SHIRAZ FOR PIANO SOLO BY CLAUDE VIVIER: AN ANALYSIS FOR THE PERFORMER

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Abstract

Claude Vivier wrote Shiraz in 1977, after returning from a trip to Bali and Iran. Linked to the compositional style of his mentors Gilles Tremblay and Karlheinz Stockhausen, Shiraz is the embryo of what would become Vivier’s own mature compositional and expressive language. Its scope and its importance in Vivier’s catalogue make it an essential subject for an exploration of Vivier’s compositional techniques. This thesis aims not only to give a broad sense of Vivier’s musical language, but also to communicate specific insights relevant to pianists who wish to understand better the subtleties of this particular composition. An investigation of selected works written by Vivier in 1975, a comparison with Schumann’s Toccata opus 7, and a consideration of influences from Stockhausen and Messiaen form the background for a thorough analysis of the piece (including its form, pitch structure, and rhythmic techniques). Problems of memorization and fingering are also discussed. The thesis can help the performer who wishes to add Shiraz to his or her repertoire, to understand and successfully prepare the work for performance and interpretation.
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**Introduction**

“Je réalise de façon patente que ce voyage n’est finalement qu’un voyage au fond de moi-même,” said Claude Vivier upon his return from a long trip to Asia. \(^1\) After his visits to Bali and Iran, his musical style would become more unique. *Shiraz*, a solo piano work of large scope, was written in 1977 following this voyage, at the request of the pianist Louis-Philippe Pelletier. It is the first of several pieces inspired by exotic places (the others being *Samarkand*, *Bouchara* and *Paramirabo*), but more importantly, it is the embryo of the new compositional path, which led Vivier to his later style.

Very little research material is available to the performer as a guide to *Shiraz*. Three different documents have been produced. The first one, published by Jaco Mijnheer, is a preliminary study of *Shiraz*. It was supposed to lead to a doctoral dissertation, which Mijnheer did not complete.\(^2\) It presents Vivier’s techniques, showing the composer’s sketches. It serves as an excellent introduction, preliminary to a deeper analysis of *Shiraz*. Brigitte Poulin also wrote a noteworthy contribution to the literature on this piece in 1999.\(^3\) Poulin is a prominent pianist on the Canadian new music scene. Her interest in new music led her to focus her doctoral studies on the analysis of three works for piano composed by Canadian composers. While her dissertation provides a

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\(^1\) “I realize that this journey was, above all, one of self-discovery.” In programme notes by Jaco Mijnheer, *Et je reverrai cette ville étrange* by Claude Vivier, trans. Elisabeth Wood (Saint-Nicolas, Les éditions Doberman-Yppan, 1994), p. 2.


\(^3\) Brigitte Poulin, “Vers un répertoire québécois canadien pour piano de Shiraz à aujourd’hui,” Mémoire de doctorat en musique (interprétation), Université de Montréal, 1999.
good introduction to the mechanisms (form, pitch content, rhythm) of Shiraz through
detailed illustrations, her discussion nonetheless remains limited, and her approach does
not facilitate a full understanding of the piece for the reader. The third document was
written by Abigail Richardson, and was presented in a Canadian University Music
Society (CUMS) Conference in Halifax in May of 2003.\textsuperscript{4} Her paper uses analytical
approaches similar to the ones I apply here, but the focus is more selective and her
presentation shorter. To sum up, these three documents constitute a good starting point
from which to acquire an understanding of Vivier’s style and musical language. While
the previous essays are mostly based on compositional approaches, my contribution to
the literature on Shiraz will include analytical approaches specifically geared towards the
performer, and will reflect on other topics neglected thus far, such as the relationship
between Shiraz and Schumann, as well as some performance practice issues.

Poulin’s provocative question at the opening of her dissertation lays out the
central dilemma for the prospective student of the work. “Est-il possible de jouer toutes
les notes de Shiraz? C’est peu probable.”\textsuperscript{5} (Is it possible to play all the notes of Shiraz?
It’s not very likely). Considering these cautionary remarks and the immense virtuosic
capacities of Louis-Philippe Pelletier, who commissioned the piece, prospective
performers may feel daunted by the legendary aura of difficulty that surrounds the piece,
and may choose to avoid its challenges. It is certainly true that a performance of Vivier’s

\textsuperscript{4} Abigail Richardson, “Claude Vivier: Intuition and Reason,” paper presented at the
\textsuperscript{5} Brigitte Poulin, “Vers un répertoire québécois canadien pour piano de Shiraz à
aujourd’hui,” Mémoire de doctorat en musique (interprétation), Université de Montréal,
pianistic masterpiece is not feasible without extensive technical preparation. The piece requires a formidable dedication of time and analytical resources, and this has perhaps prevented it from being as widely played as its superb substance merits. However, a pragmatic consideration of its technical and analytical components, such as that provided herein, can open its compelling challenges to satisfying new solutions.

Throughout this document, I will demonstrate how an understanding of the work’s structural elements, gained through research and analysis, can aid the performer’s perception of the work and be of assistance in meeting its technical demands. An investigation of the piece, both in terms of its virtuosic technical demands and the unique elements of Vivier’s musical style and language, will lead to suggested strategies for the performer, to facilitate better understanding and encourage a more proactive relationship with the piece. The hope is that with this assistance, pianists will be motivated to add Shiraz to their repertoire, as one of the most exciting piano pieces written by a composer from Québec.
Chapter 1: The contexts of Shiraz

“It is imperative for a performer to be able to put a work of art into perspective. This chapter explores direct and indirect relationships between Shiraz and earlier models. An investigation of some of the works that Vivier composed in 1975 provides a basis for establishing some trends in the composer’s style. This discussion is followed by an overview of specific examples of music, by Vivier’s mentor Stockhausen, and by another direct influence, Messiaen, that relate in cogent ways to Shiraz. Lastly, the hypothesis that Shiraz might have been modeled on Schumann’s Toccata op. 7 is explored. This contextualization of Shiraz helps the pianist to comprehend its place in the literature for the instrument.

Claude Vivier et Véronique Robert: "Les écrits de Claude Vivier," Circuit: Revue nord-américaine de musique du XXe siècle, 2 / 1-2 (1991): 89. My translation: “Shiraz – a city of Iran- a pearl of a city, a roughly shaped diamond- inspired from me a piano work also shaped by an idea: the hand movements on the piano. The four-part writing (two parts per hand) develops homophonic directions from which will slowly emerge a two-part counterpoint. A return to the brusque writing precedes an enigmatic choral. The work is dedicated to the marvelous pianist Louis-Philippe Pelletier, and indirectly, to two blind singers whom I have followed for hours in the market of Shiraz.”
1.1 The 1975 Competition works

In 1975, the International Stepping Stone Competition, part of the Canadian Music Competition, was held in Montreal. Vivier was given the commission to write all the test pieces for the occasion (for piano, voice, and diverse instrumental categories). These works are interesting to investigate in the context of *Shiraz* for various reasons. First, most of them are written for a solo instrument (like *Shiraz*) or for a solo instrument with piano. After the works of 1975 and *Shiraz* itself, Vivier’s compositions focus on larger ensembles rather than on one or two instruments. The 1975 competition works represent Vivier’s musical language in the period immediately preceding *Shiraz*, and specifically in the context of solo and duo formats. Finally, since Vivier did not write anything exclusively for piano after *Shiraz*, and very little for the instrument in general, it is essential to explore his approach to piano writing through these works.

Michel-Georges Brégent, a composer and friend of Vivier, has written a short text about the group of pieces written in 1975. Here is an extract in translation:

“Claude Vivier had to write these works in a very brief period of time (four days at the most). One could think of these works as “musique en gestation” which, in Claude Vivier’s case, is very interesting since it reflects, in some ways, the image of Vivier himself reflecting. There is not in this music the pretension of the masterpiece but rather of simple but well conceived pieces. Vivier was extremely proud of his achievement…. “

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7 “Claude Vivier eut à écrire ces pages dans un bref délais (sic) (quatre jours au maximum, à pied levé, main au papier). On peut parler de musique en gestation, ce qui, dans le cas de Claude Vivier, est très intéressant puisqu’elle reflète, en quelque sorte, la réflexion même de Vivier réfléchissant. Il n’y a pas dans cette musique la prétention de la “grande œuvre” mais bien “des pièces toutes simples et bien pensées”. Claude Vivier était très fier de cette réalisation...”. Michel-Georges Brégent, “Notes” from *Improvisation pour basson et piano*, unpublished manuscript, Montréal, 1975.
The Competition pieces are *Pianoforte* (for solo piano), *Hymnen An Die Nacht* (for voice and piano), *Pour Guitare* (for solo guitar), *Improvisation pour Basson et Piano* (for bassoon and piano), *Pièce pour flûte et piano* (for flute and piano), *Pièce pour violon et piano* (for violin and piano) and *Pièce pour violoncelle et piano* (for cello and piano). These earlier pieces reveal how some of the very characteristic elements found in *Shiraz* were already part of Vivier’s language before his Asian journey, and also demonstrably link Vivier to his teachers Gilles Tremblay and Karlheinz Stockhausen, and to Olivier Messiaen as well, with whom Tremblay also studied.

Familiarity with the work *Pianoforte* is extremely important for the performer of *Shiraz*, because it constitutes the only other solo piano piece written by Vivier. This work seems closely aligned to the music of Stockhausen and Messiaen. In the first three measures, Vivier composes with the first numbers of the Fibonacci series, i.e. 2, 3, and 5, both in the duration of the melody notes (quarter, dotted quarter, eighth tied to a half note) and in the duration of the bars themselves (5/4, 3/4, 2/4). In fact, Vivier uses this idea throughout the piece, which, like *Shiraz*, is built on a simple mathematical series, a technique often used by Stockhausen and Messiaen, for instance in *Klavierstück IX* and *Vingt Regards sur l’Enfant-Jésus* respectively. There is also extensive use of

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8 “The Fibonacci Series is a sequence of numbers in which each successive number is the sum of the previous two. The series starts by posting 0 and 1 as the first terms, and then continues by successive sums: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34 etc. Numbers and ratios found in the Fibonacci series are also found in nature, for instance in number of petals in single flowers, or in growth patterns in many species of flora and fauna. Numerous composers, most famously Bartók, have used numbers from the series to generate rhythms and proportions in their music.”
ornamentation affixed to longer notes, and this is an evocation of Hindu music used both by Messiaen and Stockhausen. These kinds of grace notes are used in several of Vivier’s earlier works, and are commonly utilized throughout Shiraz.

A principal difference between Shiraz and Pianoforte is that in Shiraz Vivier employs a generally homophonic texture, with two parts per hand. In Pianoforte, the writing is much more varied, commencing with an ethereal melody, transitioning to Messiaen-like right hand chords in mm. 16-17 (see Example 1 below), followed at m. 23 by a style bearing closer resemblance to Shiraz (m. 89) (Example 2), with ornamented homophonic and homorhythmic writing. The nearest stylistic parallels occur towards the end of Pianoforte. In mm. 81-83 (Example 3), flowing sixteenth notes move in contrary motion, two voices per hand, a textural gesture very similar to the first section of Shiraz (from mm. 1 to 36).

Example 1. Pianoforte, mm. 16-17

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9 The score of Shiraz can be found in the Appendix and should be consulted when the discussion addresses specific measures (measures number indicated do not factor repeated measures).
Example 2. *Pianoforte*, m. 23

Example 3. *Pianoforte*, mm. 81-82

The most striking similarity between the two pieces is the fact that *Pianoforte* ends with a chorale, like *Shiraz*. In the closing chorale of *Pianoforte*, Vivier uses the opening melody as a bass line, which he harmonizes in the right hand. This melody is a twelve-tone row (with some small liberties in the ordering of its presentation). The row completes the aggregate with Eb before the end of the chorale, and Vivier returns to that pitch class in the last measure, repeating it in a faster two-note figure. This process is similar to one that occurs in *Shiraz*, although the melody in *Shiraz* is clearly in the soprano line. Vivier also achieves closure in *Shiraz* by completing the aggregate before
the ultimate bar, but ends the piece on D, with a relatively fast rhythmic figure. Example 4 shows the chorale in *Pianoforte* (compare to *Shiraz*, mm. 258-265).

Example 4. *Pianoforte*, mm. 89-99

To summarize, both solo piano pieces end with a chorale built on twelve-tone techniques and achieve closure in similar manner. They both use Fibonacci series—an aspect of *Shiraz* to be described in detail later—but, there is more rhythmic variety in *Pianoforte* and the distribution of the voices is not limited to two parts per hand, as we will see is the case in most of *Shiraz*.

The *Pièce pour violoncelle et piano* also features ornaments, and is closer to *Shiraz* in its use of the two voices per hand and the use of homorhythms. In fact, most of the piece is written in rhythmic unison; not only do all the voices in the piano part line up, but the pianist and cellist also play for the most part in synchrony. Nonetheless, this
texture actually results in a piece in which the melodic line is the essential component; like with Shiraz, there is an emphasis on melody in the soprano, and the other voices are treated as coloristic companion elements. Example 5 shows the rhythmic unison writing described above.

