when the composer dismissed Rimsky-Korsakov’s harmonic contributions as “flimsy enharmonic devices”, as Taruskin has shown (Taruskin, 1996, p. 292), Rimsky-Korsakov’s use of the scale was more advanced than that; something Stravinsky would have certainly known. Stravinsky’s first octatonic work was *Scherzo Fantasique* in 1908 (van den Toorn, 1983, p. 44) which Taruskin considers to be an excellent example of Rimskian octatonicism with its circular thirds – both octatonic and whole-tone – in the Rimskian device that Yavorsky came to call “chain mode” previously mentioned as well as simple partitioning (Taruskin, 1996, p. 319); *The Nightingale* and *The Firebird* also features such devices (Taruskin, 1996, p. 591). As Baur notes, this was a formative time in Stravinsky’s musical life striking parallels with a similar time in Debussy’s life when the French composer was looking to expand his harmonic vocabulary and seeking new sonorities, and then found himself immersed in Russian music, including Rimsky-Korsakov; Stravinsky too was seeking to expand his craft. With Debussy, at this relative time in his life, Russian music was becoming popular and accessible in Paris; with Stravinsky, Ravel was becoming popular and accessible to St. Petersburg (Baur, 1999, p. 589) and it is also known from Stravinsky’s personal recollections that he and other musicians of his generation were quite familiar with Ravel’s music (Baur, 1999, p. 590). There are curiously circular possibilities of who influences who regarding superimposed
tritone related triads (was it Ravel, who first studied Rimsky-Korsakov’s works and became aware of the Rimsky-Korsakov scale, that influenced Rimsky-Korsakov to write his sketches, that eventually, via Steinberg, influenced Stravinsky? Did Ravel’s Jeux d’eau only influence Stravinsky directly? Did Rimsky-Korsakov, disconnected from Ravel, devise his own superimposed tritone related triads that influenced Stravinsky? Or did all three invent them on their own without external influence at all?). Van den Toorn does not think that such questions are important (van den Toorn, 1987, p. 30). While Stravinsky had already begun his octatonic journey, Scriabin’s late works were some of the most thoroughly octatonic works written and although the relationship between Scriabin and Stravinsky was somewhat one directional (and even that eventually drifted), Scriabin’s could also have influenced Stravinsky, as Stravinsky did draw inspiration from Scriabin at times in non-octatonic contexts (Taruskin, 1996, p. 616). Scriabin started his octatonic adventures in the 1910s but Stravinsky had already been implementing the Rimskian octatonicism earlier in works such as Scherzo Fantastique, Fireworks, and The Firebird (van den Toorn, 1983, p. 24). Debussy was a composer that Stravinsky (unreliable narrator or not) attributed a great deal of credit to with relation to his own works, especially Le Sacre du Printemps (Taruskin, 2011, p.178).

*  
**  

Like Scriabin before him, Stravinsky was a composer whose works have proven difficult to analyse. Theories of “pandiatonicism, antitonality, modality, tonicality– even ”atonality”” all competed (Berger, 1963, p. 11); even the lone Petrushka chord sparked debate with many settling on bitonal or polytonality (Taruskin, 2011, p. 172). “Problems of pitch organization” in Stravinsky offered something stable that, out of which, a body of research now concerns itself. The article comes from Berger’s desire to elucidate his observations on Stravinsky into a predicted new branch of theory. These observations of his were “diatonic writing in which “tone center” is not a functional “tonic”; “a symmetrical scale used in such a way as to emphasize tritone relation”; “the same scale with minor-third emphasis”; and “interaction between diatonic elements … and the [same] symmetrical scale…” (Berger, 1963, p. 12). These, of course, are the same basic components of the octatonic scale seen all the way from Liszt. From the exercise of attempting to find the tone centre of Stravinsky’s
Les Noces Berger, discovers a single referential collection\(^{51}\) that accounts for all eight pitches of the sections he was analysing:

If it is granted that the pitch class A is the most likely element to determine the referential order within the collection, the scale drawn from the collection may be represented as follows:

<table>
<thead>
<tr>
<th>i</th>
<th>ii</th>
<th>iii</th>
<th>iv</th>
<th>v</th>
<th>vi</th>
<th>vii</th>
<th>viii</th>
<th>(i)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>B♭</td>
<td>c</td>
<td>D♭</td>
<td>eb</td>
<td>E</td>
<td>f#</td>
<td>G</td>
<td>(a)</td>
</tr>
</tbody>
</table>

pitch numbers: 0 1 3 4 6 7 9 10 (1)
intervals: 1 2 1 2 1 2 1 (2)

A formal approach to this scale (hereafter referred to as “octatonic”) would calculate the structure and enumerate the properties at once (Berger, 1963, p. 20).\(^{52}\)

Berger then discussed what Rimsky-Korsakov was aware of ninety-six years earlier and what Polignac subsequently discovered eighty-four years earlier, that the scale is divisible at each nodal point (and these nodal points are equally weighted potential tone centres), that there is an axis at the tritone, and that the scales have limited transposition (Berger, 1963, p. 21). Berger then applies this division at the tritone to Petrushka without necessarily denying Stravinsky’s own statement that he had conceived of the music in two keys; rather than assumed polytonality, Berger claims partitioning of the one referential collection (the octatonic set) (Berger, 1963, pp. 22–23). The superimposition in the Petrushka chord, however, does exemplify the octatonic scale’s ability to deny priority to one of the superimposed chords, and for both chords “to remain in equilibrium or – to the end that a tone center is asserted by neither” (Berger, 1963, p. 24). In Jeu de Rapt Berger discovers that the “octatonic scale may be arranged into four major triads or seventh chords” noting, specifically, the dominant seventh chords which Forte claims are a hallmark of Stravinsky’s compositional method (Forte, 1991, p. 158), can be traced back to the exemplification of a Russian sound with Mussorgsky’s coronation scene and it’s alternating tritone related

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\(^{51}\) Although Berger does acknowledge the possibility of two octatonic variant scales – one beginning with a semitone step and one beginning with a whole-tone step – he considers the former to be the “fundamental form for Stravinsky” (Berger, 1963, p. 24).

\(^{52}\) The table quoted here is presented as-is from Berger’s article.
dominant seventh chords. In *Symphony of Psalms* (1930) Berger points out how the octatonic first movement’s E priority is offered a tonal respite from the octatonic collection where Stravinsky adds the subdominant and non-pitch-set F# and A much like van den Toorn’s “terminating convenience”.

For Taruskin the second tableau’s *Chez Pétroushka* from *Petrushka* was a work “so thoroughly going octatonic” in structure than any other work by Stravinsky or by anyone else (Taruskin, 1996, p. 737). Structurally, the octatonic collection is raised to the level of a “key” by controlling the pitch set, the tonal centre and structural functions. The work’s departure and return to the octatonic scale can be considered modulations or chromatic departures and overall Taruskin considers the octatonic set to be more stable than the diatonic tonalities that interact with it. Taruskin also brushes on an interesting possible progression up to the *Petrushka* chord (Taruskin, 1996, p. 740); the *Petrushka* chord has vertically oriented tritone related superimposed major triads. As we know from footnote 52 above, two tritone related major triads have the same pitch content as two vertically oriented tritone related dominant seventh chords (the middle degree from each major chord is the seventh degree of the other) and, as such, are the same chord with regards to pitch content. Rimsky-Korsakov was experimenting late in his life with oscillations of tritone related major triads as was Ravel. Rimsky-Korsakov (like Debussy) was familiar with and drew inspiration from the well-known “Russian” sounding coronation bells from the Coronation scene of Mussorgsky’s *Boris Godunov* (he also arranged the opera for piano not too long before his death and around when he wrote his sketches that have vertical superimposition (Mussorgsky, 1908)). These bells were horizontally oriented tritone related dominant seventh chords. These chords do not oscillate in the same manner as we have seen in Rimsky-Korsakov, Ravel, and Stravinsky before *Petrushka* which tend to be rapid oscillation, but they swing back and forth even as fast as crotchets in a Moderato tempo (Fig. 4.1). Is it possible that

53 Berger also identifies that two superimposed tritone related triads have the same pitch content as two superimposed tritone related dominant seventh chords. E.g., using the *Petrushka* chord, C-E-G and F#-A#-C#, the E becomes the seventh degree of the F# dominant seventh, and the B♭ (enharmonically spelled as an A#) becomes the seventh degree of the C dominant seventh (Berger, 1963, p. 28).
Stravinsky’s major contributions to octatonicism, as revealed by Berger can be traced to the Coronation bells?⁵⁴ Van den Toorn’s 1983 book dedicated much of its content to exploring the octatonic machinations in Stravinsky’s works. He identifies the collection throughout Stravinsky’s works to such a degree as to claim that it is “so fundamentally a part of his musical thought that it has claims to being at the root of much that has persistently been dubbed “characteristic,” “typical,” or “distinctive””⁵⁵ (van den Toorn, 1983, p. 10).

Stravinsky’s early uses of the scale were not too dissimilar from Rimsky-Korsakov’s related minor thirds, and association of the scale with magical or supernatural elements (as in The Firebird) (van den Toorn, 1983, p. 21). This early Rimskian-like octatonicism is not what defined his later octatonic works, though some elements do persist such as oscillation of chords (which became superimpositions), and dominant sevenths related by a minor third.

The characterisation of Stravinsky’s octatonic oeuvre is, according to van den Toorn that:

…certain other methods of practises, later to become characteristic, are not yet part of Stravinsky’s octatonic imagination. These include registrally fixing articulative groupings of the octatonic collection; assigning varying rhythmic-metric periods to these reiterating, and registrally fixed components; and placing these resulting “blocks” in abrupt juxtaposition with other “blocks of varied referential implications (van den Toorn, 1983, pp. 22–23).

The “oscillations” that van den Toorn refers to are the wind trills at the end of measure twelve from the introduction section of The Firebird with the A Clarinet moving between A# C and C# and E and with the Flutes F# and E and B♭ and G. Essentially oscillating between a C-E-G triad and an F#-A#-C# triad (Fig. 4.2a). A less obvious tritone related oscillation occurred a few bars earlier (5-7) with the Trombones rocking between an A♭-C♭ dyad and a B♭-D dyad in syncopation with bass ostinato that starts the piece (A♭-E-F-D). This ostinato, Taruskin points out, is another, albeit short, example of ladder-of-thirds or chain mode (Taruskin, 1996, pp. 596–597). This oscillation at measure twelve is seen as a precursor within Stravinsky’s works to the Petrushka chord (Fig. 4.2b) and which might have its lineage traced to either Rimsky-Korsakov or Ravel. Like composers before him, Stravinsky

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⁵⁴ Rimsky-Korsakov’s octatonic Sadko was composed five years before Boris Godunov but Rimsky-Korsakov’s octatonicism at the time was nearly all triadic progressions at the time rather and far from the tritone related superimpositions that were to come.

⁵⁵ Such a bold statement has attracted dissenters such as Strauss, who believes he has “exaggerated the extent of octatonic usage in Stravinsky” (Straus, 1984, p. 132).
also had interaction between diatonic and octatonic elements be that by juxtaposing contrasting “blocks” of octatonic and non-octatonic material (such as diatonic) or through “fusion, blending, or intermingling of elements or relations attributable to the octatonic and diatonic collections” (van den Toorn, 1983, p. 47). Van den Toorn also determines that, due to the prominence of Stravinsky’s neoclassical period, that Stravinsky generally favours the “harmonic” scale’s characteristics presumably due to this version of the octatonic scale’s analogous nature to diatonic harmonies. Van den Toorn also reveals that the “melodic” version of the scale is predominantly employed in his Russian period works for its minor tetrachords (van den Toorn, 1983, p. 66–67).

In the first movement of the neoclassical Symphony in Three Movements, Stravinsky superimposes the octatonic scale over a diatonic C-scale on C in the Trombones (Fig. 4.3a) and Violin section (Fig. 4.3b) giving structural diatonicism and setting up the final C major triad sonority (which sits outside the octatonic collection used) and also, possibly, to preserve the octatonic priority of G and E (van den Toorn, 1983, pp. 67–68).
**FIGURE 4.3a**
FIGURE 4.3b
The octatonic components of *Le Sacre du Printemps* become more interspersed with diatonic “penetration” into the octatonic scale or blocks of pure diatonicism. Stravinsky reduces the predominantly TST scale into the two tetrachords and splits those further with (0,2,5) or (0,3,5) incomplete tetrachords but uses these or the full tetrachord throughout the ballet with regards to octatonic and diatonic contexts (van den Toorn, 1983, pp. 101–103). This tetrachord accounts for several of *Le Sacre’s* melodic passages (Fig. 4.4).