Example 5. Pièce pour violoncelle et piano, mm. 49-52

Pour Guitare also shows certain techniques that Vivier will subsequently use in Shiraz. The Fibonacci series is once again used to build the rhythmic structure, from durations of 1, 2, 3, 5, and 8 seconds. As in Shiraz, the principles of contraction and augmentation are used (as will be discussed in the next chapter): these are visible in the first line of Pour Guitare, where the grace notes decrease gradually, or in the fifth line where notes are repeated 4, 5, 6 and 7 times. Line 6 in Pour Guitare bears an interesting comparison to Shiraz in its exploration of rhythmic displacement and complementary rhythms to create a contrapuntal texture (in Shiraz, m. 139). Example 6 shows the first page of Pour Guitare.
The Pièce pour violon et piano is very similar to the Pièce pour violoncelle et piano discussed earlier. Here however, Vivier uses the whole number series to organize the first few bars (3/8, 2/8, 1/8, 4/8) rather than the Fibonacci series (see Example 7). The ornaments are still present and much of the piano writing is in two parts per hand,
generally in rhythmic unison, with the exception of m. 14 in which the violinist and the pianist use different divisions of the beats. Perhaps the most interesting similarity between Shiraz and the Pièce pour violon et piano is at m. 6 (see Example 8), where the violin double stops oscillate around a few notes, in a manner we will later see again in Section B of Shiraz (mm. 136-138).

Example 7. Pièce pour violon et piano, mm. 1-5

Example 8. Pièce pour violon et piano, m. 6

In the Improvisation pour basson et piano, Vivier once again returns to the use of a simple mathematical series (1, 3, 6, 10, 15, etc., in which the difference between successive numbers increases incrementally), repeated notes, rhythmic unison and complementary rhythms. Already present in the early work of 1975 is the use of the
kotekan technique, which is a central rhythmic device in Shiraz. The utilization of interlocking rhythm prior to Shiraz confirms that it was a technique known by Vivier and therefore not borrowed from the Balinese gamelan music he studied while in Indonesia. Example 9 shows the kotekan technique used in Improvisation pour basson et piano.

Example 9. Improvisation pour basson et piano, kotekan.

Many of the same mechanisms also appear in the Pièce pour flûte et piano, such as the use of Fibonacci durations in the opening piano melody (3, 2, 1; 5, 3, 2), the use of two voices per hand, the ornaments, and rhythmic unisons. At m. 10, there is a rapid harmonized scale in both instruments (see Example 10). Of interest here is Vivier’s use of contrary motion, a treatment that prevails in the opening of Shiraz. Vivier also uses rests as a musical element, and assigns different values to each measure of rests (mm. 15, 17, 19: 3/8, 2/8, and 1/8, respectively). This could be interpreted as being part of a Fibonacci series or simply the whole number series, but what is more valuable to notice is that, as in Shiraz, Vivier uses bars of rests which undergo mathematical transformation in

10 A definition of kotekan is given in the Rhythm section of the discussion in Chapter 2.3.
their subsequent repetitions. Example 10 shows the harmonized scale, with contrary motion, while Example 11 shows the bars of rest going through rhythmic transformation.

Example 10. *Pièce pour flûte et piano*, m. 10

Example 11. *Pièce pour flûte et piano*, mm. 14-19

The vocal work, *Hymnen an die Nacht* does not break away from the other works of 1975 in terms of its musical aesthetics. Like *Shiraz* or the other works discussed above, Vivier’s writing abides by the homophonic style seen in his other works. The piano writing generally adheres to the four-part chorale style and the rhythmic unison
seen in the other pieces. Example 12 shows the rhythmic unison characteristic of Vivier’s style. The choice of Novalis’ *Hymnen an die Nacht* (1799 first version) is quite striking. Both Vivier and Novalis had rigorous religious backgrounds and the influence of their spiritual worldviews as a source of inspiration permeates their work. Vivier’s setting of Novalis’ words is representative of his inherent interest in themes surrounding Death and Immortality. These overarching themes are also topics of continual interest to Vivier, as seen in later vocal works like *Wo bist du Licht!* (1981, text by Hölderlin) and *Glaubst Du an die Unsterblichkeit der Seele?* (1983). The latter work is based on a text written by Vivier himself, which relates the death of a man named Claude who is stabbed by a young man he had just met. Strangely, the text predicts quite accurately Vivier’s own death, as he was found in his apartment in Paris stabbed to death by a young man he had met in a bar. The nature of Vivier’s text selection defines major traits of the personality of the composer, allowing the performer a better understanding of the more mystical sections of Vivier’s works, such as the middle section of *Shiraz* or its enigmatic chorale ending.
This brief exploration of the works written in 1975 shows that Vivier had by this point developed a characteristic personal musical language based on simple mathematics, and a preference for rhythmic unison or homophony. Vivier’s style is nonetheless very lyrical and the melodies are often ornamented. We will see that Shiraz is not a departure but an intensification of the traits of piano writing found in the earlier pieces.
1.2 The Influence of Stockhausen and Messiaen

It is traditional to examine the work of a composer’s former teachers to identify aspects of style that might have been adopted by the younger composer. Some stylistic traits that Vivier might have borrowed from his teacher Karlheinz Stockhausen are indeed to be found in the 1975 works. For example, the mathematical structuralism that is an essential part of Vivier’s style is centrally linked to Stockhausen.

Shiraz was composed after Vivier’s self-described transformational experience in Asia, a yearlong journey of self-discovery. However, there are so many common elements shared by Shiraz and Stockhausen’s Klavierstück IX (1961) that one might suggest that while Vivier acquired a more independent, personal and mature style, he did so without rejecting entirely the teachings of his former mentor. The evolution of Vivier’s music becomes even more striking a few years later, but already with Shiraz there is a clear sense that Vivier is finding his own compositional path.

In that context, Shiraz might perhaps be viewed as being in some sense a compositional tribute to Karlheinz Stockhausen. As in Klavierstück IX, Vivier starts his piece with repeated chords; they differ in that Stockhausen uses perfect fourths separated by a semitone, while Vivier uses minor thirds, also separated by a semitone. Furthermore, two of the pitches used by Stockhausen in the first chord are also used by Vivier (C and G) but in a different register. Like in Shiraz, there is a clear focus on pitch class C since the repeated chord that is the essence of the first page of Klavierstück IX has
middle C as its highest note, while Shiraz uses the same pitch as the lowest note of its initial repeated chord. Both Stockhausen and Vivier split their chords evenly between both hands, two parts per hand, and both composers use full measures of rests as musical elements, organizing them in units of time. Example 13 shows the first page of *Klavierstück IX*.

**Example 13. Klavierstück IX, first page**

*Klavierstück IX* is almost entirely structured around the Fibonacci series. Vivier also uses the Fibonacci series but contrasts it with other types of series. Both composers use different tempo markings to express different characters, but Vivier’s changes of
tempo are more closely aligned to the original tempo. It also seems that Vivier chooses not to use integral serialism to the same degree as Stockhausen. There are certainly numerous dynamic changes in Shiraz, but Stockhausen goes to the extreme of providing a new dynamic indication for almost every note. A complete comparative study of both pieces might reveal more similarities. However, this brief overview suffices to demonstrate that Stockhausen’s influence is clearly present in Vivier’s musical language, and also highlights how Vivier modifies techniques acquired from his master.

With reference to Messiaen, there are obvious correlations to be made. Both Messiaen and Vivier were of the Catholic faith and a clear sense of spirituality pervades the music of both composers. They share a similar approach to many aspects of pitch, rhythm, and the use of the piano as a virtuoso instrument. Messiaen’s music is based on the “modes of limited transposition,” catalogued in his Technique de mon langage musical. Therefore, it is quite common to see entire sections of music built on one or another of these modes. In Shiraz, Vivier uses material that serves a similar purpose to a mode, such as a chord series or a scale that generates the entire music of a section. These chord series, which will be analyzed further in the discussion, are usually made of a set number of tetrachords, which are presented in a specific order. Vivier uses these chord series within smaller sections of the piece. However, his modes (chord series) differ from Messiaen’s modes in that they do not repeat themselves in successive octaves. For instance, in Chord Series 1 (CS1) and Chord Series 2 (CS2), the soprano line begins like the octatonic mode (Messiaen’s mode 2) but after a few notes, the mode is already transposed to an alternate version of the octatonic scale. Also, Vivier’s use of chord
colours is clearly similar to Messiaen’s music. Indeed, like many of Messiaen’s *Vingt Regards sur l’Enfant-Jésus*, Shiraz uses triads or seventh chords with added notes. This creates a sonorous continuity, and also affords tonally-trained ears an experience of associative colors. One can experience this effect, for instance, in the *Regard du Père* from Messiaen’s *Vingt Regards*. Indeed, the entire piece centers on the tonality of F# major. In *Shiraz*, there is a much less defined sense of a tonal center, but the continuum of triads with added notes puts the listener in a realm reminiscent of the tonal world.

Some rhythmic elements with interesting eastern influences are also common to both composers. For instance, the use of fast ornaments to a longer note, in a way that recalls Hindu musical gestures, is heard in *Shiraz* as well as throughout the *Vingt Regards*. Messiaen also demonstrates this usage in his *Traité de mon language musical*.

The concept of virtuosity comes to mind when comparing the musical style of Vivier and Messiaen. Both composers were writing for pianists with formidable technical means: Messiaen was writing for Yvonne Loriod and Vivier was writing for Louis-Philippe Pelletier. Messiaen spoke of Loriod with great respect, averring that writing for her meant that he never needed to worry about how difficult the music would be to execute. It is interesting to note that many pieces of Messiaen (*Regard de l’Esprit de Joie*, for instance) focus on the piano as a percussive instrument in moments of exuberance or happiness, a feature also found in the language and texture of *Shiraz*. One could make the case that these sounds might have also been inspired by eastern musical
traditions such as the gamelan. Both works manifest an undercurrent of tension, but one might say that the global effect of both pieces is a joyful exaltation.

It is necessary to understand, however, that the epic dimensions of Shiraz are of a different nature than Vivier’s early works, Stockhausen’s Klavierstück IX and most of Messiaen’s Vingt Regards. In that respect, Shiraz seems to be much closer to the few bigger works of Messiaen, such as the Regard de l’Église d’Amour. It is that larger scope which allows Vivier a more personal way to develop his musical ideas. It permits him to present different elements, and moreover, to intertwine them with the firm control of the mathematical paradigm he chose. Shiraz shows Vivier’s mastery of the larger forms while allowing for a discovery of different sonorous universes throughout the piece, and this is yet another reason for giving it an important position in Vivier’s catalogue.

1.3 The connection with Schumann

In 1991, the journal Circuits dedicated an entire volume to the work of Claude Vivier.\textsuperscript{11} There is not much direct input from Vivier himself regarding Shiraz, except for the programme notes written by him that describe his inspiration for composing the work. One note however, reveals a primary influence on the genesis of the work that gives helpful insight to the interpreter. In commissioning Shiraz, Louis-Philippe Pelletier had specifically asked Vivier to write him a piece in the style of Schumann’s Toccata, Op.

Having had the privilege of studying briefly with Louis-Philippe Pelletier in my years at McGill University, I contacted him to explore that anecdotal connection with *Shiraz*. Pelletier confirmed that he had indeed asked Vivier for a piece in that style, but that Vivier had never really explicitly indicated that he had conceived his piece as a response of any kind to the Schumann work.

Implying and ascribing intentions to a composer’s inspiration and creative process is speculative at best. Indeed, one should carefully avoid ascribing significance or intention to similarities that may be merely coincidental. However, the possible connection between Schumann’s *Toccata* and *Shiraz* is certainly one that is worth exploring, since the many exceptional resonances between the two works appear to surpass the circumstances of inadvertent coincidence.

Even at first glance the textural similarity between the two works is quickly apparent. Both works open with a flow of sixteenth notes (excluding the two “fanfare” measures of introduction in Schumann’s *Toccata*). In fact, sixteenth notes almost exclusively constitute the rhythmic material of both works, excepting the sixteenth note-eighth note motive inserted by Vivier at m. 5. (The Schumann keeps its moto perpetuum throughout the piece, unlike the Vivier which includes a contrasting middle section). This motive is the only rhythmic element in the virtuoso sections of *Shiraz* that varies the moto perpetuum. In the tradition of the toccata, the moto perpetuum is a favorite device of many composers of piano music. Notable 20th century examples are Prokofiev’s

Toccata Op. 11, and the toccata from Ravel’s Le Tombeau de Couperin, which both use the moto perpetuum device. Departing from the tradition of baroque toccatas, in which a keyboardist demonstrated his ability to improvise and deal with contrapuntal textures, the toccata in the Romantic era and beyond focused more on one aspect present in some of the earlier examples: virtuosity. Schumann’s Toccata, like many fine examples of that genre, requires a transcendental virtuosity to accomplish the demanding double note writing in sixteenth notes. The moto perpetuum puts enormous pressure on the performer, as there is no opportunity to rest. The outer sections of Shiraz are written in this style, and therefore require the utmost agility.

A close relationship between the Vivier and Schumann works may also be found in the pitch content at the opening bars of Shiraz. As a starting point of comparison, both works open with a clear focus on pitch class C. The Schumann Toccata opens with an oscillating movement around C, comparable to the repeating chords built on C that open Shiraz. The use of two parts per hand, a voicing that Vivier employs almost exclusively throughout Shiraz, also conjures ready parallels to the Schumann treatment. Even if these initially obvious similarities were to be perceived as totally coincidental, other shared properties attest to further commonalities as both pieces unfold.

After the initial focus on C, both composers diverge from the C center by moving the hands towards the extremities of the keyboard. Pitch similarities are also present in the bass lines of the works. In the first eight measures of Schumann’s Op. 7, the bass line uses the following pitches: C-B-flat-A-G-F, while in Shiraz, the bass line goes gradually
from C to B-flat to A and to F, forming the opening matrix of what constitutes Chords Series 1. (Vivier builds sections of the texture from several different Chord Series, and these will be described in detail in the following chapter, and referred to as CS1, CS2 etc.) The fact that Schumann subsequently avoids G in measures 21 to 25 of his Toccata makes his bass line virtually identical to the bass line of the first four chords of CS1. Examples 14 and 15 show the opening of the Schumann, while Example 16 shows CS1 from Shiraz.


Example 15. Schumann, Toccata Op. 7, mm. 21-25
While the soprano lines are quite different, both composers nonetheless engage a similar gesture, moving upwards in a very gradual manner towards the highest point: E (there are several F’s used as neighboring notes but the E is the real agogic accent) in Schumann, m. 25 (see Example 15); C in Vivier, heard for the first time in m. 12. The E used by Schumann is, in fact, harmonized with a C major triad, which continues to allow the listener to hear that the work’s primary pitch focus is on C. In Shiraz, both CS1 and CS2 (in its prime form) also show a rather convincing repeated movement from G to C in the soprano line, as though moving from dominant to tonic in each case. This can be seen in Example 17, which shows CS2. Along these lines, it can be argued that the pitch center at the beginning of Vivier’s work is the note C, as is unquestionably the case in the Schumann *Toccata.*
Let us now turn to the statement quoted at the beginning of the chapter. Here, Vivier clearly mentions how he used hand movements as a basis for the composition of *Shiraz*. In fact, all the pairs of possible horizontal hand movements are utilized: contrary motion (divergence and convergence), similar motion (ascending and descending), stasis (no hand motion, therefore a repetition of a chord) and both oblique motions (one hand remains static while the other hand ascends and vice versa). Schumann’s *Toccata* features basically all the same movements: divergence of both hands going from the center of the keyboard towards its extremities (mm. 21-23, Example 18), similar ascending motion in both hands (m. 33, Example 19), similar descending motion in both hands (m. 85, Example 20), pedal points in the bass which result in oblique motion (mm. 90-91, Example 21), and convergence (m. 256, Example 22). Vivier does not only present each of the possible directional hand movements, but builds entire sections upon them. This technique is seen in Schumann’s *Toccata* as well, but only for the divergent motion on the first page. Finally, the similarity in the counterpoint resulting from rhythmic displacement in both works is intriguing. (For example compare Schumann, mm. 25-32 shown in Example 23 with mm. 169-170 from *Shiraz.*)

Example 18. Divergence (Schumann, *Toccata*, mm. 21-23)
Example 19. Ascending similar motion (Schumann, *Toccata*, m. 33)

Example 20. Descending similar motion (Schumann, *Toccata*, mm. 85-86)

Example 21. Pedal point and oblique motion (Schumann, *Toccata*, mm. 90-91)
All of these features suggest a strong case that Schumann’s *Toccata* might have been a source of inspiration and material for *Shiraz*. It might be too much to claim that Vivier purposefully modeled *Shiraz* on Schumann’s Op. 7, but the congruencies are sufficiently numerous and widespread to suggest a close connection between the two works. At least it’s plausible that the older work acted as an inspiration and influence for Vivier in his work on *Shiraz*. Certainly the performer may draw a sense of interpretive context from the shared intensity and virtuosic use of the hands in both pieces. Indeed,
both works are easily associated through their specific technical challenges and unique sonorous realms.

The hypothesis that Vivier might have been inspired by Schumann’s *Toccata* offers an opportunity for further comparative considerations of his piano music. The empirical data from which to draw conclusions may be a bit thin, and one must eschew the impulse to magnify the significance of what may merely be inadvertent coincidence, but the language of *Shiraz* can sensitize us to further aesthetic evocations of Schumann’s music. Among the “ghost” elements of Schumann in the Vivier are the sudden shifts between states of intense activity and serene tranquility, which evoke Schumann’s two muse figures: the nostalgic dreamer Eusebius, and the passionate Florestan. Schumann’s piano music is often visited by the dynamic opposition of those two very contrasting characters, whose successive appearances can be experienced as a confrontation of interior states of being. Schumann’s *Kreisleriana*, Op. 16, is a work replete with this paradigm. Each of the eight pieces can be identifiably associated with one character or the other, and even within the sections of each piece, abrupt shifts in musical and emotional content produce a sense of continual flux.

The same process is at play in *Shiraz*. After the relative cohesion of the first few pages, the material becomes increasingly varied. Shortly after CS3 and CS3’ are introduced, Vivier alternates two tempi and two characters in Section A (these events will be discussed in more detail later). Abrupt changes in tempi, rhythm, dynamics and pitch content are noticeable throughout mm. 53-118. It is tempting to hear section A (mm. 1-
118) as drawing allusions to Florestan, with some brief incursions by Eusebius. In section B (mm. 119-238) that arrangement is then reversed, and the music is much quieter, aside from some rather noisy interruptions here and there. In its more complex sections, *Shiraz* involves alternations of compositional material; these not only make technical demands on the performer, but also seem reminiscent of the restless polarities of being that characterize *Kreisleriana*.

An even closer analytical parallel can perhaps be drawn between Vivier’s *Shiraz* and the seventh movement of Schumann’s *Kreisleriana* (Example 24). This piece is also in a toccata style, with a moto perpetuum in sixteenth notes. Its middle section uses a simple polyphonic canon, resonant with the middle section of *Shiraz*, in which Vivier also uses a polyphonic technique to create counterpoint with rhythmic displacement. The sixteenth notes return in both pieces to lead directly—and quite unexpectedly—into a coda in chorale style. A deeper look at the structure of the choral in the *Kreisleriana* VII reveals that a musical cell consisting of four chords very often organizes its phrasing, a component Vivier also uses in most of the phrases of his final chorale. In fact, one of the most striking elements of *Shiraz* is the appearance of its closing chorale, which seems to emerge from no apparent contextual origin and which is also based on a four-note cell. As such, the forms of Shiraz and of Kreisleriana VII appear to bear close enough resemblances for serious consideration as a possible reference and influence. Example 24 shows the transition from the moto perpetuum section to the coda in *Kreisleriana* VII.
While resisting a conclusive or even decisive assertion regarding any conscious intention on the part of Vivier to invoke Schumann’s works, a performer must be attuned to the rapid shifts of characters which create the formally significant interruptions of flow in Shiraz. Though the Schumann and Vivier works are separated by time and different worldviews, not to mention radical changes in compositional language, it is not unusual for a contemporary composer to look to the past for artistic models. Whether deliberate or unconscious, the echoes of Schumann’s toccata gestures may also manifest deeper and more pervasive concords of idea and feeling. Be that as it may, the rest of this document will focus on the analysis of Shiraz itself.
Chapter 2: Analysis

This essay seeks to inform and guide the performer of Shiraz rather than to comprehensively treat its theoretical substance. Thus, the analytic treatment in this document will emphasize the traditional topics of form, rhythm, pitch, articulation, dynamics and musical context, with a view to providing practical tools for performance preparation. The discussion will include some detailed analytical examples, to support the suggestions made to the performer.

2.1 Form

As Vivier indicates in the comments cited at the beginning of Chapter 1, Shiraz is organized in different sections based on the movements of the hands on the keyboard. These different sections group together into larger formal divisions, to create a traditional ternary form.

The different hand movements described by Vivier create seven distinct sections, which are followed by an eighth, acting as a coda that comprises all of the possible hand movements. The first section (henceforth labeled A1, mm. 1-36), primarily involves the hands starting from the middle of the keyboard and moving out to its extremities; this overall motion will be referred to as Divergence. The next section (henceforth labeled A2, mm. 37-118) creates a clear contrast, with hand movements starting from notes at the extreme range of the piano and heading to its center; this pattern will be referred to as
Convergence. Throughout *Shiraz*, Vivier always introduces one movement and next uses its opposite movement, combining them in order to form a larger section. Sections A1 and A2 are marked by their flow of sixteenth notes and extreme virtuosity. Together they constitute the first large section of the piece (labeled section A). A more detailed formal analysis of section A will be offered later.

Section A is followed by an abrupt change in character. Three different sections succeed each other, constituting a unified larger unit called section B. Section B1 (mm. 119-215) is characterized by a prominence of similar movement of both hands going upwards. The opposite movement is used immediately in section B2 (mm. 216-234), which features descending similar motion. Section B3 is the shortest in the piece (mm. 235-238), and is built on the idea of stasis. A single chord is repeated 39 times, and then closure is signaled by an additional bass note and harmonics. Sections B1, B2, and B3 form the larger unit B by way of similarities in their pitch content, tempo and character. Section B3 also serves as a bridge to section A’, since it presents the same chord that catalyzes the return of the virtuoso character.

The final larger unit (A’) is made of three smaller sections: A’1 and A’2 (which are intertwined), and a Chorale that functions as a coda. The tumultuous and energetic sixteenth notes are reasserted at the beginning of section A’, this time in a rather fascinating fashion. Vivier now alternates the last two kinds of hand movements possible on the keyboard, which can be both called Oblique: one static hand repeats a dyad while the other hand goes up or down. It would be possible to combine A’1 and A’2 into a
single section (mm. 239-257), but it makes sense to label them separately to show Vivier’s consistent approach to the alternating opposition of hand motions. In A’1 and A’2, Vivier manages to intertwine both opposite movements, using measures of rests and repeated chords, to create the same kind of atmosphere that started the piece. The piece ends with an enigmatic Chorale (mm. 258-265) which features all the different types of hand movements already used, now with very different rhythmic character. The return to a calmer character reminds us of the larger unit B, but the pitch content is clearly associated with the beginning of the piece, confirming the overall A-B-A’ structural plan.

Table 1 summarizes the overall structure of Shiraz.

Table 1. Form of Shiraz

<table>
<thead>
<tr>
<th>Section</th>
<th>Subsection</th>
<th>Main hand motion</th>
<th>Location (mm.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>A1</td>
<td>Divergence</td>
<td>1-36</td>
</tr>
<tr>
<td></td>
<td>A2</td>
<td>Convergence</td>
<td>37-118</td>
</tr>
<tr>
<td>B</td>
<td>B1</td>
<td>Similar ascending</td>
<td>119-215</td>
</tr>
<tr>
<td></td>
<td>B2</td>
<td>Similar descending</td>
<td>216-234</td>
</tr>
<tr>
<td></td>
<td>B3</td>
<td>Static</td>
<td>235-238</td>
</tr>
<tr>
<td>A’</td>
<td>A’1</td>
<td>Oblique ascending</td>
<td>239-257 (with A’2)</td>
</tr>
<tr>
<td></td>
<td>A’2</td>
<td>Oblique descending</td>
<td>239-257 (with A’1)</td>
</tr>
<tr>
<td></td>
<td>Coda (Chorale)</td>
<td>All motions</td>
<td>258-265</td>
</tr>
</tbody>
</table>

The overall scheme of the piece gives the listener and performer their main bearings, but the intricacies of the work reside in the structure of each one of the smaller sections of the piece. Vivier uses different “elements” that he assembles together with the help of simple mathematical formulas to build each section.\(^\text{13}\)

\(^{13}\) The word “element” here refers to a building block, which Vivier uses to constitute a section of Shiraz. Vivier uses this term in his sketches of Shiraz.
For instance, section A1 is made from four different elements: Repeated Chords; a Chord Series (henceforth called CS1, shown earlier in Example 16) going from the middle of the keyboard to its extremities (Divergence); another Chord Series (henceforth CS2, shown earlier in Example 17) going from the center of the keyboard towards the higher register (Ascension); and a small rhythmic motive of two chords, the second one being slightly accented. This latter rhythmic motive is reminiscent of the music from the *gamelan gong kebyar*. A detailed study of this style is described in Chapter 2 of Michael Tenzer’s book *Gamelan Gong Kebyar*.14 In *kebyar*, an irregular rhythmical pattern featuring a lower sound followed by a strident higher sound is called *byar*, derived from the word *kebyar* and reflecting the onomatopoeic quality of the two syllables of the word (*by*-ar). Therefore, the small rhythmic motive heard in section A1 is henceforth labeled *Byar*.