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**FIGURE 4.4**
Tetrachordal melodic passages from *Le Sacre du printemps* (1913) (Wakeman, 2013, p. 7)

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We also see vertically superimposed partitioned tetrachords from the same octatonic collection presented with contrapuntal melodies (Fig. 4.5) (Wakeman, 2013, p. 7–8). Van den Toorn adds to this the vertical chromaticism inherent in *Le Sacre* and attributes it to the 1-11 interval of the “harmonic” octatonic scale common to Stravinsky’s Russian period. This interval is held in either equal priority or with one of the two notes prioritised depending on the context. This 1-11, or 1-5,11 as well as the tetrachord and its incomplete versions, van den Toorn believes, is persistent throughout *Le Sacre* (van den Toorn, 1983, p. 111). The (0,2,5) relates to Stravinsky’s consistent deployment of dominant seventh chords which often come from the “melodic” scale’s (0,4,7,10) but as an incomplete chord can also be formed from (0,2,5) with these numbers being the same intervals as (0,10,7) (van den Toorn, 1983, p. 131). Van den Toorn, in discussing the rhythm of *Le Sacre*, points to the crescendo at the end of “*Jeux de Cités Rivales*” starting at rehearsal mark sixty-four. This nicely demonstrates the same rhythmic, timbral and registral techniques used by Ravel (Baur, 1999, p. 576) where different registers and rhythms are used to separate superimposed harmonies.
Despite Stravinsky inspiring the deluge of research on octatonicism by himself and others since 1963, his contributions to octatonicism remain smaller in scope than might be expected. His early octatonic compositions do not stray that far from Rimsky-Korsakov and later developments attributed to Stravinsky (namely the superimpositions) were also present in the sketches of Rimsky-Korsakov and the works of Ravel. Of course, Stravinsky did take these superimpositions and make them more explicit and, crucially, without priority to one collection or another, unlike Ravel. Stravinsky’s equal priority of pitch degrees are a significant contribution built on the octatonicism of other composers. His interactions between diatonicism and octatonicism also became more intertwined with smaller subsets of the octatonic set being used together and with diatonic sets. This interaction didn’t necessarily mean that the octatonic segments were structurally diatonic as what can be seen in Ravel and Scriabin. Like Rimsky-Korsakov, he used the different octatonic scales, “harmonic” and “melodic”, with the same purpose as Rimsky-Korsakov did but not simultaneously. Stravinsky’s use of the “melodic” scale was mostly employed in his Russian period works which, like Rimsky-Korsakov, were folk driven and magical, and it allowed major/minor interactions. For his Neoclassical period, Stravinsky preferred the “harmonic” scale, implicitly understandable given the period in question. Stravinsky undoubtedly
contributed to octatonicism but the number of *Gebrauchs*-formulas that are to be associated with his works are fewer than Berger would have thought in 1963.

**Béla Bartók (1881–1945)**

*Bartókian synthesis* is an axiom that has been applied to Béla Bartók’s music since the 1920s. This term comes from his own desire to “create a synthesis of East and West” which was expanded to encompass a synthesis built upon the innovations of previous innovators (Mikusi, 2009, p. 4). János Kárpáti went so far as to explain the synthesis as a three pillared set: “the first brings together the heritage of his great European precursors, the second sums up the major trends of his own age, while the third achieves reconciliation between folk music and the “learned” art-music tradition” (Mikusi, 2009, p. 5). Eventually this synthesis was rebranded as a hybrid, rather than a synthesis “…of “high” versus “low,” Eastern versus Western, or tonal versus modal (and even atonal) stylistic features” (Mikusi, 2009, p. 6).

Specifically, Bartók integrated the diatonicism, octatonicism, the whole-tone pitch set, and eventually atonal and serialist music into an “all-encompassing system of symmetrical relations” (Antokoletz, 1984, p. 25). While the success of such a synthesis was questioned, it nevertheless was something Bartók had in mind.

For many composers of the early twentieth century, the extreme chromaticism and pushing of tonality amongst Germanic composers, led to a divide between the Viennese school’s atonalism and tonal-adjacent methods that started in France with Debussy. Even though Rimsky-Korsakov and Debussy were influenced by Wagner they also took music in a different direction. Bartók approached his music early from both fields (Antokoletz, 1984, p. 2). Like early-to-mid nineteenth century France, Hungary was moving away from Germanic cultural influences and was orienting more toward France. National Hungarian folk music was also in demand. This combination of new-found nationalism and shedding of some Germanic influence led Bartók, naturally, to Debussy. When Bartók began teaching at the Academy of Music in Budapest he began studying some of the works of Debussy. His studies led him to pentatonic and whole tone collections but not the octatonic collection. He did, however, notice the similarities in the pentatonic music of Debussy with Hungarian folk music and attributed this to Debussy’s Russian influence (Antokoletz, 1984, p. 3). As such,
Hungarian music, including Kodály and Bartók, shared a common lineage to contemporary Russian composers, such as Stravinsky; and French impressionist composers, such as Debussy and Ravel. Octatonically, Rimsky-Korsakov can likely be an origin point, but Mussorgsky’s and especially Liszt’s proto-octatonic contributions must also factor (Antokoletz, 1984, pp. 3–4). Fellow Hungarian, Liszt, was the composer by which Bartók drew considerable early influence (Griffiths, 1984, p. 32). Stravinsky, Mussorgsky, and Rimsky-Korsakov, mentioned so far, all share folk-music as a common interest as well. Bartók’s early work with Kodály on Hungarian folksongs already showed a weakening of tonality which assisted in Bartók’s desire to move away from Western influences (Antokoletz, 1984, pp. 26–27). Bartók incorporated these folksong tunes to his own work and began applying them symmetrically, using the Dorian mode, the only symmetrical diatonic mode, or intervals of a fourth to create patterns of symmetries along the white notes (Antokoletz, 1984, pp. 51–56).

* * *

Pitch-class priority is often found ‘fictitiously’ in Bartók’s works as the symmetrical nature of the pitch classes does not allow for common practice functionality. In addition to establishing a primary tone, Bartók also establishes a “sonic area” formed by symmetrically organising pitches around an axis (Fig. 4.6) (Antokoletz, 1984, p. 138). In Fig 4.6 the A♭/B♭ priority around the A is transposed to the tritone with a now D/E priority delivering an axis E♭. This does not directly relate to octatonicism but establishes how Bartók was establishing primary tones. More traditionally, Bartók also establishes pitch priorities with implied perfect cadences at main points of the form of the work or the movement while moving by major or minor thirds outside of these points (Antokoletz, 1984, pp. 142–149).

**FIGURE 4.6**
Symmetrical organisation of pitches around A (Antokoletz, 1984, p. 141)
In Bartók’s early research into Hungarian folk songs he found a non-diatonic mode where there are overlapping segments of the mode which it shares with other modes. The 7-34 mode (G-A-B♭-C-D♭-E♭-F) can be split into a diatonic pentachord (B♭-C-D♭-E♭-F), an octatonic hexachord (G-A-B♭-C-D♭-E♭) and a whole-tone pentachord (Db-E♭-F-G-A). Bartók would often then extend these segments to their logical limits into full diatonic pitch collections (B♭-Aeolian or B♭-Dorian), or full octatonic pitch collections (Antokoletz, 1984, p. 204) such as in his Sonata No. 2 for Violin and Piano (1922) (Chung, 2015). Bartók essentially harmonised Hungarian-inspired folk melodies and expanded on them with the abstracted octatonic (and whole-tone) collections which are not present in the original source material (Antokoletz, 1984, p. 204). However, the source of Bartók’s interactions between the three pitch collections (diatonic, whole-tone and octatonic) and its expansion are not always present but rather the interactions of the pitch collections exist on their own (Antokoletz, 1984, p. 206). Many of these octatonic and diatonic interactions occur with regards to segments common to both sets. Such a practice is, on its own, not new to octatonicism. Bartók, however, treats the diatonic pitch sets differently when they interact with the octatonic pitch set. In Bartók’s Bagatelle No. XI from his Fourteen Bagatelles for Piano, Op. 6 (1908), the diatonic set at the m. 1, (Fig. 4.7a) which is strikingly represented, harmonically, by fourth-constructed chords rather than thirds-based triads, a notable departure with Bartók from traditional triadic forms that permeate all of the octatonicism so far (Wakeman, 2013, p. 21), is expanded by an extra perfect fifth when arranged into cyclical perfect fifths ([B♭-{F-C-G-D-A-E}-B]) (Fig. 4.8) implying two adjacent diatonic segments (B♭ to E and F to B). The melodic line (D-C-B-A♭) established the pentachord subset of octatonic collection. The next phrase (Fig. 4.7b), entirely establishes similar two-adjacent diatonic segments in perfect fifths ([F-C-G-D-A-E-B]-Gb). The outer boundaries of these two double diatonic segments (B♭-F-E-B and F-C-B-G♭) create both a cadential passage leading to the recapitulation (thus, a significant structural point) and also form two partitions of the octatonic scale presented as simple scale over diatonic harmony in Figure 4.7c. Bartók has used the diatonic scale symmetrically to create the harmonic material and also generate the octatonic scale (Antokoletz, 1984, p. 206–208). In Bagatelle No. IX Bartók takes cells from a gapped whole-tone pitch set and subsequently expands them out. In a later Variation he takes the same melodic cell (transposed down a semitone), but this time expands it to the octatonic pitch set. Essentially taking ambiguous melodic cells that could take their notes
from one pitch set or another and the removing the ambiguity by filling out the set differently both times (Antokoletz, 1984, pp. 212–213). While much of Bartók’s composition involves cells that interact with different pitch sets, *Concerto for Orchestra* (1943) adopts the diatonic, octatonic and whole-tone collections independently, or as hybrid pitch-collections between them at structural points (Antokoletz, 1984, p. 254). In these developments, they are treated as pitch sets rather than scales, not associated with traditional major-minor roles.

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**Figure 4.7a**
(Antokoletz, 1984, p. 206)

**Bagatelle No. XI, mm. 1–4**

\[\begin{align*}
\text{Allegretto molto rubato } j=56
\end{align*}\]

**Figure 4.7b**
(Antokoletz, 1984, p. 207)

**Bagatelle No. XI, mm. 5–9**

\[\begin{align*}
\text{(G-Mixolydian scale in upper line)}
\end{align*}\]

\[\begin{align*}
\text{accel. molto } j=69 \quad \text{poco rit. } j=56
\end{align*}\]

\[\begin{align*}
(\text{sight-note segment of the cycle of fifths, F-C-G-D-A-E-B-F#})
\end{align*}\]

**Figure 4.7c**
(Antokoletz, 1984, p. 207)

**Bagatelle No. XI, mm. 26–29**

\[\begin{align*}
\text{octatonic}
\end{align*}\]

\[\begin{align*}
\text{diatonic (F-C-G-D-A-E-B)}
\end{align*}\]
Bartók’s octatonicism, and indeed much of his music generally, is centred around the small cells already established. Fundamentally, these cells come from symmetrical expansions of dyads which create a pitch priority or a sonic area. Bartók’s octatonic writing is also rarely as obvious as Figure 4.7c, with these cells only accounting for subsets, sometimes only gapped subsets, of the octatonic pitch set which are only expanded upon later or a left ambiguous (Wakeman, 2013, p. 14). Forrest Wakeman identifies ten chords that Bartók employs that are subsets of a cluster chord that includes the entire octatonic collection resulting from superimposed tritone-related fully diminished chords (Fig. 4.9) (Wakeman, 2013, p. 14).

Additionally, the octatonic collection can form some of the more common horizontal symmetrical cells that Bartók uses (Fig. 4.10) (Wakeman, 2013, p. 15). The significant development here is that Bartók takes the already symmetrical nature of the octatonic collection and reduces it to smaller symmetrical cells that aren’t mere partitions.
and, indeed, can have “gaps”, rather than the tetrachords, minor thirds and tritones that we have seen constantly partition the octatonic pitch set. In Bartók’s *Mikrokosmos Book IV: No. 109 “From the Island of Bali”* the dominant octatonic partition of the piece (0,1,6,7) gives way to a 0,3,5,8 partition at the final dance. Such a stark change, however, was hinted at earlier in the piece with the melodic contours at the start prioritising these notes due to position, metricity, and pitch. In this “emergence” Cohn sees two traits as integral to the Bartók’s octatonic writing: the interaction of different transpositional partitions of the octatonic collection, and the process of emergence itself (Cohn, 1991, p. 275). An expansion of this characteristic of Bartók’s octatonic writing is his hinting at the scale with the use of ambiguous partitions which are then expanded into other non-octatonic pitch sets before finally revealing the full octatonic set late in the piece (Wakeman, 2013, p. 20).

Bartók’s extremely symmetrical approach, starting from as small as the micro level of dyads and then expanding outwards into cells and eventually full symmetrical collections, shows the level of intent and control he exerted over the harmonic constructions of his works while still holding onto their frequent Hungarian folk-song inspirations. Such overly controlled and extreme symmetries have been criticised as “forced” and “aesthetically lacking” (Wakeman, 2013, p. 21). Bartók’s approach with cellular octatonicism, while still loosely related in a broader structural sense to diatonicism, is much less concerned with establishing tonal centres in any conventional way. With Bartók, tonal centres become priority areas where a dyad can be the “centre”; this break with traditional approaches to tonality is also demonstrated by his use of uncommon, gapped partitions of the octatonic pitch set (which is never treated as a scale). His practice of “emergence” where he either initially disguises or merely delays the full revealing of an octatonic scale also contributes to the lack of conventional tonality. When there are more direct interactions with diatonicism, these interactions occur with a diatonic pitch set that is treated, itself, somewhat symmetrically and not in a way that establishes pitch priority convincingly. While Stravinsky

<table>
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<tr>
<th>Octatonic collection (8-28)</th>
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<th>4-10</th>
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**FIGURE 4.10**
Common octatonically based horizontal cells (Wakeman, 2013, p. 15)
also worked with octatonic cells, those cells were more diatonically relevant (such as melodically with a T-S-T scale, or harmonically in is neo-classical works with the S-T-S scale); Bartók’s approach moves further away from common place harmony than even Stravinsky.

Olivier Messiaen (1908–1992)

We are fortunate enough with Olivier Messiaen, who was born when Stravinsky was just starting his octatonic works, to have a first-hand account of his “musical language”. When Berger discovered the octatonic pitch set in the works of Stravinsky, he also reminded readers (Berger, 1963, p. 20) Messiaen had written of the scale in his The Technique of my Musical Language (Messiaen, 1956). This appears to be the only other instance of octatonicism that Berger was aware of at the time of his 1963 article.

The influence on Messiaen is broad and complex but there are also similarities with the influence on other octatonic composers. Pople describes the “re-echoes” of Messiaen’s style that can be heard in the works of octatonic composers Debussy, Ravel, Stravinsky, and Scriabin (Pople, 1995, p. 15) and there are numerous examples of Messiaen borrowing from the works of other composers (Balmer et al., 2016, p. 701–702). Debussy was an early source of inspiration for Messiaen when, at ten years of age, he was given the score of Debussy’s Pelléas et Mélisande by his teacher Jean de Gibon (Moriera, 2018, p. 8). In The Technique of my Musical Language, he quotes his own works with reference to evoking contemporary and past composers, from Ravel and Bartok to Mozart (Messiaen, 1956, p. 39) and also cites works inspired by Russian songs (in the octatonic pitch set). Messiaen is somewhat vague in how the examples evoke other composers (“Examples 138 and 139 evoke Ravel; who would have believed that?”, “142 mixes Mozart and Manuel de Falla” (Messiaen, 1956, p. 39)56) but does describe how these influences on his music are moulded by his own style:

56 Examples cited by Messiaen from page 24 of Part II of The Technique of my Musical Language (Messiaen, 1956).
In paragraph 6 of Chapter XVI, entitled “A look at Other Styles,” we shall try to draw the essence from the procedures of contemporary composers. Here, in the same way, we shall see some shadows of former times float by, we shall salute some great names of modern times; but all these borrowings, like those of paragraph 6 just mentioned, will be passed through the deforming prism of our language, will receive from our style a different blood, an unexpected melodic and rhythmic color in which fantasy and research will be united to destroy the least resemblance to the model (Messiaen, 1956, p. 39).

Messiaen also cites Folk music, particularly Russian with its “remarkable melodies”, Plainchant, and Hindu Ragas (Messiaen, 1956, p. 32–33). An interest in Russian folksongs and especially “exotic” music has been consistently associated with octatonic writing. Debussy, Polignac, Stravinsky, and Rimsky-Korsakov all associated octatonicism with the exotic, or mythical etc. Messiaen also saw his Catholic faith as a “real fairy-story” (Choi, 2017, p. 18) which would also compliment similar attitudes with regards to octatonicism. Rimsky-Korsakov’s interest in Russian folksongs influenced his octatonicism, especially in the melodic form of the scale, and it also played its part in Stravinsky. Polignac was also interested in plainchant (though Polignac’s similarities do not imply influence). Messiaen seemed unaware of the octatonicism in Debussy’s writing (Messiaen, 1956, p. 52) but is aware of “traces” of octatonicism in Rimsky-Korsakov’s Sadko (presumably he read Rimsky-Korsakov’s My Musical Life (Taruskin, 2011, p. 175)), “conscious” use in Scriabin, and “transient” use in Ravel and Stravinsky (Messiaen, 1956, p. 69). While such observations must be considered out-dated in light of the current understanding of Rimsky-Korsakov, Ravel, Debussy and Stravinsky, it sheds light on what may have influenced his octatonic writings. Messiaen studied Stravinsky’s octatonic work Les Noces\(^57\) and kept it in his guarded pocket library while incarcerated in the Silesia prison-of-war camp (Schellhorn, 2016, p. 43–44). Les Noces is also a work that attracted comparison to Messiaen’s Trois petites liturgies de la Présence Divine (1944) (Schellhorn, 2016, pp. 41–42). Plainchant had seen a revival around the end of the nineteenth century and by the time Messiaen was at the Paris Conservatoire, it was part of his training. The modal nature of these plainchant were early influences on Messiaen which he eventually expanded into the Indian and other eastern

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\(^{57}\) As van den Toorn notes, however, the octatonicism Les noces is less pronounced and more uncovered by analysis compared to some other of Stravinsky’s works (van den Toorn, 1983, pp. 43–46). Nevertheless, the octatonic components of it “could not have escaped” Messiaen’s notice (Schellhorn, 2016, p. 44).
modal music through the help of his History of Music teacher Maurice Emmanuel (with Messiaen crediting the teacher for converting him to modal music) (Pople, 1995, p. 17). The development of a national French style and lessening Germanic influence on French music (which started in the early-to-mid-nineteenth century and influenced Debussy a great deal) lingered and had an effect on Messiaen in the twentieth century; this French school had less of a focus on functionality, tonality and dissonance as a path to resonance. The Wagnerian school of music, by contrast, with a strong sense of functional dissonances eventually lead to Schönberg’s serialism. This atmosphere clearly influenced Messiaen’s musical upbringing and fondness for modality with its less structured and less well-defined tonality (Pople, 1995, pp. 19–20). Carla Bell also attributes Messiaen’s vertical harmonies, devoid of function, to the composer’s desire to express the timeless of the universe (Bell, 1984, p. 23).

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While Messiaen undoubtedly was influenced by these composers, styles and practices, his understanding of how they fully exploited the octatonic collection appears somewhat limited compared to the current day. The creation of his Modes of Limited Transposition (Fig. 4.11) cannot be traced in a direct sense back to Rimsky-Korsakov, Polignac, or Debussy (etc.) as the source of these artificial modes (Johnson, 1975, p. 16) is purely mathematical (though the inspiration from a sonority or folk-music context for starting down the path of devising these mathematically grouped modes may, however, be able to be traced back):

Based on our present chromatic system, a tempered system of twelve sounds, these modes are formed of several symmetrical groups, the last note of each group always being common with the first of the following group. At the end of a certain number of chromatic transpositions which varies with each mode, they are no longer transposable, the fourth transposition giving exactly the same notes as the first, for example, the fifth giving exactly the same notes as the second, etc. (When I say “the same notes,” I speak enharmonically and always according to our tempered system, C-sharp being equal to D-flat.) There are three modes of this type. There are four other modes, transposable six times, and presenting less interest, for the very reason of their too great number of transpositions. All the modes of limited transpositions can be used melodically, and especially harmonically, melody and harmonies never
leaving the notes of the mode. We spoke in Chapter One of the charm of impossibilities; their impossibility of transposition makes their strange charm. They are at once in the atmosphere of several tonalities, without polytonality, the composer being free to give predominance to one of the tonalities or to leave the tonal impression unsettled. Their series is closed. It is mathematically impossible to find others of them, at least in our tempered system of twelve semitones. … I add that the modes of limited transposition have nothing in common with the three great modal systems of India, China, and ancient Greece, no more than with the modes of plainchant (relatives of the Greek modes), all these scales being transposable twelve times (Messiaen, 1956, p. 58–59).

Messiaen’s claim of the series being closed is mostly true, however, there are truncated (as Messiaen calls them) subsets of the modes listed that are also symmetrical and limited in transposition that he does not list here. He does, however, list modes 4, 5, and 6 which are themselves mere truncations of mode 7 (though he introduces them together).
Ignoring the truncations, this drops the modes down to four in total (modes 1, 2, 3 and 7) (Johnson, 1975, p. 17). The key points from Messiaen’s introduction of his modes are his emphasis on the purity of the mode with no foreign tones, the interest in the limited nature of the transpositions, the tonal implications of symmetrical modes. Although the mathematical nature of the modes, their symmetries and “impossibilities” (as Messiaen calls the limitations in the above quote), Messiaen’s approach is not as organised as Bartók’s extreme symmetrical approach.

Before attempting to find the Gebrauchs-formulas, or compositional devices, of Messiaen’s octatonic compositions, it is important to look at his entire musical language due to how intertwined the two are. Messiaen sets out early how important melody is to his writing, stating that harmony (and rhythm) are “faithful servants” to the sovereignty of melody. Messiaen also focuses on two intervals, the descending major sixth and the tritone. This tritone is also seen as a resolving cadence as, with a low-C, an F# is heard in the harmonics. Messiaen provides some examples of cadential passages that include this falling tritone movement (Fig. 4.12).

This forms a consistent pattern with Messiaen’s cadences “resolving” down a tritone. When expanding on melody, Messiaen introduces us to his penchant for borrowing the music of others but moulding it by his musical language (“passing them through the deforming prism of our language” (Messiaen, 1956, pp. 32–33)). This is something he demonstrates not infrequently in The Technique of my Musical Language, but subsequently no longer mentions the practice (Balmer et al., 2016, p. 703) even though it remains a common practice in his works. With regards to melodic contour, he uses a melody from
Mussorgsky’s *Boris Godunov* as an example (Fig. 4.13) (which Messiaen would actually use in practice in his *Arc-en-ciel d'innocence* from *Chants de Terre et de Ciel* (Fig. 4.14)). In the Mussorgsky example, Messiaen again draws attention to the falling tritone as a cadence (in comparison to, and thus analogous for Messiaen to the falling perfect fifth in the *Boris Godunov*). In *O sacrum convivium* Messiaen keeps the contour of a melodic cell and modifies it to accommodate different the octatonic configurations with (Fig. 4.15) with (a) being the diatonic line and (b) being one of the octatonic modifications of the melody while keeping its contour (Beckman, 2016, pp. 22–24).

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58 Messiaen even took plainchant and fitted the melodies to the octatonic pitch set (Fig. 4.16).
Now moving the discussion towards harmony, Messiaen’s opening of the chapter is “With the advent of Claude Debussy, one spoke of appoggiaturas without resolution, of passing notes with no issue, etc.” and introduces the concept of “foreign” notes in a chord. Notes added without preparation or resolution; “the bee in the flower!” (Messiaen, 1956, p. 47). While we know more about Debussy now, Messiaen was clearly inspired by the notion of added foreign notes to a chord.

Messiaen, in the description of his “second mode” (the octatonic pitch set) does not make any distinction between the pitch set, as a scale, starting with a semitone or a whole-tone step as it “changes nothing in the chords created by the mode, and we fall again, enharmonically, into the notes of the first transposition” (Messiaen, 1956, p. 59). Much like
Polignac, Messiaen begins dissecting the scale into components, experimenting with examples of chords and progressions but within Messiaen’s musical language including cluster chords and chords with added notes which he saw as changing the colour, giving spice or perfume to a chord. Two foreign notes that Messiaen adds are a sixth and an augmented fourth. The sixth is not justified apart from pointing out that previous composers had used similar chords. The augmented fourth is justified due to its position in the harmonics, similarly to how Messiaen then assumes its role as a cadential interval (Messiaen, 1956, p. 47). This chord, (with an added sixth and augmented fourth) is what Messiaen categorises as the “typical chord of the second mode of limited transpositions” (Messiaen, 1956, p. 48), the octatonic pitch set (Fig. 4.17) Messiaen is introducing us, slowly, to non-functional harmony, at least horizontally; harmony that is vertical and static (Smalley, 1968, p. 129). Johnson introduces the characteristics of Messiaen’s harmony as:

For Messiaen, on the other hand, harmony was decorative rather than functional, and tonality becomes absorbed into a broader conception of modality. This lends his music a static rather than a dynamic quality, his harmony existing in a state which is neither tension nor relaxation – the mood of the moment is captured and transfixed in a timelessness which is implied by the structure of the music itself. The result is a harmony in which part writing has no real function, a harmony that is totally vertical rather than horizontal (Johnson, 1975, p. 13).