The four A1 elements described above alternate and are organized by Vivier’s use of simple arithmetic. Table 2 shows the chronology of each of the four elements as section A1 unfolds, and will be discussed below. In order to have a clearer understanding of the entire section, it is helpful to follow the unfolding of section A1 by consulting Table 2 and the score of *Shiraz* (which is included in the Appendix). One can discovers that Vivier concentrates on the first few chords of CS1 in the opening of *Shiraz*, gradually expanding to the ninth and last chord of CS1. To show this, the third column of Table 2 indicates the precise chord(s) used, from CS1 and CS2. The symbol “&” indicates the

specific chords used in the *Byar* element. The symbol “⁻” indicates that the chords it
separates are the first and last chords of a series. For instance, “CS1: 1-7” means that all
the chords from CS1 from the first one to the seventh one are included. The symbol “⁺”
indicates the specific fragment added to a full elocution of a chord series. For instance,
“CS1: 1-9 ⁺ 1-7” means that a complete elocution of CS1 is followed by a fragment
including the chords 1 to 7. The symbol “⋆” indicates repetition of a fragment of a series.
The number of repetitions is indicated by parenthesis.
Table 2. Map of the Elements in section A1

<table>
<thead>
<tr>
<th>Measure number</th>
<th>Element</th>
<th>Pitch content (CS1/CS2)</th>
<th>Mathematical Series</th>
<th>Duration in sixteenth notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Repeated chords</td>
<td>CS1: 1</td>
<td>Fibonacci</td>
<td>55</td>
</tr>
<tr>
<td>2</td>
<td>Divergence</td>
<td>CS1: 2</td>
<td>(1,2,4,7,11…)</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>Repeated chords</td>
<td>CS1: 3</td>
<td>Fibonacci</td>
<td>34</td>
</tr>
<tr>
<td>4</td>
<td>Divergence</td>
<td>CS1: 1-2</td>
<td>(1,2,4,7,11…)</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Byar</td>
<td>CS1: 1&amp;2</td>
<td>Fibonacci</td>
<td>(8) *3 = 24</td>
</tr>
<tr>
<td>6</td>
<td>Repeated chords</td>
<td>CS1: 4</td>
<td>Fibonacci</td>
<td>21</td>
</tr>
<tr>
<td>7</td>
<td>Divergence</td>
<td>CS1: 1-4</td>
<td>(1,2,4,7,11…)</td>
<td>4</td>
</tr>
<tr>
<td>8</td>
<td>Byar</td>
<td>CS1: 2&amp;3</td>
<td>Fibonacci</td>
<td>(1)*3 = 3</td>
</tr>
<tr>
<td>9</td>
<td>Repeated chords</td>
<td>CS1: 2</td>
<td>Fibonacci</td>
<td>13</td>
</tr>
<tr>
<td>10</td>
<td>Divergence</td>
<td>CS1: 1-7</td>
<td>(1,2,4,7,11…)</td>
<td>7</td>
</tr>
<tr>
<td>11</td>
<td>Ascension</td>
<td>CS2: T0</td>
<td>(1,2,4,7,11…)</td>
<td>(1)*11 = 11</td>
</tr>
<tr>
<td>12</td>
<td>Divergence</td>
<td>CS1: 1-9+1-2</td>
<td>(1,2,4,7,11…)</td>
<td>11</td>
</tr>
<tr>
<td>13</td>
<td>Repeated chords</td>
<td>CS1: 5</td>
<td>Fibonacci</td>
<td>8</td>
</tr>
<tr>
<td>14</td>
<td>Ascension</td>
<td>CS2: T1</td>
<td>(1,2,4,7,11…)</td>
<td>(7) * 11 = 77</td>
</tr>
<tr>
<td>15</td>
<td>Repeated chords</td>
<td>CS1: 6</td>
<td>Fibonacci</td>
<td>5</td>
</tr>
<tr>
<td>16</td>
<td>Divergence</td>
<td>CS1: 1-9+1-7</td>
<td>(1,2,4,7,11…)</td>
<td>16</td>
</tr>
<tr>
<td>17</td>
<td>Byar</td>
<td>CS1: 4&amp;8</td>
<td>Fibonacci</td>
<td>(5) *3 = 15</td>
</tr>
<tr>
<td>18-19</td>
<td>Divergence</td>
<td>CS1: (2)*1-9+1-4</td>
<td>(1,2,4,7,11…)</td>
<td>22</td>
</tr>
<tr>
<td>20</td>
<td>Ascension</td>
<td>CS2: T2</td>
<td>(1,2,4,7,11…)</td>
<td>(2)*11 = 22</td>
</tr>
<tr>
<td>21-22</td>
<td>Divergence</td>
<td>CS1: (3)*1-9+1-2</td>
<td>(1,2,4,7,11…)</td>
<td>29</td>
</tr>
<tr>
<td>23</td>
<td>Repeated chords</td>
<td>CS1: 7</td>
<td>Fibonacci</td>
<td>3</td>
</tr>
<tr>
<td>24</td>
<td>Byar</td>
<td>CS1: 7&amp;8</td>
<td>Fibonacci</td>
<td>(3)*3 = 9</td>
</tr>
<tr>
<td>25-26</td>
<td>Divergence</td>
<td>CS1: (4)*1-9+1</td>
<td>(1,2,4,7,11)</td>
<td>37</td>
</tr>
<tr>
<td>26</td>
<td>Repeated chords</td>
<td>CS1: 8</td>
<td>Fibonacci</td>
<td>2</td>
</tr>
<tr>
<td>27</td>
<td>Byar</td>
<td>CS1: 1 &amp;9</td>
<td>Fibonacci</td>
<td>(2) *3 = 6</td>
</tr>
<tr>
<td>28-31</td>
<td>Divergence</td>
<td>CS1: (4)* CS1 + retrogrades</td>
<td>(1,2,4,7,11…)</td>
<td>46</td>
</tr>
<tr>
<td>32</td>
<td>Ascension</td>
<td>CS2: T3</td>
<td>(1,2,4,7,11…)</td>
<td>(4)*11 = 44</td>
</tr>
<tr>
<td>33-36</td>
<td>Divergence</td>
<td>CS1: (4) *CS1 + retrogrades</td>
<td>(1,2,4,7,11…)</td>
<td>55 (close to 56)</td>
</tr>
</tbody>
</table>
It is extremely important for a performer to understand how the piece is structured, and how contrasting elements (hand motions) are derived from a single compositional source (in this case CS1, with a few moments drawn from CS2). Failure to differentiate the gestures adequately could weaken one of the main features of Shiraz, the principle of continuity and discontinuity. In fact, throughout the whole piece, many abrupt changes are made — not only from section to section, but also within each of the smaller sections. Therefore, the structural elements need to be clearly understood and interpreted as such, to clearly convey the composer’s intention, and allow the disruptions in the discourse to emerge as he planned them.

It is interesting to explore the processes used by the composer to create variety in the unfolding of each element. In section A1, the four elements are clearly intertwined with one another. Simple mathematical formulas rule each element’s progression throughout the first pages. Section A1 uses two mathematical formulas, or series. The Fibonacci series starts with 0 and 1, and then each successive number is the sum of the preceding two: 0, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, and so forth. The other series is also an "additive" one, and it starts with 1, then generates the next number by adding the rank of the previous number (the first number has rank 1, the second number has rank 2, etc.): 1, 2, 4, 7, 11, 16, 22, 29, 37, etc. In this series, the difference between successive terms increases by 1 each time. This series "grows" more slowly than does the Fibonacci series.
As Table 2 helps us see, the Repeated Chord element is used in mm. 1, 3, 6, 9, 13, 15, 23, and 26. The number of sixteenth-note repetitions in each measure (equally, the number of sixteenth notes in each measure) follows the Fibonacci series. In this case Vivier uses a segment of the Fibonacci series in decreasing order, starting from 55, so the Repeated Chord statements involve, respectively, 55, 34, 21, 13, 8, 5, 3, and 2 sixteenth note repetitions. The chords that are given multiple repetitions each belong to the series of nine tetrachords that will be called Chord Series 1 (CS1), and each statement of the Repeated Chord element repeats a different tetrachord from CS1. The tetrachords are presented as Repeated Chords in the order given in CS1, except that the second tetrachord is first used to interrupt the repetitions of the first chord, and is therefore not presented as a Repeated Chord figure until after the third and fourth tetrachords have been used in this manner. Throughout the opening pages, Vivier alternates statements of the Repeated Chord element with statements of the Divergence element, which also gradually deploy the tetrachords from CS1, in sequence, in successive entrances of growing length. (Meanwhile, the alternating statements of the Repeated Chord element become successively shorter.) Chord two first functions as a Divergence element, and therefore is not used as a Repeated Chord element until a bit later.

The Divergence element is introduced immediately and surprisingly after the Repeated Chords, acting as contrasting material; it too will be articulated and contrasted by each successive group of repeated chords. The tetrachords of CS1 consistently involve two notes per hand, so they ensure a balanced application of the Divergence element, each hand gradually moving from the center of the keyboard to its extremities in
an almost symmetrical manner. Vivier slowly extends each entrance of the Divergence element, starting with only the second tetrachord of CS1 in m. 2; the first two tetrachords of CS1 are then presented in m. 4; the first four tetrachords in m. 7; and the first seven tetrachords in m. 10. The number of tetrachords presented in each successive statement of the Divergence element follows the other simple mathematical formula employed frequently by Vivier (1, 2, 4, 7, 11, 16, 22, 29, 37…). The number sequence determines the number of chords (again, all in sixteenth notes) in each statement of the Divergence element. The number sequence explains the number of chords given in the initial statements just described above, and also why the first full Divergence statement of CS1 must extend beyond a single statement of the nine tetrachords in the series, because 9 does not occur in this number series. Since the number sequence requires 11 chords for the next Divergence element (found in m. 12), Vivier states the full nine-chord form of CS1 and then appendits first two tetrachords. A similar process is used for the next statement of 16 chords: Vivier uses the entire nine-chord series followed by the first seven chords, for a total of 16 chords. Interestingly, the seven chords added are the ones previously used when the statement of seven chords was introduced (m. 10). Vivier next uses a similar procedure to express the Divergence element in the required 22 chords, by repeating the whole nine-chord series twice, followed by first four chords of the series. Once again, he utilizes the same statement of four chords that appears earlier in the four-chord presentation of Divergence element (m. 7). The same is done for the 29-chord Divergence statement: three cycles through all nine chords, followed by the two extra chords that were used for 2-chord statement of the Divergence element. We can see clearly from these observations that Vivier's compositional decision to comprise nine
tetrachords in CS1 came from a clear understanding of this interesting property of the number series.

According to the number series, the next Divergence statement should consist of 37 chords. At first, one can see 39 chords grouped in the following manner (4 times 9 + 3.) Given how the preceding statements were produced, one would expect 37 chords to arise from four statements of CS1 plus its first chord. Vivier does fulfill that expectation, but here he slightly modifies the strict spelling of this element by writing a measure of 3/16. This measure seems, at a first glance, a part of the Divergence element but, in fact, it is a combination of the Divergence and the Repeated Chord elements. Closer scrutiny yields the intriguing discovery that the second and third sixteenth notes in the bar constitute an entirely distinct element. Indeed, it is a repetition of chord number eight from the series, finishing the unfolding of the decreasing Fibonacci series that is ruling the Repeated Chord element. Vivier thereby succeeds to complete both the Repeated Chord and Divergence elements by combining them into this 3/16 bar. This is the only time the composer combines two structural elements into one measure in section A1, and doing so marks the completion of one of the two alternating processes. Moreover, it creates an excellent preparation for the next bar, which constitutes the completion of the first important structural goal. Undoubtedly, the skip from the first chord of CS1 to its penultimate chord, followed by the rhythmic motive element that uses a skip from the first chord to the ninth and last chord of CS1, punctuate the climax of the opening section in a very convincing manner. Vivier uses the technique of retrograde to create variety in the last two statements of the Divergence element. He does so by succeeding each
statement of the prime form of CS1 by gradually increasing the number of chords belonging to the same series but in retrograde. For instance, the next number in the series, 46, is achieved by the first four measures of the retrograde statements. Each measure (mm. 28 to 31) starts with a complete statement of CS1, which is followed by one more chord from the series, gradually coming back from the last chord of the series to its first. The next number in the series would be 56, but instead this statement of the Divergence element falls short at 55. The reason for this will be explained in more detail during a later discussion of the sixteenth-note ratios. The appearance of the retrograde of the Divergence element introduces briefly a new type of hand movement (convergence), which will be the focus of Section A2.

The next element to be discussed is a rhythmic one: a staccato sixteenth note followed by an eight note. It is the third and last element using the tetrachords belonging to CS1, but it is distinct from the other two. This rhythmic element is extremely significant musically because it features two components that do not exist elsewhere in section A1: the accent of staccato articulation, and agogic accent of the eighth note, relative to the surrounding continuous stream of sixteenths. It is also the only element that skips between non-successive members of chord series A. (We noted that the Divergence element, in its progressive presentations, always respected the ordering of CS1, and cycled from the ninth chord back to the first whenever more than nine attacks were prescribed by the number series controlling the durations.) This third element contributes greatly to the effect of discontinuity that is central to the work. That effect is already present in the alternation of Repeated Chords and the Divergence elements. But
the interruption in the texture and the rhythm produced by the staccato articulation on the sixteenth note and by the longer value of the eighth note disrupts the first section, destroying the sense of legato and the constant flow of sixteenth notes in the simplest and most striking manner. In the first two statements of the Byar motive, there is no skip in the order of the chords used: tetrachords 1-then-2 for the first statement, and tetrachords 2-then-3 for the second. But the third and fifth statements feature rather big leaps in the chord order, using tetrachords 4-then-8 and 1-then-9 respectively; these disjunctions create a noteworthy disruption in the chord sequence that has been repeatedly presented by the Divergence element thus far. The Byar motive is also repeated in a manner based on a segment of the Fibonacci series. The segment is (1, 2, 3, 5, 8), but the numbers are presented in a different order, alternating largest and smallest values, but moving "inwards" from the extremities: (8, 1, 5, 3, 2). In the rightmost column of Table 2, these numbers multiply, the duration (3), i.e. sixteenth-then-eighth, in the rows showing the Byar motive.

The Ascension element is the fourth and last one to be introduced in section A1 (starting in m. 11), and it uses a totally different series of eleven chords, henceforth called CS2. Here the chords do not move outward from the centre of the keyboard to its extremities. Vivier instead introduces a contrasting treatment, with both hands moving in similar ascending motion. This treatment will become the focus in a subsequent section of the piece. Its use in section A1 prepares what will come later, and also provides variety in relation to the other elements based on CS1. Intriguingly, CS2 is also used in transposition, raised each time by one semitone. As mentioned earlier, CS2 is based on
the octatonic scale. The property of that scale limits the number of times it can be transposed without repeating itself. Messiaen labels this principle “modes à transpositions limitées”. Thus, Vivier stops the transpositions at T3 of CS2, when the first redundant pitches occur. This is indicated in the middle column of Table 2 by “CS2: T0” for its first appearance in m. 11, “CS2: T1” for its second in m. 14, “CS2: T2” for its third in m. 20, and “CS2: T3” for its fourth in m. 32. The prime form (or original transposition level) of CS2 is only heard once in section A1, but it will also appear in section A2, effecting a unifying link between both of the fast and virtuoso sections contained in the larger formal unit A.