With his chapter on chords, Messiaen introduces the “Chord of the Dominant”, expanding on idea of added foreign notes, which comprise all the notes of the diatonic scale. In this “special chord” Messiaen “collapses the duality of dissonance and resolution into a single moment” (Johnson, 1975, p. 14). So, while horizontal functional harmony is no-longer sought by Messiaen he still tries to incorporate it vertically with superimpositions. These superimpositions, although different in construction are not altogether dissimilar from Stravinsky’s superimpositions which sought to deny priority to one of the superimposed chords. The other chords Messiaen introduces us to are not relevant here apart from further indicating the purpose of harmony in his music as colouristic. When discussing natural harmony, we are

59 Messiaen’s first and simplest example of an added sixth, it should be noted, is no different from a first inversion vii$^7$ chord in common practice harmony. His second example is, similarly, a vii$^9$. 

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brought back to comparable investigations by Polignac who wished to see how diatonic and octatonic scales interacted. Messiaen states that “all these investigations ought not make us forget the natural harmony: the true, unique, voluptuously pretty by essence, willed by the melody, issued from it, pre-existed in it, having always been enclosed in it, awaiting manifestation” (Messiaen, 1956, p. 52). One of the issues that Messiaen had once he had combined dissonance and resolution into the single chord was that such static music with no dynamic flow gives rise to complications of formal structure (Johnson, 1975, p. 19). One of Messiaen’s solutions was “enlargement” of common dissonant devices. Rather than a pedal note, Messiaen introduced a repetitive pedal group, similar to an advanced ostinato in a different mode to the main theme. This pedal point, Messiaen acknowledges, created polymodality which he later provides as a specific device in and of itself distinct from the ostinato-like pedal group in that it is not repetitive (Messiaen, 1956, p. 69). This is not altogether different from Rimsky-Korsakov’s melodic octatonic scale for the melody superimposed on the harmonic octatonic scale though clearly the purpose is different. Similarly, Messiaen also had a passing note becoming a “passing group” where there are groups of foreign notes, reproduced symmetrically (Messiaen, 1956, pp. 55–57). Such rich harmonic texture gave rise to Messiaen working on harmony as a form a timbre, rather than timbre being separately confined to orchestration (Johnson, 1975, p. 18). Messiaen came to regard chords as sound entities, as can be seen in his special chords and cluster chords that make up an entire scale or the audible harmonics. He didn’t believe the listener should be aware of the individual notes which constitute a chord. Johnson notes how Messiaen often composes the melody line to be played louder than the harmony, emphasising the timbral qualities of the harmony and also points to Debussy’s *La Cathédrale engloutie* (1910) as a precursor to Messiaen’s technique of changing the structure of each chord for a melody line. Debussy used a sequence of identical chords under the melody line to thicken the melody line, while with Messiaen even though the chord follows the melody line completely, the quality of the chord also changes with it introducing different harmonic timbres with each melodic note (Figure 4.18 demonstrates this with Messiaen’s *Turangalîla-Symphonie* (1948)) (Johnson, 1975, p. 18).
Messiaen introduced his *Modes of Limited Transposition* by remarking on their being “in the atmosphere of several tonalities at once, *without polytonality*, the composer being free to give predominance to one of the tonalities or to leave the tonal impression unsettled” (Messiaen, 1956, p. 58). This highlights the static and vertical nature of his compositions but does not preclude the possibility of tonal centres. Like all previous octatonic composers, Messiaen acknowledged that the octatonic scale can be tonicised on each of the minor thirds and this is one of the rare times that Messiaen refers to the third relations of his “mode 2” (Messiaen, 1956, p. 64). While such progressions were commonplace in octatonicism up to Stravinsky, in Messiaen, such horizontal “progressions”, so characteristic of the octatonic scale, are no longer considered to such a degree. Like Polignac and Scriabin, Messiaen also considers modulation, between the modes, within the modes and between the modes and diatonic music. Messiaen’s interaction with diatonic music is more abstracted than the interactions of Polignac, Rimsky-Korsakov, etc. with implications of diatonic interactions being represented more obviously by dominant seventh chords or by methods which Taruskin might call “fictitious” (Taruskin, 1996, p. 274) such as repeatedly holding the tonality in the bass and repeating it, constantly referring back to the implied tonal centre, or even, interestingly, simply superimposing modes to achieve a tonic that is not otherwise in the mode. In Figure 4.19, the octatonic mode the melody is in does not have the tonality that the subsequent harmonies tonicize, it is, however, represented in the middle line. The measure marked with an X begins with a B implied subdominant moving to an F# implied dominant that cannot fall within the mode to the E were it not for the superimposed mode. These implications of horizontal harmony do not define Messiaen’s music like the verticality does, but they also aren’t absent. Messiaen explains as such when
discussing his borrowing within the mode between transpositions (Fig. 4.20). Here the first measure is in the octatonic collection I and is the chord of a Dominant 7 to F#. The second measure in the octatonic collection III and is F# major. The upper register E# in measure two, however, does not belong to collection III and is borrowed from collection I with a “very intense tonal impression of F-sharp major, and modulation of the mode to itself without the tonality’s giving way” (Messiaen, 1956, p. 65). This modulation between modes is comparable to Scriabin who also formed a Dominant functioning chord in one mode that cadenced into a second mode. Roger Smalley compared this borrowing and modulation to Debussy: “Compare this with Debussy: 'Music is neither major nor minor. Minor thirds and major thirds should be combined, modulation thus becoming more flexible. The mode is that which one happens to choose at the moment. It is inconstant’” (Smalley, 1968, p. 129).
While Messiaen’s works are vertical in nature, there is some structural functionality at times. Messiaen’s *Technique of my Musical Language* outlines his methods which never completely remove functionality or tonality, but they do disguise or obfuscate them (Beckman, 2016, p. 24). In *O sacrum Convivium* Messiaen’s octatonic and diatonic interactions at key points create a formal structure. The piece which includes the superimposition of different modes, or as Messiaen calls it “polymodality” (Messiaen, 1956, pp. 68–69), including diatonic superimposed over octatonic writing, only has one passage of seven bars of purely octatonic writing which coincides with the text expressing images of a “mind filled with grace” (Beckman, 2016, p. 24). Messiaen implies a functional tonality with the bass measures and even seemingly comes to rest on an F# tonic. However, while a fictional tonicization does offer some conclusion, it is not harmonically functional until the end of the piece which properly offers functional closure (Beckman, 2016, pp. 24–26).

A final aspect of Messiaen’s writing is how his synaesthesia was incorporated into his compositions; much of Messiaen’s writing is based on harmonic colour and while that is still true from an abstracted musical perspective, Messiaen also meant this literally. The limited transpositions of Messiaen’s modes helped him see them in certain colours which he used by setting “wheels of color in opposition, into interweaving rainbows, finding complementary colors in music” and essentially painted with the modes (Bell, 1984, p. 29). The octatonic mode was seen as suggesting certain shades of violet, blue and purple (Johnson, 1975, p. 19) although other colours were also seen in the pitch set (Bernard, 1986, p. 47). Such a compositional approach, however, cannot be seen as a *Gebrauchs*-formula as it is so subjective to Messiaen himself.
Messiaen repeatedly assures readers that his modal writing is often pure without foreign notes to the pitch set. The big caveat is the defined exceptions for this purity: Modes can be superimposed on top of each other (or diatonicism can be superimposed (Beckman, 2016, p. 24)); notes can be borrowed from other transpositions of the same mode (Messiaen’s example of which is for the purpose of implying some semblance of tonality); pedal groups (comparable to simply superimposed modes); Passing Groups; or Embellished Groups all provide alternatives to the ‘purity’ of a line written only with the notes from a mode’s transposition. Messiaen’s octatonic works break away from the established formulas of octatonicism. The notion of partitioned tetrachords, or minor third progressions, or tritone related harmonies are less relevant to his music which treats the melody line as paramount to the harmony with non-functional, non-progressive colouristic and timbral properties that react vertically with the melodic line. One melodic comparison might be Messiaen’s favouring of the falling major sixth (a minor third) and a tritone. While it is important to remember that Messiaen did write non-octatonic music, octatonicism, or his “mode 2”, was his most commonly used mode (Johnson, 1975, p. 16) and the relationship of these melodic intervals might relate to that. A progression of similar chords in Messiaen’s music is to establish a timbre, or colour (literally and figuratively) with the melodic line. Such a melodic line is not-infrequently borrowed from other sources, but Messiaen incorporates that melody contour, into the mode of his choosing. This is much more basic than trying to incorporate the functionality of a melodic line into a mode. Messiaen hints at horizontal functionality at times but pulls back before the tonality can properly come to the surface.
Even though Sergei Prokofiev wasn’t a pupil of Rimsky-Korsakov, he did take his orchestration classes (much to Prokofiev’s dismay) and he was well acquainted with the “Rimsky-Korsakov scale” by the time he graduated in 1909, a year after the scale’s namesake died (Bazayev, 2018, p. 1.1). While Prokofiev was apparently bored with Rimsky-Korsakov’s orchestration classes, he respected the composer and especially his music (Bazayev, 2018, p. 1.2). Octatonicism did not permeate Prokofiev’s works; while van den Toorn claimed that for Stravinsky the octatonic collection was “so fundamentally a part of his musical thought that it has claims to being at the root of much that has persistently been dubbed “characteristic,” “typical,” or “distinctive”” (van den Toorn, 1983, p. 10); while Messiaen’s most used mode is the octatonic mode; and while Rimsky-Korsakov had the scale named after him, none of that can be said of Prokofiev (Bazayev, 2018, p. 1.2). Also, unlike many octatonic composers, while Prokofiev was interested in Russian folk music, this interest wasn’t associated with his octatonic methods. As discussed in regard to Stravinsky above, the octatonic mode was seen, alongside the whole-tone as a special kind of diatonic mode, known to be symmetrical and allowing easy modulation out of diatonic modes proper. While Prokofiev’s octatonicism often serves as a “compassionate homage” to Rimsky-Korsakov and the Russianness of his fairy operas, Prokofiev didn’t consistently associate octatonicism with any form of mysticism, the exotic, or the magical as did many composers.
Inessa Bazayev considered the following to be consistently characteristic of Prokofiev’s octatonic implementation:

1. The scale marks an important formal section of the work, with a clearly marked tonic (central element [CE] or tsentr tiagoteniya);

2. The section featuring the scale contains one (or two) non-collection tone(s) foreign to the collection; and

3. The non-collection tone creates continuity to the underlying octatonic collection as a tone of figuration (Yavorsky’s “connecting moment”) (Bazayev, 2018, p. 2.1).

The first of these characteristics is to be taken in the context of Russian music theory with regards to the octatonic scale. This clearly marked tonic or central element is not necessarily achieved through diatonic common practice harmony or by analogy to common practice harmony, but rather “this is usually marked by a continuous repetition and return to this tonic harmony” (Bazayev, 2018, p. 2.1) or “fictitiously”. The context of the second and third characteristics of Prokofiev’s octatonicism relate to Yavorsky’s duplex-chain mode. In this duplex-chain mode, the octatonic collection results from four tritones (two built from inversion) resolving to two French augmented sixths. Here the “connecting moment” is the non-collection tones (unstable notes) connecting to the stable notes of the octatonic collection (Fig. 5.1) (Bazayev, 2018, p. 1.5 & 2.1). Important to this as well is the “gravitational pull” of these connecting moment notes to the notes of the octatonic collection.

In Prokofiev’s *Visions fugitives* No. 3, Op.22 (1917), the middle section is wholly octatonic with the exception of the F♮ as appoggiatura-like neighbour-tones at mm. 21-22 (Fig. 5.2).
The section firmly established A–C–E–G as the central element of pitch priority, especially the A-E-G by constantly referencing the notes, the A-G pedal in the middle voices, and beginning and ending with the central element.

Similarly, Cinderella Suite, Op. 107 (1944) uses non-collection tones as either passing notes or appoggiatura-like neighbour-tones that pull or lead towards the established central element of the passage (Bazayev, 2018, pp. 2.2–2.3). In The Love for Three Oranges (1919) the non-collection tone is used as a dissonant pedal that eventually falls to one of the notes of the central element. This method of applying non-collection tones as a dissonance is
applied in a very common-practice manner with basic passing notes, appoggiaturas or pedal notes with the establishment of the “tonal centre” achieved (often) through repetition. Prokofiev took diatonic elements and applied them in an octatonic manner. Although Messiaen’s goals were different, Prokofiev’s solution here to the problem of dissonance in a symmetrical pitch set seems a rather elegant method compared with Messiaen’s pedal and passing groups. An interesting octatonic cadence occurs in Piano Sonata no. 6, Op. 82 (1940) where an A-major triad is established as the central element. As the passage is octatonic, the dominant triad to A-major (E-G#-B) is unavailable; instead, Prokofiev chooses the “half-step displacement” of an E♭-major chord with an E♭-A in the melodic line retaining a V-I shape melodically and an adjacent-V resolving to I in the bass (analogously) (Fig. 5.3) (Bazayev, 2018, p. 2.8). The sonata also features the octatonic collection in important formal sections with the primary theme, at the start, the beginning of the development and the start of the recapitulation.

Prokofiev clearly wants to retain some sort of tonal centre, such as a group of notes as a central element, which he establishes through repetition, position, metricity, and pitch. His analogous V-I cadence using half-step displacement of the “fifth” in addition to the correct perfect-fifth cadential movement in the melody helps to create a strong cadential movement. Prokofiev includes a limited number (one or two) non-collection tones as neighbouring tones that gravitationally fall or rise to established pitch centres, much like enharmonic non-scalar tones would in conventional diatonic voice leading.
Forte’s octatonic analysis (Forte, 1994) of Webern’s (1883–1945) *Six Bagatelles for String Quartet No. 1*, Op. 9 (1913) received criticism from Taruskin (2011, p. 179) for its reliance on “referability”\(^{60}\) of two or three note segments. The unordered octatonic pitch set in its entirety is presented in *Four Pieces for Violin and Piano*, Op. 7 (1910), as well as hexachord subsets vertically of a different octatonic collection (Forte, 1994, p. 171–172). From a structural perspective, given the meticulousness of Webern, in the first piece in *Six Bagatelles for String Quartet* the medial (G and G♭) and registral extremes (C and C♯) are also the final four notes of the piece at different registers and represent a subset of the octatonic collection III (C–D♭–Eb–E–F♯–G–A–B♭) that splits the octatonic pitch set into two tetrachordal pairs of semitone dyads (Forte, 1994, p. 175). Forte also determines that the three notes performed as harmonics in the piece which also start the work and if extended to the third note to start the piece (and the introduction of the full ensemble) makes up C–C♯–D–Eb. Forte also states that “[i]n contrast to the surface form, the internal form of the music, as determined by its interacting octatonic strands, is more intricate, as will be shown” (Forte, 1994, pp. 175–176).

The climax of the work also corresponds with the octatonic collection. With regards to Webern consciously using the octatonic collection, Forte states:

> …to determine if a continuous segment is a segment of the ordered, scalar form of 8-28, first identify its class membership. If it belongs to one of the ordered set classes listed above then it has probably been extracted (by the composer) from the

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\(^{60}\) By referability, Taruskin means referring subsets of the octatonic collection back to it to infer a larger octatonic context further stating “But arguments based solely on “referability” are silly arguments. The octatonic scale, as we know, may be parsed into four triads (either major or minor), four dominant seventh chords, four minor seventh chords, four half-diminished seventh chords, two diminished seventh chords, two French-sixth chords, and so on. This means that any triad or seventh chord can be referred to an octatonic source, and that consequently any composition by Mozart or Haydn could be given an octatonic “analysis,” as could any composition by Bach or Handel, Wagner or Brahms, even Monteverdi or Josquin des Prez” (Taruskin, 2011, p. 179). Later on the same page Taruskin makes specific his criticism of Forte’s analysis of Webern “The sheerest examples have been studies by Allen Forte, who refers three or even two-note segments extracted from Debussy or even Webern to this or that octatonic scale as if any piece by any composer could not yield equally valid results under pressure of such a procedure.”
scalar octatonic, as distinct from the octatonic collection. In this specific sense, the
distinction between ordered and unordered segments provides an informal measure
of the “conscious” usage of the octatonic scale as a referential collection and is
therefore essential to the assertion that Op. 9 No. 1 represents an experimental
excursion into the realm of the octatonic—a very idiosyncratic excursion, as will be
seen (Forte, 1994, p. 179).

As Forte considers these to be conscious choices by Webern, he identifies the strands of each
of the octatonic collections in the piece (Fig. 5.4a, b, c, and Fig. 5.5) (Forte, 1994, pp. 170-
188). Forte identifies surface features of the piece that give credence to an octatonic reading
of the work. The high registral extreme of the work mentioned above, C#, “serves as tailnote
of segment IIIC and at the same time is a member of ID, which, together with IIC, effects the
connection to the final section of the piece. In this way, the high C# relates to strategically
placed members of all three octatonic collections” (Forte, 1994, p. 188). The dyads that
represent C-C#-D-E♭ above also represent crucial moments and interactions between the
octatonic collections (Forte, 1994, p. 190). Forte seems to have anticipated Taruskin’s
reservations, somewhat, with a less-than-confident admission that other methods of analysis
exist and that this octatonic approach of his is new.

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FIGURE 5.4a
Octatonic Strands of Collection I (Forte, 1994, p. 180)

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61 IIIC and IIC are Forte’s shorthand for octatonic collection III and II respectively.
Figure 5.4b
Octatonic Strands of Collection II (Forte, 1994, p. 182)

Figure 5.4c
Octatonic Strands of Collection III (Forte, 1994, p. 184)
If the octatonic collection is indeed integral to this work by Webern, the octatonicism here would seem to comply with Webern’s “scrupulous avoidance of traditional themes” (Forte, 1994, p. 175). The octatonicism here is never presented in an ordered manner and is only identifiable through structural devices (themselves identifiable through registral, position and contextual clues) that present at crucial moments of the piece to interact with the three octatonic collections.

*  
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The structured and meticulously constructed aesthetics of Webern, in particular, from Second Viennese School serialism, contrast strongly with the lyrical “Italianate” quality of Luigi Dallapiccola’s (1904–1975) twelve-tone music (Samuel, 2013, p. 57). While the presence of octatonicism in Webern’s music could be debated, it is far more apparent in Dallapiccola. Dallapiccola was introduced to the octatonic pitch set early on through his teacher Vito Frazzi, who presented the first systematic description of the scale in Italy in 1930 in a booklet titled *Scale alternate per pianoforte* (Samuel, 2013, p. 59). Frazzi saw octatonicism as a better alternative to twelve-tone serialism which created a disagreement between the teacher
and Dallapiccolo when the latter started composing twelve-tone serialism with octatonic contexts (Samuel, 2013, p. 61).

In Sex Carmina Alcae (1943) octatonic passages, while not defining the work, are noticeably present and are achieved in the mostly linear serialist composition by superimposing different rows (Alegant et al., 2006, p. 40). The analysis from Brian Alegant et al. concerns itself with hexatonic subsets of the octatonic collection within Dallapiccola’s work, particularly Forte set 6-27 [0, 1, 3, 4, 6, 9] and 6-30 [0, 1, 3, 6, 7, 9] the latter of which is also the Petrushka chords subset (Alegant et al., 2006, p. 42) though they do acknowledge a stricter octatonic reading is possible (Alegant et al., 2006, p. 48). Being two hexachords, they can fit neatly into an analysis of twelve-tone music.

In ‘Intermezzo’ from Ciaccona, intermezzo e adagio (1945) Alegant et al show alternating 6-27 hexachords that comprises a section of the opening A material (Fig. 5.6) (Alegant et al., 2006, p. 49). The 6-27 subset is the only non-symmetrical hexachordal subset of the octatonic set (Samuel, 2013, p. 61). In the first movement of Quattro liriche di Antonio Machado (1948) Dallapiccola superimposes two rows a tritone apart in the voice and accompaniment. Together the two tritone related rows form 6-27 hexachords which when combined form the full 8-28 octatonic pitch set (Fig. 5.7, mm.23-24) (Alegant et al., 2006, p. 56). This is repeated several bars later with increased and additional chromatic right-hand accompaniment that disappears to become uniformly octatonic (Alegant et al., 2006, p. 57).
FIGURE 5.6
Annotated section from 'Intermezzo' from Ciaccona, intermezzo e adagio (1945) mm. 93–136 (Alegant et al., 2006, p. 49)
In *Il prigioniero* (1949), like the impressionist composers, Bartók, Messiaen and others, Dallapiccola incorporated octatonicism with the whole-tone scale and diatonicism. The one-act opera is “conceived on an extended scale, involving several distinct row forms exhibiting disparate octatonic, diatonic, whole-tone and chromatic collections” (Alegant et al., 2006, p. 58). There are three main tone rows of the opera, named by the composer as Prayer, Hope and Freedom, and two unnamed secondary rows subsequently named in analysis (Fig. 5.8) (Samuel, 2013, pp. 61–63). Prayer and the two secondary rows are all derivative of 6-27 subsets. Dallapiccola expands on Verdi’s “theatrical words”; words that carry particular dramatic weight and reoccur throughout a work. Examples of some of these in *Il prigioniero* are “hope” (speranza), “freedom” (libertà), “brother” (fratello) and “son” (figlio) (Samuel, 2013, p. 65). Dallapiccola extends this to a “theatrical music” by associating the rows with themes (Samuel, 2013, p. 65). Dallapiccola establishes dramatic associations between the octatonic rows by basing them on the octatonic features they share. Two main rows, Hope and Freedom, lack any octatonic influence. Again, this is chosen for dramatic purposes; Hope is a chromatic row, while Freedom is highly diatonic in how it is composed. The octatonic Prayer row is associated with the main character, and Lamp with his attempted escape from a prison\(^2\) (Samuel, 2013, pp. 66–69).

\(^2\)“Lamp” refers to a lamp that illuminated an escape.
In Dallapiccola’s later serialist works, the 8-28 full octatonic pitch set became rarer, but the 6-30 and 7-31 octatonic subsets became established surface features and unlike the more linear and horizontal nature of his earlier serialist works, the later works began incorporating vertical chords more prevalently (Alegant et al., 2006, p. 62). In the opening of the first movement of *Cinque canti* (1956), the 6-30 octatonic subsets are presented vertically as chords, distinct from the horizontal 6-27 sets typically presented horizontally seen thus far (Fig. 5.9).
Throughout the third movement Dallapiccola uses a vertical octatonic chord to punctuate an extended horizontal note creating an ideogram of a crucifix. While these octatonic subsets do not define the work, they are used as a formal cue and afforded a prominent status because of that (Alegant et al., 2006, p. 64). The two subsets are treated differently by the composer:

Considered in relation to the entire Dallapiccola canon, set class 6-27 appears to be granted a rather more significant role than that accorded to class 6-30. This is perhaps due to several factors: for instance, 6-27 is laden with minor thirds whereas 6-30 is laden with tritones; it can also be generated by [016] trichords whereas 6-30 cannot; moreover it exhibits a more diverse set-class vocabulary when combined with its transpositions and inversions. Furthermore, 6-27 is often placed within or at least in the proximity of complete octatonic scales, whereas 6-30 hexachords are typically made to stand alone (Alegant et al., 2006, pp. 77–78).

Dallapiccola also seems to use the octatonic subsets on occasions of spiritual significance. In addition to the use of the 6-30 to paint a cross onto the score as above, he also used the subsets of the 6-30 and 6-27 pitch sets in the somewhat symmetrically structured
multi-movement work which culminates in the central movement where poignant utterances in combination with the octatonic subsets “lend a sense of heightened expression and ‘otherworldliness’” (Alegant et al., 2006, pp. 76–77) implying that Dallapiccola used the octatonic collection, or its subsets, in comparable ways to Polignac, and Rimsky-Korsakov; while Polignac and Rimsky-Korsakov used octatonicism in often negative light, they were nonetheless still otherworldly in their exoticism and magic, much like Dallapiccola’s positively implied spiritual otherworldliness.