CS2 is also related to CS1 by the colors and constituent intervals of the chords, which emphasize the use of stacked major or minor thirds. And in a more obvious way, the soprano voice is very similar in both chord series. By looking at the soprano line of both CS1 and CS2 (see Examples 16 and 17 above), one can also observe that seven out of eleven soprano pitch classes are the same, and often at the same pitch. A closer examination of CS2’s soprano line reveals that it is composed from two segments belonging to two of the three forms of the octatonic scale, with seven notes from one scale and four from the other.

Vivier once again uses arithmetic series to create an intelligent structural design with which to govern the unfolding of the Ascension elements. We have noted that the Repeated Chord elements and the Byar motives, both derived from CS1, use the Fibonacci series, and that the Divergence elements present CS1 using the (1, 2, 4, 7,
11…) series. The Ascension elements complete equilibrium by also using the (1, 2, 4, 7, 11…) series. While the Repeated Chord elements use Fibonacci in decreasing order, and the Divergence elements use (1, 2, 4, 7) in increasing values, the Byar elements and the Ascension elements both use an alternating inward wedge movement; while the Byar motives start with the largest available value, the Ascension elements start with the smallest one in the (1, 2, 4, 7…) series.

Vivier’s use of mathematical series goes beyond the association of each element with a formula. In fact, section A1 as a whole alternates chords belonging to CS1 and CS2 in a fascinating manner. Since CS2 consists of eleven chords stated each time in complete form (in prime form or transposed) each instance of the Ascension element involves a multiple of 11 events. It is intriguing to notice that the elements that use CS1 also seem to present multiples of 11 very frequently. The CS1 elements heard before the first statement of CS2 last a total of 164 sixteenth notes, just 1 less than 15*11 = 165. CS2 is then stated once, for 11 sixteenths. It is followed by a truncated version of CS1, which lasts 19 sixteenth notes before being interrupted by seven repetitions of CS2 (7*11 = 77). 19 is obviously not a multiple of 11, but when added to the 58 sixteenth notes of the material based on CS1 before the next statement of CS2, the sum is 77 = 7*11. CS2 is then repeated twice for 22 = 2*11 sixteenth notes before the material based on CS1 goes on for 132 = 12*11 sixteenth notes. This is followed by four repetitions of CS2 (44 = 4*11), and finally by 55 = 5*11 sixteenth notes of the material taken from CS1. This sum of 55 sixteenth notes confirms Vivier’s focus on that common denominator, since by removing a sixteenth note, he altered the planned length of the Divergence element (56
sixteenth notes), in order to achieve the equilibrium desired. The first measure of the piece is also 55 sixteenth notes in duration. Overall, the sum of the sixteenth notes for the CS1 elements is 428 sixteenth notes, or 39*11 minus 1 (for the sixteenth note missing in the first grouping). CS2 totals to 14*11 = 154 sixteenth notes. It is also compelling to notice that each CS1 element approaches a number in the Fibonacci series in terms of the total number of sixteenth notes it uses: the Byar motive gets 57 sixteenth notes (55 being the Fibonacci series number); the Repeated Chord element gets 141 sixteenth notes (while 144 is in the Fibonacci series); and the Divergence elements use 230 sixteenth notes in total (while 233 is in the Fibonacci series).

Understanding how the four different elements are deployed rhythmically and alternately not only helps the performer to follow Vivier’s compositional processes throughout each section of Shiraz, but also permits a better rendition of the structural elements and their interaction. Indeed, the performer can acquire through analysis a conscious sense of the equilibrium gradually achieved by the intertwining of the elements, exposing their contrasting and/or their similar characteristics.

A comprehension of the structure helps the performer meet the technical demands, and to see the content of each measure at a glance, thus facilitating the memorization of this section. Memorization remains an asset for the performer in this section, due to the speed at which the elements are interlocking. It is nonetheless advisable to play the piece from the score, because the same material constantly reappears but with different numbers of repetitions. Playing the piece without the score
could easily lead to counting errors that would sacrifice the proportions that Vivier has carefully composed.

In fact, section A1 presents a relatively straightforward intertwining of the elements. Other sections are harder to analyze, and are less obvious to the performer, but it is still possible to determine how the different elements unfold and how Vivier uses different mathematical series to help organize the musical material.

Section A2 is captivating. Vivier not only introduces new material, but then combines it with some of the material of section A1, also using variation techniques to create new sonorities. Section A2 begins at measure 37 with a 5/16 bar of silence. A performer might easily mistake it as being the last bar of the previous section and therefore alter slightly the sense of its function, as a bar of release after the relentless tension of the work’s exciting first pages. However, when viewed as the first measure of the next section, the rest needs to be incorporated into the apprehension of A2’s structural nature, used for the purpose of interrupting the flow of the piece. There is again much virtuosity in the elements that make up section A2, but Vivier also imparts a new color to the music, introducing extremely dramatic elements and thereby creating disruptions in the musical discourse.

The rest in m. 37 can be identified as the opening of the new section for two reasons: it has nothing to do with the elements of section A1; and furthermore, it goes through a series of simple mathematical multiplications in section A2. Indeed this new
element is introduced here and there with different lengths, which are all multiples of its initial 5/16 length. To unfold this feature of silence, Vivier brings back the contracting wedge pattern, with alternating extremes converging on the middle values: 5/16, 35/16, 10/16, 30/16, 15/16, 25/16, and 20/16. Between the 5/16 and 35/16 bars of rest, two very closely related new chord series are intertwined (CS3 and CS3’). Examples 25 and 26 below show CS3 and CS3’. Both commence with the highest and lowest notes on the piano to reach the center of the keyboard in a convergent motion of the hands. They comprise twelve chords and finish on the same chord. CS3 and CS3’ generate much of the music of Section A2. They are introduced gradually by alternating chunks until they are finally both fully presented at mm. 45 and 47 respectively. Without a thorough analysis, a performer might be puzzled by the music of section A2. By this point in the piece, Vivier has already introduced all the material that will constitute Section A overall. Indeed, section A2 is essentially a series of variations on the elements presented in section A1 and in the first page of A2. Therefore, identifying the basic elements and having a sense of how they unfold and transform within the kind of chronology used by Vivier is crucial to understanding the logical presentation of the material. For the performer, understanding how the materials are used will assist greatly in a successful portrayal of the dramatic elements. Section A2 requires a thorough analysis in order to forestall a lack of cohesion in performance.
The elements used specifically in section A2 are the rests, the Ascension element (CS2), and CS3 and CS3’, in different applications, most notably in Convergence. Measure 53 (please see the score in the Appendix) shows a four-note chord belonging to CS3. This chord is written in small notes like a grace-note figure and doesn’t have any real metric value. It is a percussive, gong-like effect, typical of Vivier’s later works such as Lonely Child, with its evocation of Balinese gamelan music. While the aim of this discussion is not to relate Shiraz to oriental music, it is perhaps of significance that Vivier had sojourned in Bali just prior to the writing of Shiraz. The gong element always
emerges from CS3 and CS3’. It is the first element that announces the variation processes at m. 53, and also ends Section A (m. 118). The following measure (m. 54) presents two chords from CS3’, but instead of developing that material further, Vivier interrupts it once again with a measure of rest. At this point, the work is entering deeply into the variation modality. The element in m. 54 is not, however, to be grouped with the material used in the preceding page. In fact, Vivier has also altered the rhythmic component of the chords, using a dotted sixteenth note followed by a thirty-second note for the two chords. It is curious to note that the bass of the second chord is an A flat. If Vivier were to be strictly consistent in using only chords from the chord series already introduced, the bass note would surely be a B flat, as it is the only occurrence of the A flat in this specific chord within the series. I would therefore suggest to the performer to make the appropriate correction.

Measure 56 looks unlike anything previously seen. It is important to mention here that throughout section A2, two different contrasting characters confront each other. An area of more subdued and lyrical material, all deriving from CS2, here and there interrupts the more aggressive and percussive attacks of material from CS3 and CS3’. Two distinct tempo markings contribute to the expressive juxtaposition, as do the starkly contrasting dynamics. (The performer should use tempo 1 for the first 55 measures, then tempo 2 for mm. 56-59, tempo 1 for mm. 60-74, tempo 2 for mm. 75-78, tempo 1 for mm. 79-88, tempo 2 for mm. 89-91, tempo 1 for 92-97, tempo 2 for mm. 98-100, tempo 1 for mm. 101-109, tempo 2 for m. 110, tempo 1 for mm. 111-116, tempo 2 for m. 117, and tempo 1 for m. 118.) Following discussions with Louis-Philippe Pelletier, Brigitte Poulin
offers those tempo markings in her dissertation, selecting m. 56 as the commencement point of the slower tempo indication.\textsuperscript{15} Through my own analysis, I have altered very slightly her suggestions, in order to achieve a more consistent classification of the two contrasting paradigms (based on pitch content), and their respective tempo. Vivier indicates a tempo of 100 per quarter note at the beginning of the piece (tempo 1). The slower tempo (tempo 2) suggested by Pelletier and Poulin should be close to 66-72 per quarter note. In a rather unique process, Vivier does not use full tetrachords at m. 56, choosing instead to include only the soprano line of CS2 harmonized by a single parallel melody, comprising notes chosen from either the tenor or bass line of CS2. This ethereal version of the material of CS2 is to be played softly (p), and stands in alluring relief against the sharper and abrupt incursions of the material of CS3. The variation process goes further by using grace notes as well as a retrograde form of CS2.

Vivier only uses the prime form of CS2 here, thus avoiding the transpositions used in subsection A1. It is a logical decision since, like CS2, CS3 and CS3’ all have their highest note on pitch C, allowing a sense of unity in the realm of pitch. From the first appearance of the element based on CS2 at m. 56 to the last one at m. 117, it becomes apparent that Vivier is expansively varying the material based on CS2. Indeed, after the transparencies of the brief retrograde version, CS2 is presented in its original form, dramatically employing its first ten chords as grace notes to the last one. This gesture is repeated once more before a shortened version appears using only its four last

\textsuperscript{15} Brigitte Poulin, “Vers un répertoire québécois canadien pour piano de Shiraz à aujourd’hui,” Mémoire de doctorat en musique (interprétation), Université de Montréal, 1999, p. 14
chords, then three, then two and then four again. The next appearance of CS2 at m. 75 uses the retrograde form again but this time in full tetrachords, sometimes repeating the same chord several times with the addition of a dotted rhythmic figure.

The next variation of the CS2 element, at m. 89, adds a staccato articulation to the repeated chords, and also plays with the direction of the series. For instance, the beginning of m. 89 features the series in its retrograde form but goes back and forth between its prime form and retrograde form. The most varied version of CS2 comes at m. 98. Here Vivier introduces rhythmic displacement with the novel effect of creating - as he mentions himself - a kind of counterpoint, which is quite a surprise in the context of the homophonic texture heard so far. Vivier continues to develop this type of rhythmic displacement in Section B. Ironically, after making the element based on CS2 increasingly complicated as Section A2 unfolds, the last three statements of the element are extremely simple. The first, at m. 106, is stated in its original form, albeit in eighth notes with a piano dynamic marking. This alteration asserts the calmer, more lyrical atmosphere of this element.

The last two statements of this element occur in mm. 110 and 117. The variation process of CS2 in m. 110 is extremely concise, as Vivier only uses the first chord of the series, repeated four times. The tenuto marking in the piano dynamic here seems to truly mark the end of this element and of the series itself, as it clearly punctuates the discourse. In fact, however, the real closure for the element based on CS2 is seen at m. 117, where for the first time the full retrograde of the series (but with only soprano and bass) is
presented before repeating the first chord in eighth notes with tenuto marking. One of these repeated chords is treated with a sixteenth note value and a staccato, as if in reflexive preparation for another unpredicted shift. However, Vivier brings the element to a calming conclusion by twice more repeating the first chord of the series with a tenuto marking, punctuated by a final gong sound to close the entire Section A. The preceding analysis of the elements made from CS2 serves as a template for consideration of the variation process of the section A2 elements. In essence, Vivier’s central tool in the manipulation of the material is the application of simple mathematical operations as a catalyst for evolution. Precise calculations of sixteenth notes are the primary determinant of the elements’ durations, employing Fibonacci and other series. The methodology offered in Table 2 could therefore be applied, in conjunction with the short passage analyzed by Jaco Mijnheer, or the analysis of the whole piece made by Brigitte Poulin and Abigail Richardson, as well as Vivier’s own sketches, to provide the performer with a complete and efficient chronology of the elements of Shiraz. However, space does not permit such a close consideration for the rest of the piece, and the next paragraphs will therefore focus on other sections and aspects of form in Shiraz.

Section B (mm. 119-238), the largest section of the work, obeys the principles discussed above. It distinguishes itself from sections A and A’ by its primarily calm mood. It is divided into three subsections that each focus on one of three different hand motions: section B1 involves ascending motion; section B2 features descending motion; and section B3 is comparatively static. Once more, Vivier’s musical language seems to

16 The sketches and manuscript of Shiraz are available for consultation at the Archives Library of the University of Montreal.
focus on the opposition of characters. However, the slower tempo of the section allows for diverse ways to interrupt the discourse.

The most striking kind of interruption involves the use of a long chord (as in m. 136) that is repeated a few times (sometimes with a fermata) throughout the Section B1, as a kind of punctuation mark. The same process is used in section B2, but with a different chord (e.g. m. 222). Furthermore, a definite duration for the chord is absent here, with only a fermata of indeterminate duration. This new chord will be the sole chord used in the stasis section (B3, mm. 235-238), and it also generates the music of Section A’, with the return of the virtuoso material. Thus, locally, this chord acts as a disruptive agent to the flow of the discourse in B2, but globally it becomes the binding constituent of the entire second half of the piece, from B2 to the Coda.