Samuel concludes that octatonicism has a dual function for Dallapiccola; it looks backward to organised functional tonality and can be tied to text-setting techniques, but also advances musical modernism. It offered the composer a way to soften harsher harmonic aspects of twelve-tone serialism “[i]n sum, by providing continuity, fluency, and a sense of balance and symmetry in association with a carefully organized verbal text, octatonicism contributed to that sense of “Italianate lyricism” that characterized Dallapiccola’s early twelve-tone music” (Samuel, 2013, p. 78). Octatonicism was also somewhat associated with otherworldliness in some of his works and especially as a differentiating factor in dramatic interpretations of text. He conceived of the preferred 6-27 octatonic subset as more conducive to horizontal writing, and 6-30 with vertical chordal harmonies.

*  

Whole-tone and octatonic interaction is not an uncommon occurrence. Both pitch sets have been around since Rimsky-Korsakov’s symphonic Sadko, and both were often employed by some composers including Debussy. Debussy was a major influence on George Crumb (1929–2022) with the American composer stating that “the most profound influence on my own thinking was Debussy” (Pearsall, 2004, p. 39). The techniques of the early features, sometimes incidental, sometimes experimental or tonally transitional works, were expanded by George Crumb into larger music units and paradigms for post-tonal composition (Bass, 1994, pp. 156–157). The interactions between the whole-tone pitch set and the octatonic, touched on in Chapter One, are relevant here. Richard Bass first introduces the octatonic and whole-tone interactions and commonalities, specifically the tritone in common between any two octatonic collections and the appropriate whole-tone collection. He then points to Debussy’s De qu’a vu le vent d’Ouest (1910) from the first book of Préludes which, in the first fourteen measures, moves through octatonic collection II (brought about through a
The interactions by Debussy might be functionally weakening, but they still retain or eventually revert to tonally functional components. These interactions are based on “the alternation of contrasting sonorities” linked by “discrete collections” resulting from “the retention of shared pitch classes” (Bass, 1994, pp. 161–163).

Crumb’s teacher, Ross Lee Finney, who mostly stayed within the realms of tonality, experimented with symmetrical inversions on an axis with the twentieth of his 24 Inventions alternating in the left and right hand between inclusive or exclusive symmetrical axes which created the octatonic collection and then whole-tone collections (Fig. 5.10) (Bass, 1994, p. 174). Within the works of Crumb, symmetry and transpositional projections are of great significance. Like Bartók, Messiaen, and Prokofiev, in Crumb’s larger progressions he will “fictitiously” emphasise certain pitches through invariance, recurrence, and registral placement and from a more structural perspective, integrity is often achieved through contrasts between referential pitch sets (Bass, 1994, p. 176). However, just because some pitches are given priority, this does not imply any diatonic function. Unlike how Bartók, and Messiaen still at times hint at diatonicism when prioritising certain pitches, Crumb’s approach is only to provide form and structure (Bass, 1994, p. 182).

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63 The whole-tone collection I being C-D-E-F#-G♯-A♯ and II being C♯-D♯-F-G-A-B
Crumb’s seventh piece from *Makrokosmos Vol. 1* (1972) has more complicated notation due to advanced piano performance techniques but the pitch classes are conveniently presented in the lower staff (Fig. 5.11).
The first pitch set reference is the *Petrushka* chord’s \([0,1,3,6,7,9]\) 6-30 octatonic subset (which Dallapiccola also frequently used) with the next chord being a whole-tone referable pentachord. These two chords, at various transpositions, are repeated before another pentachord is introduced. This pentachord is not new as it is a subset of the first 6-30 chord but with a note omitted resulting in \([0,1,3,6,9]\) 5-31 octatonic subset. The lowest bass-line chord is the \([0,1,6,7]\) octatonic tetrachord (Bass, 1994, pp. 176–178). Bass has divided the piece into five sections: the first three chords (not counting the lowest bass chord) being the introduction, the next five being A, the first four of the middle section being B, the remaining seven chords of the middle section being B’ and the final five chords being A’. It is clear that Crumb wanted to retain certain pitch classes between adjacent chords; the retained notes make a whole-tone collection (Bass, 1994, p. 178). In the A section the same occurs but this time with the alternate whole-tone collection. The introduction to A sections have a descending chromatic line in the lowest notes of the chords. Bass argues that the reason the notes are omitted in the climactic B’ section from the 6-30 chord that starts the piece is to emphasise the melodic A-D# tritone motif that plays off between the highest note in the chord and the pizzicato notes to start the piece. In this middle B’ section the only retained pitch classes are D#/Eb and A from the tritone motif. If Crumb had included the full 6-30 hexachord, then other retained pitches would have competed with the retained motif-based pitches. The lower bass chords played twice throughout the piece with the same notes are explained by the first and last chords of the piece. The first chord (B♭-C#-D#-G-A) and the last chord (F#-A-B-C-Eb-F) share the D# and A in common with the tritone motif and are the only ones in the piece that contain all four pitches that form the two lower bass chords (F-G-B♭-C).

Crumb’s techniques here are unique in that they are used to generate “motivically unified, complete musical structures” (Bass, 1994, p. 182). These aren’t compositional devices used merely for harmonic progressions or melodic constructions.
Tōru Takemitsu (1930–1996)

Born in Japan, Tōru Takemitsu grew up listening to traditional Japanese music but became familiar and enchanted by Western classical music in a military camp during World War II with an early introduction to French music. French music became a popular Western music in Japan after the forced opening of trade in Japan. French impressionist music’s modal and less functional tonalities along with a comparable timbral aesthetic allowed French music to be more compatible than other Western styles (Montandon, 2015, p. 17). This compatibility also allowed for Eastern influences on French music with Ukiyo-e artworks inspiring Debussy, along with Indonesian Gamelan inspiring both Debussy and Messiaen. Octatonicism which had also long been associated with exoticism helped Western composers bridge the gap. In particular Messiaen and Debussy, who Takemitsu considered to be his teacher, of sorts, showing him colour, light, and shadow. Of Messiaen, Takemitsu mentioned elements of the French composer’s music being colour and “shape of time” (Lee, 2018, p. 1–3). His later actual teachers, in particular Humio Hayasaka, wanted him to include Japanese elements into his compositions. A club that Takemitsu joined, Jikken-kobo (translated as “Experimental Workshop”), was filled with artists of various disciplines. The club introduced and premiered works by Bartók, and Messiaen. This experience inspired Takemitsu to use more experimental techniques, such as serialism, and graphic scores. While generally avoiding Japanese traditional music thus far, Takemitsu, after attending a traditional Japanese puppet show which used Japanese folk music, was again inspired to bring various cultural Japanese sounds into his music (Lee, 2018, p. 4). Takemitsu was using the octatonic scale in his music as early as 1952 but with the increased texture and greater levels of rhythmic regularity, Takemitsu began relying on octatonic-referential pitch materials even more (Koozin, 1991, p. 125).

Like Messiaen, Takemitsu liked to incorporate nature into his music. Takemitsu was generally impressed by the French composer’s music and eventually adopted the modes of limited transposition, especially mode 2, the octatonic scale, into his own works (Lee, 2018, p. 5). Both of his early inspirations were French composers (Debussy, and Messiaen)

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64 For consistency and clarity, the Western name order will be used (First/Given/Fore-name followed by Last/Family/Sur-name).
who took advantage of modal music, symmetrical scales, and in particular the octatonic and whole-tone scale (to various degrees). Like Messiaen, again, Takemitsu also quoted music from previous composers, manipulating them and incorporated them into his own style of music (Shaw, 2015, p. 2). In a curious comparison to Russian composers, such as Stravinsky and even Rimsky-Korsakov, who may have been influenced by Ravel and Debussy who were themselves influenced by earlier Russian music (including Mussorgsky, Glinka, and Rimsky-Korsakov himself), Takemitsu’s interest in Debussy and Messiaen also is somewhat circular with both Debussy and Messiaen expressing interest and influence from Eastern harmonies (Koozin, 1993, p. 185) and who then went on to influence Takemitsu. While Takemitsu took full advantage of Messiaen’s modes, especially the mode 2, he states that he arrived at the octatonic scale (as well as other modes of his own invention) intuitively before hearing of Messiaen and his modes (Koozin, 1991, p. 125).

*  
**

Takemitsu’s *For Away* (1973) was a significant structural development for the composer as in the work (and in subsequent compositions), pitch relations at all levels of structure were relatable back to the octatonic collection. In this work, the single octatonic collection III serves as the building block of the surface features of the work (Koozin, 1991, p. 125). *For Away* demonstrates a symmetrical form that is derived from its treatment of octatonicism; the exposition (mm. 1-13) is only referential to the octatonic collection III with mm. 7-13 focusing on and firmly establishing the octatonic collection III. The middle section (mm. 14-26) is ambiguous with more chromaticism, before the piece reasserts the octatonic collection III again (mm.27-35) and then finishing with the recapitulation (mm.36-40) which is only referential to the octatonic collection III (Koozin, 1991, p. 128). Takemitsu deviates from the octatonic collection in a specific and consistent manner of semitone and tritone relations within an octatonic context. Timothy Koozin believes this allows for continuity and variety through reference to octatonicism without conforming to the collection’s limitations (Koozin, 1991, p. 126). Koozin starts by highlighting two passages from *For Away* in which the octatonic collection reaches its completion at the highest point in the phrase (G) only for the octatonic nature of the phrase to be immediately veiled by a foreign note (B) to collection III. This B is semitonally related to the prominent C bass note (Fig. 5.12) (Koozin, 1991, p. 126). In measure four; the non-collection II Bb is semitonally related to the highest note of the
phrase, A, which is balanced by the non-collection II C# being semitonally related to the lowest note of the phrase, C (Fig. 5.13).

These semitone relationships increase the textural density and the tension while also providing a method of highlighting pitch classes (Koozin, 1991, p. 133). This technique of forming relationships between non-collection notes and extreme registral extremes (at a somewhat local level) is a hallmark of Takemitsu’s style (Koozin, 1991, p. 131). The highlighting of pitch classes in this manner distinguishes Takemitsu from other octatonic composers, especially those that treat certain notes with priority (such as Scriabin with each...
minor-third related note creating a new scale). This also distinguishes his music from other unordered octatonic pitch class set composers like Bartók and Messiaen who, if they do prioritise a pitch class, it is not via foreign notes. Additionally, groupings of subsets of octatonic collections are sometimes juxtaposed against subsequent events that emphasise the missing notes that would complete the subset into a full octatonic collection. Koozin notes a “crucial element of Takemitsu's pitch structuring[: the tendency to move from an octatonic-referential base toward total chromatic saturation at moments of greater textural density” (Koozin, 1991, p. 127). Takemitsu treats the non-collection foreign notes as tension-creating sections that are resolved with the return the referential octatonic collection (Koozin, 1991, p. 131).

George Walker (1922–2018)

George Walker's musical education varied due to his movement around the United States of America before eventually leading to Paris under Nadia Boulanger who was very interested in his compositional abilities (R. Nelson, 2003, p. 1–2). His music, has been described as “eclectic” which Walker disputes, believing all composers are eclectic in their influence and thus output. His compositional techniques include the more traditional, serialist, and traces of black folk, jazz, blues, spirituals, and gospel music which were not uncommon for American musicians at the time. Ryan Nelson believes Schönberg, Stravinsky, Hindemith, Debussy, Ravel, and Copland are found in Walker’s style (R. Nelson, 2003, p. 10). By the time Walker wrote Canvas in 2000, the concept of octatonicism was now a fully developed, understood, and studied concept, theory, and practice. While Walker was influenced by octatonic composers Stravinsky, Ravel, and Debussy, the academic research on those composers’ octatonic works was partially or mostly available by 2001. It’s possible that Walker learnt of the scale through the works of octatonic composers, it’s also possible he learnt of it in his musical education, or even possibly he simply discovered it himself like Takemitsu. At this point in history, given the now general awareness of the scale, the historical setting and traceable lineage becomes less relevant.

In the first two movements of Canvas (2000) the tonal implications of octatonicism are suppressed by Walker, in particular, like Bartók began to do, Walker avoided triadic use of the scale that is typically analogous to diatonicism, instead focusing on tritone and thirds of both major and minor qualities (R. Nelson, 2003, p. 30). However, he
does use the three octatonic transpositions to delineate tonal structures in the work. Similarly to Takemitsu’s *For Away*, Walker uses an octatonic-based arch form; Walker, in the first movement of *Canvas* symmetrically moves from octatonic collection III that starts the piece to collection II, then to collection I, back to II and finally ending on III (R. Nelson, 2003, p. 29). This general modulation is split into a three-section A B A’ form. The A section modulates from collection III to II. The B section is more unstable but generally prioritises collection I with the A’ section, a mirror of the first (R. Nelson, 2003, p. 46). That does not mean that these sections source their pitch sets from only one collection but that specific collections dominate the sections. Walker’s use of subsets of the octatonic collections, some of which are shared between two distinct octatonic collections, additionally obscures any latent tonal qualities that might be present between octatonic collections (R. Nelson, 2003, p. 30). Rather than pitch priority, Walker uses subsets of the octatonic as “tonic” sonorities. The 4-13 [0,1,3,6] tetrachord sonority starts and ends the first movement, the 5-10 [0,1,3,4,6] pentachord for the second movement, and 5-28 [0,2,3,6,8] for the third movement with the most prevalent trichord of the work, 3-5 [0,1,6] which is itself a subset of the “tonic” 4-13 sonority (R. Nelson, 2003, pp. 35–37). A D#-E motif is used by Walker to establish the collection III and as a form of voice leading to prioritise the E with the D# leading to it that ends the work (R. Nelson, 2003, p. 52). While one collection is predominantly used in each section these subset cells that make up the melodic components of the first movement of *Canvas* are used somewhat freely between collections which is how Walker achieves chord progressions. Semitone intervals are often employed by Walker when there is a change of collection to help establish such a collection, the D#-E example above is often used for collection III.

The modulation between sections in the work occurs differently than previous examples of modulation. Most modulatory devices so far rely on common tones or even, as with Scriabin, cadences from one collection to another. A device Walker uses in *Canvas* is different to these; in *Canvas* he substitutes one note from collection III (a C) for a G# non-collection tone. In Takemitsu, notes foreign to the octatonic collection were used as dissonance and motivic purposes, here this dissonant pedal is used as an anticipation to a modulation into collection II which includes the G# in its pitch set.

Walker makes very specific use of octatonic collections. He wants the collections to be distinct from each other and to that end he takes effort to establish the collection early-
on through the semitone intervals that define the collection. His modulation by anticipating the new collection is also a novel approach and his use of sonorities or subsets as the priority (rather than specific notes) is a different approach to Octatonicism as well.
Interestingly, although not unsurprisingly, the treatment of the octatonic pitch collection mirrors the historical changes that occurred to common practice harmony and tonality. Octatonicism itself was a natural growth from experimental common practice harmony, which, in turn, began to break down the tonal structure without surrendering it. The scale was seen as a device to achieve that goal of extreme tonal chromaticism. The more tonality broke down, the more octatonicism was adopted by composers who were aware of the pitch set, to facilitate that separation from common practice harmony but still without surrendering it completely. And finally, with tonality gone, the pitch set was used to achieve a sense of order providing structure and form that the full twelve tones could make less clear. Figure 6.1 shows a timeline of significant octatonic events.
Figure 6  
Timeline of significant octatonic events.

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1753 v</td>
<td>Scarlatti, Sonata, K.319 in F# Major</td>
<td>Minor third progression with connecting notes manifesting the octatonic collection (Agmon, 1990, p. 2) – Historical anomaly.</td>
</tr>
<tr>
<td>1854</td>
<td>Liszt, Ce qu’on entend sur la montagne, S.95</td>
<td>First “functioning” instance of octatonicism (Taruskin, 1996 pp. 266-267).</td>
</tr>
<tr>
<td>1879</td>
<td>Polignac, Ruine de Temple prédite</td>
<td>Polignac's first octatonic composition.</td>
</tr>
<tr>
<td>1879</td>
<td>Polignac, Octatonic Treatise</td>
<td>Date of Polignac's writing of his treatise of the octatonic scale (not published).</td>
</tr>
<tr>
<td>1885-1887</td>
<td>Debussy, L’ombre des arbres</td>
<td>First intentional use of the octatonic set.</td>
</tr>
<tr>
<td>1888</td>
<td>Polignac, publication of description of octatonic scale</td>
<td>Publication of La Danse du Python with explanatory note on the octatonic scale included (Kahan, 2009, p. 63).</td>
</tr>
<tr>
<td>1894</td>
<td>Polignac Public argument over octatonic scale</td>
<td>Polignac's public back-and-forth argument in local music magazine about who conceived of the octatonic scale with Bertha.</td>
</tr>
<tr>
<td>1901</td>
<td>Ravel, Jeux d’eau</td>
<td>Ravel superimposing tritone-related triads.</td>
</tr>
<tr>
<td>1944</td>
<td>Messiaen, The Technique of My Musical Language</td>
<td>Outline the octatonic pitch set has his &quot;Mode 2&quot; of limited transposition. Acknowledges previous octatonic composers</td>
</tr>
<tr>
<td>1945</td>
<td>Dallapiccola, Ciaccona, intermezzo e adagio</td>
<td>Octatonic pitch set used melodically in serialist composition.</td>
</tr>
<tr>
<td>1963</td>
<td>Berger, Pitch Organisation in Stravinsky</td>
<td>Berger's authoritative article coining &quot;octatonic&quot;.</td>
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</tbody>
</table>
The approaches to octatonicism have revealed several possible categorisations for approaches to octatonicism, many of which can be applied to a single composer. Was the composer entrenched in common-practice harmony or diatonic music? Alternatively, was avoiding diatonicism more on the composer’s mind? Did the composer typically employ contextually full collections of the octatonic scale, or was the approach more cellular with chosen subsets of the octatonic collection? Was tonality implied, strongly or weakly, by the composer or was there a total lack tonality to their approach? Did a composer consider the music to be exotic or magical or were such programmatic elements not considered? Was the symmetricity of the scale important or not to the composer? Was octatonicism used structurally? Finally, was folk-music an important consideration of the composer? Tables 3a and 3b display the previous questions and answers in tabled form. Tables 4a and 4b (in the Appendix below) list the octatonic compositions referenced in this dissertation firstly by composer (4a) and then date (4b). These are by no means comprehensive lists of octatonic works by the composers. These grouping seek not to pigeonhole composers into specific categorisations but to somewhat contextualise the use of octatonicism since the mid nineteenth century.

<table>
<thead>
<tr>
<th>Table 3a</th>
<th>General categorisation of general octatonic techniques by composer</th>
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<tbody>
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<tr>
<td>Liszt</td>
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<tr>
<td>Polignac</td>
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<tr>
<td>Debussy</td>
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<tr>
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<td>Scriabin</td>
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<td>Bartók</td>
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### Table 3a (ctd.)

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<th>Outside of common practice harmony</th>
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<th>Strong implication of tonality or pitch priority</th>
<th>Weak implication of tonality or pitch priority</th>
<th>Lack of tonality or pitch priority</th>
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</tr>
<tr>
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### Table 3b

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<th>Treatment of octatonic collections as keys</th>
<th>Structural use</th>
<th>Symmetricity significant</th>
<th>Exotic or other programmatic elements</th>
<th>Folk-music influenced</th>
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<td>Walker</td>
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Considering the first question: whether common practice harmony or diatonicism was a significant component of a composer’s octatonic use, proto-octatonic composers such as Liszt – who incidentally manifested the scale through experiments within common practice harmony – obviously would be categorised as such. Rimsky-Korsakov’s approaches also strongly reveal a connection with his focus on diatonic-related tetrachords in his melodic octatonic scale, and harmonies analogous to common practice harmony in his harmonic octatonic scale. His later experiments, as seen in his notebooks, start to superimpose harmonies that are notably distinct from common practice harmony. Polignac, although pushing the boundaries even more, still evidenced, in his treatise, the analogous referability of his octatonicism to common practice harmony techniques. Debussy, while striving towards new sonorities, still kept his octatonicism in check with common practice harmony and diatonic cadences. It wasn’t until his later works that he began using the octatonic collection more freely and rotating between collections. Still the majority of his compositions were within the confines of common practice harmony. Ravel, while still mostly entrenched in common practice harmony structures and cadences, pushes the boundaries even more with superimpositions of tritone related triads and tetrachords. While the instances of these in Ravel’s music still have a functional purpose, they are breaking down the boundaries even more, as such Ravel’s starts to sit inside and outside common practice harmony, with regards to octatonicism. Scriabin’s early works are much more based in common practice harmony, but once he started his octatonic compositions, the reliance on common practice harmonies are less visible. Scriabin still uses V-I cadences within an octatonic setting, and also well veiled by colourful flourishes and some chromaticism. Nevertheless, the cadences are still present, and Scriabin has not yet shed diatonic harmonies completely. From Stravinsky onward, with the exception of Prokofiev whose neighbouring tone-based analogous V-I cadential moment reveals an analogy to common practice harmony, do not employ common practice harmony in any notable way in their music. That is not to suggest that none of the works are tonal, but that they do not achieve a sense of pitch priority through common practice harmony means.

With regards to tonality outside of common practice harmony (so ignoring Liszt, Rimsky-Korsakov, Polignac, Debussy, and even Ravel and Prokofiev), the tonal character of the other composers differs, as does their approach. Scriabin obscures his common practice harmony-based octatonic cadences and while there is a tonality to them because of it, it is not
strong. This contributed to his pieces being considered early atonal works for such a long time. The octatonic scale does little to bring the works back from the precipice of atonality. Stravinsky’s tonality in his octatonic works (before his serialist works) is acquired more ‘fictitiously’ through beginning and ending on sonorities, rhythmic or metric placement, statistical predominance, or dynamics. This helps create order in his works, but the tonality is not strong. Even his neoclassical works, which take more advantage of the harmonic scale, do not use strong cadential movements. Bartók’s pitch priority is structurally related to his extreme use of symmetries; pitch centre implications are derived ‘fictitiously’ and can even be a dyad rather than a single pitch. Messiaen was not averse to diatonicism, but his approach to composition was more vertical and less horizontal. While melody was paramount to Messiaen, he only kept the contour of melodic lines when appropriating them into his various modes. And while Messiaen does superimpose diatonic and octatonic pitch sets, any functionality derived from such “polymodality” is implied but never taken advantage of until, sometimes, the end of the work. So even though Messiaen does hint at tonality and functionality, it is rarely eventualised.

Webern, Crumb, and Dallapiccola are all serialist or atonal composers and while Webern and Crumb did not treat octatonicism with any pitch centre implications, Dallapiccola perceived octatonicism as a bridge between more tonal music and modernist serialism. As such octatonicism was used to achieve his Italianate lyricism but wasn’t used for tonal purposes. Takemitsu uses foreign notes to the octatonic collection to establish priority of a pitch, but this is done in a very structural sense and does not come to the fore much as a surface pitch priority. Walker, interestingly, treats subsets and sonorities as a priority, establishing a subset, such as the 4-13 [0,1,3,6] tetrachord that is fictitiously.

A few composers attribute functionality of keys in common practice harmony to the use of octatonic collections. Polignac goes so far as to create novel key signatures for each of the collection (even if he rarely uses them, he still treats the collections as different keys to modulate to and from). Scriabin takes this a step further, instead of the three unique collections being perceived as the three available keys, Scriabin takes each of the minor third related symmetrical divisions of each unique collection as each a key. While Scriabin does not use key signatures, the precise nature of his enharmonic spellings shows the twelve keys that are made available through this conceptualisation. Of course, pitch set wise, as four of
these Scriabin ‘keys’ are from one octatonic collection, their pitch set is identical and pitch priority relies on different methods outside of enharmonic spelling.

After the turn of the century, octatonicism began to be used much more structurally or with regards to the form of the piece. In one sense octatonicism is treated structurally by Scriabin, but this structural approach is there to allow for common practice harmony style cadences as modulations between scales. Bartók uses octatonicism at structurally significant points in pieces but the octatonicism is not significant to the construction of that structure. The structural use of octatonicism coincides with the weakening or abandonment of tonality or pitch priority and because octatonicism has inherent traits that relate to diatonicism or common practice harmony, the use of the pitch set as an ordered scale would undermine the atonal nature of such compositions. The nature of a twelve-tone composition without any pitch priority can run into issues of less clarity with regards to form and structure and the symmetrical relationship between the notes in the octatonic set is taken advantage of by Crumb and Webern to add an overall structure and form. With Takemitsu and Walker, they use a simple form, arch-like in design, that treats the predominant octatonic referential pitch sets as the “keys” of each section of the form of the piece. This means that Takemitsu and Walker use the conceptualisation of octatonic collections as keys for the purpose of form and structure.