Another example of Vivier’s variation processes in addition to those already mentioned in mm. 89, 110 and 117 can be seen in mm. 189-196. In these measures Vivier uses a fixed series of grace notes in each hand, initially ten notes long followed by a sustained tetrachord. In each successive measure, he shortens the grace-note series by one note (and manipulates the series in other ways), and also shortens the duration of the sustained chord by a sixteenth note every measure (each chord is different, and successively higher in register). The effect is quite remarkable since the grace notes do not always start on the same notes as in the previous bars, nor are the right hand grace notes always accompanied by the same left hand grace note, complicating matters slightly for the performer who has therefore to adjust fingerings constantly. The
consistently ascending register of each figure reinforces the effect of rhythmic contraction. This whole process is a fascinating composite of gestural tools, combining timing, pace, and dynamic level to create varied dimensions of ascent. Section B involves numerous other compositional devices of similar kinds. For our present purposes, the two examples given above will have to suffice to demonstrate Vivier’s multiple levels of structural organization in Section B. Hopefully these examples will lead the performer to their own similar investigations.

Section A’ (mm. 239-265) is organized almost exactly like section A, with the alternation of repeated chords and chord series interrupted by measures of rests, up to the arrival of the final chorale of the piece. It is linked to the preceding and subsequent sections by the unifying chord discussed above. Sections A’1 and A’2 are however intertwined rather than juxtaposed (as were sections A1 and A2). The unit resulting from these two small sections is extremely concise and does not go through complex variation processes. The simpler treatment of the elements in A’ seems to forecast the last section of A’, the coda, which is a four-part chorale.

The chorale’s pitch content reveals a lot about its architecture, as Vivier colours important events with different chords. This idea will be explained further in the discussion, in the next section, which explores pitch relations in more detail. For now, looking at the metric structure of the chorale, one notices that all the meters are based on quarter-note pulses. Moreover, the phrases follow the pattern 3/4, 2/4, 4/4, 5/4, 6/4 (3+3), 7/4 (4+3), which is simply the series of whole numbers, with the omission of 1,
and the reversal of the first two numbers. Vivier was very open about the role that his Catholic faith played in his early life. He was a seminarian, and it is reasonable to assume that he studied four-part chorales. What is fascinating in chorale writing is the voice leading, or the ways in which the outer voices interact while inner voices fill and complete the harmonies. In Shiraz, since Vivier had chosen to explore the movements of the hands on the keyboard, with two parts per hand, one might surmise that the effect obtained is directly related to the voice leading itself and vice versa. The chorale coda, however, is unlike the other sections of the piece, in that it does not have one predominant hand movement but summarizes the whole work by using all possible motions of the hands.

As Abigail Richardson notes, the coda is easily linked to section A by pitch content, but its mood, dynamic changes, and rhythmic complexity are reminiscent of section B, thereby creating a superbly-limned unifying closure for the entire piece.\(^{17}\)

After this overall and chronological investigation of Shiraz’s structure, it seems appropriate to examine the effects of the idea on which Vivier built his piece. Shiraz has been described here as comprising seven different kinds of hand movements. In the first few pages, for example, the main focus is on the contrary movement of the hands starting from the center of the keyboard and going to its extremities. Integrated with that general kind of activity in Section A1, one finds repeated chords (by definition excluding any lateral movement of the hands), as well as the similar-ascending gesture of CS2. Also to

\(^{17}\) Richardson, “Claude Vivier: Intuition and Reason.”, p.18.
be found is the retrograde of the Divergence element (effectively, a version of convergence movement), which heralds a gesture that becomes significant in a subsequent subsection. Later on in Section A, when the variation process begins (in section A2), the focus on contrary motion reverses, now going from the extremities of the piano towards its center. As before, other hand movement patterns punctuate the section, primarily CS2 and its retrograde, with ascending and descending movement. There are even brief appearances of the Divergence element in mm. 65 and 67. Repeated chords in m. 110 forecast the emergence of Section B3 with its exclusive emphasis on non-lateral movement. Therefore, although each subsection centers on a specific hand movement, Vivier does not restrict himself, and he varies the material by inserting different elements, which focus on different hand motions other than the main one of a subsection.

In fact, the insertion of the static hand movement pattern throughout the piece plays a critical role in the formal structure of the entire work. Static motion occurs in diverse expressions – from percussive intensity to dreamlike transparency – but its common impact is to inhibit any incipient complacency in the perception of assured directional momentum. In Vivier’s use of chord series in the fast sections of the piece, the performer and audience, through the rapid lateral movement of the hands traversing the keyboard, visually, intellectually, and physiologically apprehend directional momentum. Even when the series are not complete, or are slightly transformed, one is compelled to pursue an expectation of the unfolding directionality. That sense, however, is dramatically suspended with the insertions of static chord repetitions. Stasis, by its nature, immediately challenges the perception of ensuing direction to the listener,
opening questions of uncertainty. For how long and for how many repetitions will the present chord now endure? With each introduction of stasis the composer imposes discontinuity and re-engages our incertitude, thereby paradoxically treating linear inaction as an “active agent of disruption” to the flow and expectancy of the unfolding line. Through the insertion of static repetition throughout Shiraz, Vivier constructs an edifice of rich oppositions. Tension, repose, conviction, enigma, even brief evocations of trance vie with each other until the last, as the piece draws to a conclusion of sound rather than of discourse.

Vivier himself described the mystery-imbued ending as a “point d’interrogation,” a question mark. Following that intriguing clue, and regarding the stasis agent as generating perceptual states of disorientation and mystification, one might propose that Vivier’s repeated use of the stasis gesture carries some intrinsic ontological purposefulness beyond the pragmatic concerns of compositional architecture. That the work begins with a 55-chord rapid declamation of the stasis figure adds further weight to this speculation – it introduces itself with the evocation of uncertainty, while its final, completely unpredicted “question mark” juxtaposed alongside the preceding chorale bears a sense of whimsy almost akin to a wink with which the composer signs his discourse. Cognizant of the static movement patterns’ global structural significance, the interpreter can transit smoothly among the modes, engendering the surprising effects and shifts to thereby elucidate Vivier’s intensely compelling work.
Understanding the puzzles created by Vivier’s use of the mathematical formulae to unfold the different elements within a tightly knit musical structure allows the performer a deep knowledge of the architecture of Shiraz. The form of Shiraz is expressed on so many different levels (general ternary form, smaller sections based on hand motions, organization of the elements in the different sections) that it is crucial for the performer to be fully aware of the processes used by the composer. Finally, a deep understanding of Vivier’s variation and structural processes allows the performer to alter a perhaps initially overwhelming perception of the piece, as the association of the different elements with their respective variations helps to illuminate the work’s formal principles, re-framing it into an achievable adventure.

2.2 Pitch content

An analysis of the pitch content in Shiraz helps the performer acquire an understanding of Vivier’s language, and how his creative processes shape the structural and sonorous coherence of Shiraz. While one cannot presume to comprehend fully the intentions of a composer (unless much dialogue has been possible with the composer), analysis of the pitch structures, both horizontally (voice by voice) and vertically (chord by chord), yields intriguing insights about the work’s structural framework. Recognizing each familiar chord and where it comes from — or, as sometimes happens, that a chord is unique or idiosyncratic — helps the performer understand and articulate the chord’s function, especially if it is dynamically or agogically accented, or begins a phrase or a section.
Vivier used a limited number of tetrachords per section, which makes it possible for us to do a thorough analysis of the harmonic content, since the various chord series that constitute the different sections reveal the essence of Vivier’s idiom. It is in the utilization of these chord series that one can observe Vivier’s assimilation of the teachings of serialist composers like Stockhausen. The chord series are, like rows, submitted to different operations such as transposition or retrograde. In most cases, the chords adhere to a strict order within the series. I have chosen not to proceed chronologically in discussing the pitch content in Shiraz, since Vivier used similar techniques in Sections A and A’ (chord series) while he constructed the entire middle part, Section B on a scale of thirty seven sounds. These elements are discussed below, along with several highlighted examples.

As mentioned in the overview of the global form of Shiraz, there are three clearly defined large units in Vivier’s piece. A traditional A-B-A’ shape is readily perceptible. This plan is confirmed with the analysis of the chords in each section. In both sections A and A’, the chords are easily inventoried by the several chord series already discussed. Vivier very seldom uses any rhythmic displacement in units A and A’, and there is a clear and consistent expression of the tetrachords with two voices per hand.

In sharp contrast, Section B is not based on any chord series. Rather, the pitch material here is based on a pitch collection of thirty-seven pitches, arranged in a scale from the low register to the top note of the keyboard (see Example 27). The pitches of this scale generate all the chords contained in section B, making this section more diverse
than the other two. Much more rhythmic displacement is used in section B, with the consequence that even though the writing style comprises mostly two voices per hand (with some exceptions here and there), the resulting counterpoint creates a totally different sonorous universe, with a much more varied sonorous texture than in the A and A’ sections. Vivier uses variation techniques throughout the section, repeating some elements with slight modifications, so it is in fact possible to build a chord repertory for certain sections, similar to sections A and A’. However, these chord series are more volatile than those in the outer sections of the piece, and therefore arguably they might not essentially constitute the entire pitch material of Section B. A closer investigation of how things work within the smaller sections of the piece will help us to understand the diverse processes used here, in terms of pitch.

Example 27. Shiraz section B, 37-note scale, m. 128

Let us first examine the chordal material heard in the A and A’ sections. (Later we will see how the B section is distinct.) If one looks carefully at subsection A1, one can easily see that the whole section is built on two chord series, CS1 and CS2 (as mentioned in the discussion of different elements of formal organization). In total, twenty chords are used, nine in CS1 and eleven in CS2. The latter is often transposed, but it will suffice here to look only at the prime forms of both CS1 and CS2.
Table 3 shows that the nine chords in CS1 belong to seven different tetrachord types (Chord 5 belongs to the same set class at chord 1; chord 4 belongs to the same set class as chord 3.) As we can see, all the tetrachord types, except for the second one (a whole tone subset) and the last two (chromatic tetrachord, and diminished triad with a semitone) are closely related in terms of their intervallic content. In particular, six of these nine tetrachords (representing three of the seven tetrachord types) contain at least one (037) subset, which implies that three notes of the tetrachord can form either a major or minor triad. This factor gives many of the different tetrachords in the series a common sense of chord color and resonance. The second chord does not contain a major or minor triad, but it does contain an augmented triad (Bb, D, F#) and also the root, third, and seventh of a dominant-seventh chord (Bb, D, Ab), so that it too has some sonorous similarities with the other tetrachords. The last tetrachord contains a diminished triad. Overall, ic 3 and ic 4 are the most common interval classes in these tetrachords (occurring 13 and 11 times respectively), and therefore they are the most characteristic aspects of the chord series’ overall sound. (Ic 1 is the third most prevalent interval class (10 times), followed by ic 5 (8 times), ic 2 (7 times), and finally by ic 6 (5 times)). It is very interesting to see that Vivier chose to use two very different sounding tetrachords for the last two chords of the series, chord number eight and nine, as if to achieve some sort of cadential figure.
Table 3. Chord Series 1 (CS1)\textsuperscript{18}

<table>
<thead>
<tr>
<th>Chord Number</th>
<th>Pitch classes</th>
<th>Type of chord</th>
<th>Interval class vector</th>
<th>Contains (037) subset</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&lt;C, Eb, E, G&gt;</td>
<td>(0347)</td>
<td>102210</td>
<td>•</td>
</tr>
<tr>
<td>2</td>
<td>&lt;Bb, D, F#, Ab&gt;</td>
<td>(0248)</td>
<td>020301</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>&lt;A, Eb, F#, Bb&gt;</td>
<td>(0147)</td>
<td>102111</td>
<td>•</td>
</tr>
<tr>
<td>4</td>
<td>&lt;F, D, G#, C#&gt;</td>
<td>(0147)</td>
<td>102111</td>
<td>•</td>
</tr>
<tr>
<td>5</td>
<td>&lt;D, C#, Bb, F&gt;</td>
<td>(0347)</td>
<td>102210</td>
<td>•</td>
</tr>
<tr>
<td>6</td>
<td>&lt;G, D, C#, B&gt;</td>
<td>(0137)</td>
<td>111111</td>
<td>•</td>
</tr>
<tr>
<td>7</td>
<td>&lt;C#, B, A#, F#&gt;</td>
<td>(0237)</td>
<td>111120</td>
<td>•</td>
</tr>
<tr>
<td>8</td>
<td>&lt;E, C#, Eb, D&gt;</td>
<td>(0123)</td>
<td>321000</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>&lt;A, D, D#, C&gt;</td>
<td>(0136)</td>
<td>112011</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>10,7,13,11,8,5</td>
<td>6/9</td>
</tr>
</tbody>
</table>

Also, as one can see, the chords starting right in the centre of the keyboard are also voiced very tightly. The further one gets in the series of 9 chords, the bigger are the intervals in between each pair of voices. The pitches used in the soprano of CS1 <G4, Ab4, Bb4, C#5, F5, B5, F#6, D7, C8> show that the interval from chord to chord gets progressively bigger, (1, 2, 3, 4, 6, 7, 8, t). It is interesting to see the relationship between the soprano line and the bass line. Here, as Abigail Richardson demonstrates, “the bass line reverses and inverts the soprano’s intervals two at a time.”\textsuperscript{19} For a performer, looking at the relationships between the soprano line and bass line is usually extremely important in tonal music, since it yields a strong basis for harmonic understanding. However, in Shiraz the analysis of the voice-leading reveals to the performer Vivier’s personal stylistic processes. In fact, Vivier uses pitch content to unify each chord series.

\textsuperscript{18} Three symbols will be used in the following tables to indicate different degrees of relationship to (037): “•” indicates that the tetrachord contains subset (037); “°” indicates that the tetrachord does not contain subset (037) but contains at least one of each of the intervals contained in (037), and “ ” denotes simply the lack of relationship with subset (037).

\textsuperscript{19} Richardson, “Claude Vivier: Intuition and Reason,” p. 4.
The different voices are related and the chords themselves are often based on the same subsets, or types of interval. Through this mechanism Vivier manages to achieve compellingly singular colors for each section.

After the original material of A is completely presented, Vivier employs diverse means to create variations on the very strict-sounding opening. As one notices later, retrogrades, rests, different lengths of chords, contrasting dynamics and textures all alter the material offered in the first few pages. Therefore, a deep comprehension of the basic elements of section A (i.e. CS1 and CS2), makes the variations on this material easier to understand and to relate to the original material, leading to a better and clearer performance of the work, and a faster road to the hard task of learning it. In other words, if reading through the first few pages of the piece is fairly straightforward because of the nature of Vivier’s introduction of CS1 and CS2, once the material is varied, it can quickly become overwhelmingly dense for a performer unaware of the material’s evolution from the original chord series.

Table 4 shows that the eleven tetrachords of CS2 are also organized very precisely by Vivier, and relate in a particular way to the material of CS1. The two series only have three tetrachord types in common: (0347), (0137) and (0237). And much like CS1, nine of the eleven tetrachords CS2 contain at least one (037) subset. Even though both series have very different tetrachords at a first glance, in practice they are quite similar in sound, since the majority of them (15 out of 20) can be built from stacked thirds of different qualities. The only tetrachord type of CS2 used more than once is
(0148), which Vivier invokes as the first and last chord. This tetrachord type does not appear in CS1. It therefore allows CS2, for which it is the first and last cluster, to have a distinct color even though it also contains a (037) subset. In summary, both CS1 and CS2 have their own material but are also very closely related in terms of intervallic content. Overall, ic 4 is the most common interval class in the tetrachords of CS2, occurring 21 times, while ic 3 and 5 occur 13 times each, and ic 1 occurs 11 times. These intervals are the most characteristic aspects of the chord series’ overall sound. Ic 2 and ic 6 are very seldom used, 5 and 3 times respectively. It is curious to notice that these interval sums occur in terms of numbers belonging to the Fibonacci Series (21,13,5,3). It might be pure coincidence, but some of these numbers (13, 8, 5) are also featured in CS1’s intervallic content totals.

Table 4. Chord Series 2 (CS2)

<table>
<thead>
<tr>
<th>Chord Number</th>
<th>Pitch classes</th>
<th>Type of chord</th>
<th>Interval class vector</th>
<th>Contains (037) subset</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&lt;Eb, Gb, B, G&gt;</td>
<td>(0148)</td>
<td>101310</td>
<td>•</td>
</tr>
<tr>
<td>2</td>
<td>&lt;F, A, C#, Ab&gt;</td>
<td>(0148)</td>
<td>101310</td>
<td>•</td>
</tr>
<tr>
<td>3</td>
<td>&lt;F#, B, E, Bb&gt;</td>
<td>(0157)</td>
<td>110121</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>&lt;G, Eb, F#, B&gt;</td>
<td>(0148)</td>
<td>101310</td>
<td>•</td>
</tr>
<tr>
<td>5</td>
<td>&lt;G#, F#, A, C#&gt;</td>
<td>(0237)</td>
<td>111120</td>
<td>•</td>
</tr>
<tr>
<td>6</td>
<td>&lt;Bb, G, B, D&gt;</td>
<td>(0347)</td>
<td>102210</td>
<td>•</td>
</tr>
<tr>
<td>7</td>
<td>&lt;C#, D, F, E&gt;</td>
<td>(0134)</td>
<td>212100</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>&lt;D, G#, A, F#&gt;</td>
<td>(0137)</td>
<td>111111</td>
<td>•</td>
</tr>
<tr>
<td>9</td>
<td>&lt;Eb, Bb, D, G&gt;</td>
<td>(0158)</td>
<td>101220</td>
<td>•</td>
</tr>
<tr>
<td>10</td>
<td>&lt;F#, C, E, A&gt;</td>
<td>(0258)</td>
<td>012111</td>
<td>•</td>
</tr>
<tr>
<td>11</td>
<td>&lt;B, E, Ab, C&gt;</td>
<td>(0148)</td>
<td>101310</td>
<td>•</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>11,5,13, 21,13,3</td>
<td>9/11</td>
</tr>
</tbody>
</table>
The biggest similarity between CS1 and CS2 is definitely in the treatment of the soprano line: CS1 = \(<G4, Ab4, Bb4, C#5, F5, B5, F#6, D7, C8>\) and CS2 = \(<G4, Ab4, Bb4, B4, C#5, D5, E5, F#5, G5, A5, C6>\). It is easily observed that both start with the same three pitches, and also share other pitches and pitch classes. Moreover, both soprano lines start on pitch class G and end on pitch class C, which can remind the listener of the traditional movement from dominant to tonic in tonal music. This possible remnant of tonal syntax is somewhat reinforced in CS2 by the fact that G appears twice in the soprano. However, the first nine pitches of CS2 declaim a nearly octatonic scale from G4 to G5, thus departing melodically from the tonal syntax. (The scale would be octatonic if F5 occurred in place of F#5.) Searching further for similarities and differences between the two series, one sees that D# is the only pitch class that is never played in the soprano line. Pitch classes A and E only appear in CS2 while pitch class F only appears in CS1. The other eight pitch classes appearing in the soprano line of CS1 are also heard in the soprano line of CS2. It is interesting to compare how these eight pitch classes are ordered in each case: \(<G, Ab, Bb, C#, B, F#, D, C>\) in CS1 and \(<G, Ab, Bb, B, C#, D, F#, (G), C>\) in CS2. As we have already noted, the first three and the final pitch classes are the same in both cases (and have been highlighted in bold type in the preceding sentence); in addition, the remaining four pitch classes are in very similar orderings, obtained simply by switching the (already adjacent) positions of C# and B, and of F# and D.

CS1 and CS2 are therefore very similar. Nonetheless, Vivier manages to create a contrasting universe within the first section with an abrupt change in the direction of the
movement of the hands in CS2. The chords contained in CS1 are either repeated or move from the centre of the keyboard to its extremes, while those of CS2 go in similar motion from the center of the keyboard in an ascending motion. Thus, Vivier creates a unified harmonic realm, but also produces a clearly contrasting audible difference between the series through abrupt changes in hand movement.

We can examine the chords in the chorale coda of Section A’ to formulate hypotheses about Vivier’s use of pitch as a unifying device throughout Shiraz. The chorale contains twenty chords, which are shown in Table 5.20 Interestingly, CS1 and CS2 from Section A also feature twenty chords in total. The 20 tetrachords in the chorale represent only nine different types of tetrachords, while CS1 has seven different tetrachords and CS2 has eight. The chords used in the chorale are of similar nature to those of CS1 and CS2. The only four tetrachord types appearing in the chorale which were not included in section A1 are (0135), (0146), (0236) and (0145). This is a significant characteristic of the chorale since those four chords, as discussed below, all appear at key moments in the chorale. The chorale shares the tetrachord types (0157), (0137), (0147), (0148), and (0347) with CS1 and CS2. In total, 14 of the 20 chords in the coda contain subset (037), while the number of chords related to subset (037) by the nature of their intervallic content reaches 17 out of 20. (That is, 17 of the tetrachords contain at least one instance each of ic 3, ic 4, and ic 5.) Once more, the most common

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20 Abigail Richardson finds 21 chords, a number she relates to the Fibonacci series. After verification, I believe that there are only 20 different chords, including the ornamental chords and the chords with different voicing.
intervals are ic 4 (32), ic 3 (22), ic 5 (21) and ic 1 (21), while ic 2 and ic 6 occur only 12 times each.

Table 5. Chords in the Coda

<table>
<thead>
<tr>
<th>Chord Number</th>
<th>Pitch Classes</th>
<th>Type of chord</th>
<th>Interval class vector</th>
<th>Contains (037) subset</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&lt;F#, C, E, B&gt;</td>
<td>(0157)</td>
<td>110121</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>&lt;G, B, D, C#&gt;</td>
<td>(0137)</td>
<td>111111</td>
<td>•</td>
</tr>
<tr>
<td>3</td>
<td>&lt;A, C#, E, D#&gt;</td>
<td>(0137)</td>
<td>111111</td>
<td>•</td>
</tr>
<tr>
<td>4</td>
<td>&lt;Ab, Bb, D, G&gt;</td>
<td>(0137)</td>
<td>111111</td>
<td>•</td>
</tr>
<tr>
<td>5</td>
<td>&lt;C, A, Eb, Ab&gt;</td>
<td>(0147)</td>
<td>102111</td>
<td>•</td>
</tr>
<tr>
<td>6</td>
<td>&lt;B, G, D, C#&gt;</td>
<td>(0137)</td>
<td>111111</td>
<td>•</td>
</tr>
<tr>
<td>7</td>
<td>&lt;Bb, Ab, D, G&gt;</td>
<td>(0137)</td>
<td>111111</td>
<td>•</td>
</tr>
<tr>
<td>8</td>
<td>&lt;A, G#, E, C&gt;</td>
<td>(0148)</td>
<td>101310</td>
<td>•</td>
</tr>
<tr>
<td>9</td>
<td>&lt;Ab, G, F, Eb&gt;</td>
<td>(0135)</td>
<td>121110</td>
<td>°</td>
</tr>
<tr>
<td>10</td>
<td>&lt;Bb, A, E, D&gt;</td>
<td>(0157)</td>
<td>110121</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>&lt;B, G, E, Ab&gt;</td>
<td>(0347)</td>
<td>102210</td>
<td>•</td>
</tr>
<tr>
<td>12</td>
<td>&lt;A, G#, G, C&gt;</td>
<td>(0146)</td>
<td>111111</td>
<td>°</td>
</tr>
<tr>
<td>13</td>
<td>&lt;D, A, F#, Bb&gt;</td>
<td>(0148)</td>
<td>101310</td>
<td>•</td>
</tr>
<tr>
<td>14</td>
<td>&lt;E, C, Ab, Eb&gt;</td>
<td>(0148)</td>
<td>101310</td>
<td>•</td>
</tr>
<tr>
<td>15</td>
<td>&lt;G, Eb, A, Gb&gt;</td>
<td>(0236)</td>
<td>112101</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>&lt;Db, Bb, E, A&gt;</td>
<td>(0147)</td>
<td>102111</td>
<td>•</td>
</tr>
<tr>
<td>17</td>
<td>&lt;C, Ab, F, E&gt;</td>
<td>(0148)</td>
<td>101310</td>
<td>•</td>
</tr>
<tr>
<td>18</td>
<td>&lt;F#, D, F, Bb&gt;</td>
<td>(0148)</td>
<td>101310</td>
<td>•</td>
</tr>
<tr>
<td>19</td>
<td>&lt;Bb, A, F#, F&gt;</td>
<td>(0145)</td>
<td>201210</td>
<td>°</td>
</tr>
<tr>
<td>20</td>
<td>&lt;F, Eb, A, D&gt;</td>
<td>(0137)</td>
<td>111111</td>
<td>•</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>21,12,22,32,21,12</td>
<td>17(14+3)/20</td>
</tr>
</tbody>
</table>

As mentioned above, the four tetrachords that are used only in the coda all appear at key moments in the chorale. Chord 9 (m. 261) is a (0135) tetrachord that creates an agogic accent, which is supported by its expansion of range but by a crescendo to forte, following the pianissimo in the preceding measure. Chord 12 (m. 261) is of type (0146) and contains each of the six interval classes once <111111>. This "all-interval-class"
tetrachord is placed right in the center of the chorale. An almost identical chord is used a few times in the same measure, but Vivier here changes the alto note, creating a unique chord that attractively highlights the half point of the coda. Chord 15 (m. 262) is very special in the chorale since it features the highest soprano and bass notes of the entire section. It is the only (0236) chord, a chord type that does not contain ic 5 and which is quite closely related to the diminished sonority previously heard in the last chord of CS1 (which also has the highest soprano note in CS1). Chord 19 (m. 264) is a (0145) tetrachord, and is the last type not found in CS1 and CS2. This chord highlights the soprano pitch class F, which was not included in CS2, but which is also the last pitch of the aggregate to be introduced in the soprano line in the choral. Vivier gives clear indications in the score about the important and eventful moments of a section with certain dynamics, articulations or even changes in register. A tandem analysis of the pitch content confirms those expressive goals for the performer with regard to phrasing and closure of the various sections, and is therefore necessary in order to properly express the Chorale’s structure.

It is also interesting to note that the first half of the chorale focuses on chords of type (0137), while the second half of the chorale focuses on type (0148). The (0137) receives only light emphasis in either CS1 or CS2, with one statement each. By contrast, however, (0148) is strikingly heard four times in CS2, but does not appear at all in CS1. Both chords have a similar sonority of a major or minor triad with an added semitone. As mentioned, the chord at the midpoint of the chorale contains all interval classes once. It
Thus far we have considered pitch principally in terms of the type of chords used in the different sections. It is also essential to mention that Vivier sometimes used pseudo-serial aggregate-based techniques to organize the pitches in different parts of the piece. The Chorale (mm. 258-265) provides a good example of those techniques, as we can see by examining its four different voice-leading strands (voices). The bass contains eleven pitch classes, missing only Eb. There are numerous non-serial pitch repetitions, but the pitch classes enter in the order <F#3, G3, Ab3, C3, B2, Bb2, A2, D3, E3, Db3, F3>. The final F3 occurs only in the last measure, and is repeated again four notes later, as the bass of the last chord in the piece. The tenor line uses only 9 distinct pitches (and pitch classes). Again there are many non-serial repetitions, but they enter in the order <C4, B3, C#4, Bb3, A3, G3, Ab3, Eb4, D4>. The last one of these pitches, D4, first enters in m. 264 (the penultimate measure), and the same pitch class (as D5) also appears in the soprano of the last chord. The Eb that is missing from the bass line is featured quite prominently in the tenor during the last four measures. The alto line contains only seven pitches, entering in the order <E4, D4, Eb4, F4, F#4, Ab4, A4>. The early part of this line features the pitch classes D, Eb, and F, which we have just noted as being important at the end of the bass and tenor lines. The alto's last introduced pitch A4 first appears at the end of m. 262, but is also used in the alto in the last chord. The middle voices use collections that collectively complete the aggregate: the five pitch classes missing from the alto (C, C#, G, Bb, and B) are all contained in the tenor line, and the
pitch classes missing from the tenor (E, F, and F#) are contained in the alto part. A common feature of the bass, tenor, and alto lines is their tendency to focus on three or four note chromatic clusters, in different sections of their unfolding.