The symmetry of the octatonic collection is indeed taken advantage of in one way or another by all the composers. However, some composers’ use of the octatonic collection is more significantly characteristic of this than others. All early composers (Liszt to Ravel and even early Scriabin) exploited the minor third related symmetry of the scale. Some also exploited the tritone axis to a limited degree. The minor third related symmetry, while certainly significant to the octatonic output of these early composers is not considered a significant symmetrical use because it is closely related to common practice harmony procedures’ circle of fifths, even though it was employed as a distinction from common practice harmony. Stravinsky’s crystal-clear vertical superimposition of tritone related triads in the Petrushka chord became an important symmetrical device for his octatonic compositions. With Bartók the symmetricity of the octatonic pitch set (as well as others) was the driving force behind melody, harmony and substructures and no composer took advantage of the symmetry as much as Bartók. Due to Messiaen’s more vertical harmonies, the practical implications of the symmetry are somewhat lost when compared to other composers’
approaches. The octatonic pitch set as a key is used in a symmetrical form of pieces by Walker and Takemitsu, but these symmetrical forms are not inherently related to the symmetrical nature of the octatonic pitch set.

The two last considerations or groupings relate more subjective considerations. Several composers associated the octatonic collection with certain feelings or programmatic elements. Polignac came to such a conclusion in isolation away from the influence of Rimsky-Korsakov who also had very similar associations. For Polignac the octatonic scale was associated with Orientalist, Semitic, evil, barbaric, magical and exotic subject matters. For Rimsky-Korsakov the scale was exotic, magical, or, more simply, not-regular folk. Messiaen and Dallapiccola often associated the scale in relation to their faiths, Stravinsky associated with exoticism and magic to certain degrees. Debussy, interestingly, not infrequently reserved the collection for emotionally heavy points but not with a specific type of programme. Sometimes related to the exoticism consideration, many composers also had folk-music influence them and their octatonic compositions. Indeed, many of these composers used octatonicism while they were also in a nationalist zeitgeist; making music related to their respective countries. Debussy and France, Rimsky-Korsakov and Russia, Bartók and Hungary. Several composers turned to their local folk music as a source for inspiration. Stravinsky incorporated folk elements, Rimsky-Korsakov strongly, as did Bartók. Messiaen also incorporated folk elements, though not necessarily French, while moulding them into his modes of limited transposition.

The reliance on third party analysis of sometimes individual works could be seen as a limitation of this dissertation. This limitation was a pragmatic choice and was required to limit the scope. While this limitation does not undermine the findings, especially the revealed compositional devices, it does mean that further octatonic devices could be discovered through additional analysis of the composers presented in this dissertation or from unrepresented composers. Further research into compositional devices generally from a compositional and pedagogical perspective could be fruitful. The concept of these Gebrauchs-formulas is certainly not limited to octatonicism so there is room to reveal such devices in compositional techniques more generally. Additionally, the use of compositional devices as a pedagogical tool to teach composition (which is a method that was explored by

65 Not to imply anything apart from the general otherworldly nature of the faiths.
Rimsky-Korsakov and is comparable to methods from pre-nineteenth century teaching) could be an area where further research could have a meaningful impact. Prince Edmond de Polignac wrote his disjointed and unfinished treatise on the octatonicism, and Olivier Messiaen’s *The Technique of my Musical Language* includes a portion on the octatonic pitch set, but there are still opportunities for a larger, more robust, precise and practical exploration of octatonicism into a compositional language or style, especially one that could exist as a foundation for further development of the pitch set.

* *

The octatonic pitch set has had continuous development for over 150 years. It has never been developed to the extent of common practice harmony, or possibly even serialism. Octatonicism was mostly unknown in the English-speaking West until Berger’s 1963 article but has since become an active topic. Outside the English-speaking West, and especially in Russia the scale was well known, discussed and analysed. As a scale or a pitch set, numerous devices, *schemata*, or *Gebrauchs*-formulas were created by composers from various lineage, approaches and stylistic considerations. Part 1 of this paper detailed the characteristics of the octatonic scale, in particular the relationship between common practice harmony and octatonicism. Part 2 of this paper set out the historic context of octatonicism and reveals the devices used by the composers that developed the octatonic pitch set. From music based on common practice harmony, to atonal and serialist music as well as music that bridges the gap the octatonic scale has been used and compositional devices have been invented for these harmonic contexts. The development of octatonicism can be seen to be subservient to other dominant trends, most predominantly with regards to the abandonment of tonality. The octatonic scale, however, does not disappear with each musical trend but rather is adapted into the new paradigm. This shows the flexibility of the octatonic pitch set. Even though Rimsky-Korsakov stands out as the predominant teacher of octatonicism, there are numerous developments of octatonicism that occur outside of his influence. What is also shown is how the octatonic scale, throughout history, can still link different composers together. George Walker, and Edmond Polignac, although in distinct ways, still treat the octatonic collection as keys. Dallapiccola and Rimsky-Korsakov associate the pitch set loosely with otherworldliness. Rimsky-Korsakov and Bartók share a nationalist interest in folk-music which influenced their octatonic implementations. These composers are stylistically,
historically and harmonically different but together they all developed octatonicism, and they all share octatonicism as a component of their works.
**Table 4a**  
List of referenced octatonic compositions by composer.

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<tr>
<th>Year</th>
<th>Composer</th>
<th>Composition</th>
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<td>1943</td>
<td>Bartók</td>
<td>Concerto for Orchestra</td>
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<tr>
<td>1908</td>
<td>Bartók</td>
<td>Fourteen Bagatelles for Piano, Op. 6</td>
</tr>
<tr>
<td>1940</td>
<td>Bartók</td>
<td>Mikrokosmos Book IV (N.B. individual pieces from Mikrokosmos composed between 1926 and 1939, published together in 1940 (Suchoff, 1959, p. 196))</td>
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<tr>
<td>1922</td>
<td>Bartók</td>
<td>Sonata No. 2 for Violin and Piano</td>
</tr>
<tr>
<td>1972</td>
<td>Crumb</td>
<td>Makrokosmos Vol. 1</td>
</tr>
<tr>
<td>1945</td>
<td>Dallapiccola</td>
<td>‘Intermezzo’ from Ciaccona, intermezzo e adagio</td>
</tr>
<tr>
<td>1956</td>
<td>Dallapiccola</td>
<td>Cinque canti</td>
</tr>
<tr>
<td>1949</td>
<td>Dallapiccola</td>
<td>Il prigioniero</td>
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<tr>
<td>1948</td>
<td>Dallapiccola</td>
<td>Quattro liriche di Antonio Machado</td>
</tr>
<tr>
<td>1943</td>
<td>Dallapiccola</td>
<td>Sex Carmina Alcae</td>
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<tr>
<td>1903</td>
<td>Debussy</td>
<td>Dans le Jardin</td>
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<tr>
<td>1885</td>
<td>Debussy</td>
<td>L’ombre des arbres (1885), from Ariettes oubliées (1885-87)</td>
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<td>1905</td>
<td>Debussy</td>
<td>La mer</td>
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<td>1891</td>
<td>Debussy</td>
<td>La mer est plus belle que les cathedrals from 3 Mélodies de Verlaine</td>
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<td>Liszt</td>
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1831  Liszt  *Ce qu'on entend sur la montagne*, S.95
1908  Maximilian Steinberg  *Prélude symphonique* “in memoriam Nikolai Rimsky-Korsakov”, Op. 7
1938  Messiaen  *Arc-en-ciel d'innocence* from *Chants de Terre et de Ciel*
1937  Messiaen  *O sacrum Convivium*
1944  Messiaen  *Trois petites liturgies de la Présence Divine*
1948  Messiaen  *Turangalîla-Symphonie*
1872  Mussorgsky  *Boris Godunov*
1884  Polignac  *La Danse du Serpent*
1884  Polignac  *Fantasie-Tanz*
1944  Prokofiev  *Cinderella Suite*, Op. 102
1940  Prokofiev  *Piano Sonata* no. 6, Op. 82
1919  Prokofiev  *The Love for Three Oranges*
1917  Prokofiev  *Visions fugitives* No. 3, Op. 22
1903  Ravel  *Alyssa*
1905  Ravel  *Introduction et Allegro*
1901  Ravel  *Jeux d’eau*
1908  Ravel  *Rapsodie espagnole*
1893  Ravel  *Sérénade grotesque*
1922  Ravel  *Sonata for Violin and Cello*
1895  Ravel  *Un Grand Sommeil noir*
1888  Rimsky-Korsakov  *Sheherazade*, Op. 35
1902  Rimsky-Korsakov  *Kashchey the Deathless*
1898  Rimsky-Korsakov  *Sadko* (opera)
1867  Rimsky-Korsakov  *Sadko*, Op. 5 (musical tableau)
1753  Scarlatti  Keyboard *Sonata in F-sharp major*, K.319
1914  Scriabin  *Guirlandes*
1912  Scriabin  *Piano Sonata*, op. 62
1912  Scriabin  *Piano Sonata*, op. 64
1908  Stravinsky  *Fireworks*
1923  Stravinsky  *Les Noces*
1911  Stravinsky  *Petrushka*
1908  Stravinsky  *Scherzo Fantasique*
1945  Stravinsky  *Symphony in Three Movements*
1930  Stravinsky  *Symphony of Psalms*
1910  Stravinsky  *The Firebird*
1914  Stravinsky  *The Nightingale*
1913  Stravinsky  *The Rite of Spring*
1973  Takemitsu  *For Away*
2000  Walker  *Canvas*
1913  Webern  *Six Bagatelles* for *String Quartet* No. 1, Op. 9

**Table 4b**
List of referenced octatonic compositions by date composed.

1753  Scarlatti *Keyboard Sonata in F-sharp major, K.319*
1831  Liszt *Ce qu’on entend sur la montagne, S.95*
1867  Rimsky-Korsakov *Sadko, Op. 5 (musical tableau)*
1872  Mussorgsky *Boris Godunov*
1884  Polignac *Fantasie-Tanz*
1884  Polignac *La Danse du Serpent*
1885  Liszt *Bagatelle sans tonalité, S.216a*
1885  Debussy *L’ombre des arbres (1885), from Ariettes oubliées (1885-87)*
1888  Rimsky-Korsakov *Sheherazade, Op. 35*
1891  Debussy *La mer est plus belle que les cathedrals from 3 Mélodies de Verlaine*
1893  Ravel *Sérénade grotesque*
1894  Debussy *Prelude a l’après-midi d’un faune*
1895  Ravel *Un Grand Sommeil noir*
1898  Rimsky-Korsakov *Sadko (opera)*
1898  Debussy *Pelléas et Mélisande*
1901  Ravel *Jeux d’eau*
1902  Rimsky-Korsakov *Kashchey the Deathless*
1903  Debussy *Dans le Jardin*
1903  Ravel *Alyssa*
1905  Debussy *La mer*
1905  Ravel *Introduction et Allegro*
1908  Ravel *Rapsodie espagnole*
1908  Maximilian Steinberg *Prélude symphonique “in memoriam Nikolai Rimsky-Korsakov”, Op. 7*
1908  Stravinsky *Scherzo Fantasique*
1908  Stravinsky *Fireworks*
1908  Bartók *Fourteen Bagatelles for Piano, Op. 6*
1910  Stravinsky *The Firebird*
1910  Webern *Four Pieces for Violin and Piano, Op. 7*
1911  Stravinsky *Petrushka*
1912  Scriabin *Piano Sonata, op. 62*
1912  Scriabin *Piano Sonata, op. 64*
1913  Stravinsky *The Rite of Spring*
1913  Webern *Six Bagatelles for String Quartet No. 1, Op. 9*
1914  Stravinsky *The Nightingale*
1914  Scriabin *Guirlandes*
1917  Prokofiev *Visions fugitives No. 3, Op.22*
1919  Prokofiev *The Love for Three Oranges*
1922  Ravel *Sonata for Violin and Cello*
1922  Bartók *Sonata No. 2 for Violin and Piano*
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1945  Stravinsky *Symphony in Three Movements*
1945  Dallapiccola ‘*Intermezzo’* from *Ciaccona, intermezzo e adagio*
1948  Messiaen *Turangalîla-Symphonie*
1948  Dallapiccola *Quattro liriche di Antonio Machado*
1949  Dallapiccola *Il prigioniero*
1956  Dallapiccola *Cinque canti*
1972  Crumb *Makrokosmos* Vol. 1
1973  Takemitsu *For Away*
2000  George Walker *Canvas*

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<td>crotchet represents a return to the first note of the collection)</td>
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<td>Dorian Axis on F (Inclusive)</td>
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<td>Overlapping relationship of the octatonic scale and the Dorian mode</td>
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<td>Symmetrical partitioning at minor third Melodic Octatonic Collection III</td>
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