The soprano line in the chorale is particularly noteworthy because it uses all twelve pitch classes, entering in the order <B4, C#5, D#5, G4, Ab4, C5, D5, Bb4, Gb5, A4, E5, F5>. Like the bass, the series ends with F, in fact directly before the entry of the bass F. It is interesting to note that F and Eb are emphasized in numerous ways throughout the chorale, especially in connection with the fact (noted earlier) that they are the only two pitch classes missing from the soprano line of CS2. Such observations attest to Vivier’s care in assigning specific pitches at key moments, giving them particular structural and musical meaning.

The last chord of the piece contains D5 in the soprano (echoing the D4 that was the last pitch to enter in the tenor), A4 in the alto (echoing its last-entering pitch), Eb4 in the tenor (representing the pitch class missing from the bass line, and also omitted from chord series A and B in the section A1), and F3 in the bass, echoing the last pitches introduced in both the soprano and bass. As noted earlier, this chord also contains all of the six interval classes. Even if Vivier himself qualified the Chorale’s last moment as a “question mark,” it is clear that closure has been neatly crafted by the composer, at least in terms of pitch content. The performer can find appropriate ways to highlight these chords in order to help the audience perceive more directly the work’s facets and dimensions. For instance, a performer might decide to voice the unique chords (chords 9,
12, 15 and 19) differently to showcase their harmonization of the soprano line. More specifically, the alto note of chord 12 should be highlighted, as it is exceptionally a D instead of the E heard previously. Decisions could also be made in terms of how to express the different dynamic levels that are juxtaposed against one another. Finally, Pelletier mentioned that he rolled an important chord in the Chorale on his first recording of Shiraz, in order to project the soprano note that wasn’t loud enough on the piano used for that recording. All these performance decisions can only come with an appropriate understanding of the pitch structure. Example 28 shows the varied alto of chord 12, at an important structural point of the Chorale.

Example 28. Shiraz, Chorale, alto variation at chord 12, m. 261

The analysis of sections A and A’ would not be complete without an overview of CS3 and CS3’, from section A2, and CS4 and CS4’ from Section A’. CS3 and CS3’ both start with the highest and lowest notes on the piano, which are however harmonized differently in the alto and the tenor voices, going in a converging motion, towards the center of the keyboard, both ending on the same tetrachord. Tables 6 and 7, respectively, show the twelve tetrachords used in each of CS3 and CS3’. CS3 contains seven different types of tetrachords. CS3’ contains nine different types of tetrachords, four of these types
are also common to CS3, which means that five new types of tetrachords are used in CS3’. As with CS1 and CS2, a high proportion of tetrachords in CS3 and CS3’ contain a (037) subset or at least its intervallic content. Both series end with the same chord, one that is very different in sonority from all the other chords used prior to that. It is of type (0257), which is basically a rearrangement of stacked fifths (f#-c#-g#-d#) in a contracted voicing. Once again, the most common intervals utilized are ic 1, 3, 4 and 5.

Table 6. Chord Series 3 (CS3)

<table>
<thead>
<tr>
<th>Chord Number</th>
<th>Pitch Classes</th>
<th>Type of chord</th>
<th>Interval class vector</th>
<th>Contains (037) subset</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&lt;A, G, Ab, C&gt;</td>
<td>(0125)</td>
<td>211110</td>
<td>°</td>
</tr>
<tr>
<td>2</td>
<td>&lt;C#, F, E, A&gt;</td>
<td>(0148)</td>
<td>101310</td>
<td>•</td>
</tr>
<tr>
<td>3</td>
<td>&lt;E, B, C, Ab&gt;</td>
<td>(0148)</td>
<td>101310</td>
<td>•</td>
</tr>
<tr>
<td>4</td>
<td>&lt;F, C, Ab, E&gt;</td>
<td>(0148)</td>
<td>101310</td>
<td>•</td>
</tr>
<tr>
<td>5</td>
<td>&lt;G, E, Eb, D&gt;</td>
<td>(0125)</td>
<td>211110</td>
<td>°</td>
</tr>
<tr>
<td>6</td>
<td>&lt;C, B, D#, G#&gt;</td>
<td>(0347)</td>
<td>102210</td>
<td>•</td>
</tr>
<tr>
<td>7</td>
<td>&lt;F#, B, F, D#&gt;</td>
<td>(0137)</td>
<td>111111</td>
<td>•</td>
</tr>
<tr>
<td>8</td>
<td>&lt;D, Bb, B, G&gt;</td>
<td>(0347)</td>
<td>102210</td>
<td>•</td>
</tr>
<tr>
<td>9</td>
<td>&lt;Eb, Db, A, C&gt;</td>
<td>(0236)</td>
<td>112101</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>&lt;Bb, Eb, F#, B&gt;</td>
<td>(0158)</td>
<td>101220</td>
<td>•</td>
</tr>
<tr>
<td>11</td>
<td>&lt;C, E, F, A&gt;</td>
<td>(0158)</td>
<td>101220</td>
<td>•</td>
</tr>
<tr>
<td>12</td>
<td>&lt;C#, D#, F#, G#&gt;</td>
<td>(0257)</td>
<td>021030</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>13,6,15,21,12,2</td>
<td>10 (8+2) /12</td>
</tr>
</tbody>
</table>
Table 7. Chord Series 3’ (CS3’)

<table>
<thead>
<tr>
<th>Chord Number</th>
<th>Pitch classes</th>
<th>Type of chord</th>
<th>Interval class vector</th>
<th>Contains(037) subset</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&lt;A, Ab, E, C&gt;</td>
<td>(0148)</td>
<td>101310</td>
<td>•</td>
</tr>
<tr>
<td>2</td>
<td>&lt;Bb, G, D, B&gt;</td>
<td>(0347)</td>
<td>102210</td>
<td>•</td>
</tr>
<tr>
<td>3</td>
<td>&lt;C, E, Bb, A&gt;</td>
<td>(0137)</td>
<td>111111</td>
<td>•</td>
</tr>
<tr>
<td>4</td>
<td>&lt;C#, G#, A, G&gt;</td>
<td>(0126)</td>
<td>210111</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>&lt;G#, C, B, F#&gt;</td>
<td>(0146)</td>
<td>111111</td>
<td>◦</td>
</tr>
<tr>
<td>6</td>
<td>&lt;E, C, D#, B&gt;</td>
<td>(0145)</td>
<td>201210</td>
<td>◦</td>
</tr>
<tr>
<td>7</td>
<td>&lt;Bb, G, A, Eb&gt;</td>
<td>(0137)</td>
<td>111111</td>
<td>•</td>
</tr>
<tr>
<td>8</td>
<td>&lt;Eb, A, D, Bb&gt;</td>
<td>(0156)</td>
<td>200121</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>&lt;F, Db, A, E&gt;</td>
<td>(0148)</td>
<td>101310</td>
<td>•</td>
</tr>
<tr>
<td>10</td>
<td>&lt;F#, Eb, Bb, D&gt;</td>
<td>(0148)</td>
<td>101310</td>
<td>•</td>
</tr>
<tr>
<td>11</td>
<td>&lt;A, D, G, Bb&gt;</td>
<td>(0237)</td>
<td>111120</td>
<td>•</td>
</tr>
<tr>
<td>12</td>
<td>&lt;C#, D#, F#, G#&gt;</td>
<td>(0257)</td>
<td>021030</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>14,7,11,19,16,5</td>
<td>(7+2)/12</td>
</tr>
</tbody>
</table>

Table 8 and 9 show the pitch content of the last two chord series of Shiraz. CS4 and CS4’ are used from mm. 239 to mm. 257 and are also intertwined, much like CS3 and CS3’. In contrast to CS3 and CS3’, which both feature movements starting from the extremities of the keyboard that meet in the center on the same chord, CS4 and CS4’ each start on the same chord but then use ascending and descending oblique motion respectively (as can be seen in Examples 29 and 30). In CS4, the left hand repeats one dyad, while the right hand ascends; and vice versa for CS4’. CS4 ends on the highest note of the piano but CS4’ does not reach the other extremity. What is striking about CS4 and CS4’, in contradistinction to all the other series used in the piece, is that many fewer of the tetrachords contain a (037) subset or even its intervallic content. (Only five of the sixteen chords CS4, and only seven of the fifteen chords in CS4’ do so.)
Example 29. Chord Series 4 (CS4)

Example 30. Chord Series 4' (CS4')

Table 8. Chord Series 4 (CS4)

<table>
<thead>
<tr>
<th>Chord Number</th>
<th>Pitch Classes</th>
<th>Type of chord</th>
<th>Interval class vector</th>
<th>Relationship to (037)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&lt;F#, C, E, B&gt;</td>
<td>(0157)</td>
<td>110121</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>&lt;F#, C, G, C#&gt;</td>
<td>(0167)</td>
<td>200022</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>&lt;F#, C, A, D&gt;</td>
<td>(0258)</td>
<td>012111</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>&lt;F#, C, B, F&gt;</td>
<td>(0167)</td>
<td>200022</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>&lt;F#, C, C#, A&gt;</td>
<td>(0147)</td>
<td>102111</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>&lt;F#, C, D#, B&gt;</td>
<td>(0147)</td>
<td>102111</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>&lt;F#, C, F, D#&gt;</td>
<td>(0136)</td>
<td>112011</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>&lt;F#, C, G, E&gt;</td>
<td>(0137)</td>
<td>111111</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>&lt;F#, C, G#, G&gt;</td>
<td>(0126)</td>
<td>210111</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>&lt;F#, C, D, A&gt;</td>
<td>(0258)</td>
<td>012111</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>&lt;F#, C, E, Bb&gt;</td>
<td>(0157)</td>
<td>110121</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>&lt;F#, C, F#, D&gt;</td>
<td>(026)</td>
<td>010101</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>&lt;F#, C, G, F&gt;</td>
<td>(0127)</td>
<td>210021</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>&lt;F#, C, A, F#&gt;</td>
<td>(036)</td>
<td>002001</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>&lt;F#, C, Bb, G#&gt;</td>
<td>(0246)</td>
<td>030201</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>&lt;F#, C, Db, C&gt;</td>
<td>(016)</td>
<td>100011</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>15,12,13,11,18,18</td>
<td>5/16</td>
</tr>
</tbody>
</table>
Table 9. Chord Series 4’ (CS4’)

<table>
<thead>
<tr>
<th>Chord Number</th>
<th>Pitch classes</th>
<th>Type of chord</th>
<th>Interval class vector</th>
<th>Relationship to (037)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&lt;F#, C, E, B&gt;</td>
<td>(0157)</td>
<td>110121</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>&lt;Bb, G, E, B&gt;</td>
<td>(0147)</td>
<td>102111</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>&lt;F, Db, E, B&gt;</td>
<td>(0146)</td>
<td>111111</td>
<td>°</td>
</tr>
<tr>
<td>4</td>
<td>&lt;Eb, Bb, E, B&gt;</td>
<td>(0156)</td>
<td>200121</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>&lt;A, G, E, B&gt;</td>
<td>(0247)</td>
<td>021120</td>
<td>°</td>
</tr>
<tr>
<td>6</td>
<td>&lt;F#, C, E, B&gt;</td>
<td>(0157)</td>
<td>110121</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>&lt;B, F#, E, B&gt;</td>
<td>(027)</td>
<td>010020</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>&lt;Eb, C, E, B&gt;</td>
<td>(0145)</td>
<td>201210</td>
<td>°</td>
</tr>
<tr>
<td>9</td>
<td>&lt;C#, A, E, B&gt;</td>
<td>(0247)</td>
<td>021120</td>
<td>°</td>
</tr>
<tr>
<td>10</td>
<td>&lt;A, G#, E, B&gt;</td>
<td>(0237)</td>
<td>111120</td>
<td>°</td>
</tr>
<tr>
<td>11</td>
<td>&lt;F#, C, E, B&gt;</td>
<td>(0157)</td>
<td>110121</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>&lt;A, F, E, B&gt;</td>
<td>(0157)</td>
<td>110121</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>&lt;Eb, D, E, B&gt;</td>
<td>(0125)</td>
<td>211110</td>
<td>°</td>
</tr>
<tr>
<td>14</td>
<td>&lt;A, Bb, E, B&gt;</td>
<td>(0127)</td>
<td>210021</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>&lt;D, A, E, B&gt;</td>
<td>(0257)</td>
<td>021030</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>15,15,9,13,27,8</td>
<td>7 (4+3)/16</td>
</tr>
</tbody>
</table>

A few other anomalies occur in CS4 and CS4’. The most obvious one is the doubling of notes. In CS4, there are three instances (chords 8, 10, and 12) in which a pitch class in the repeated left hand dyad appears in the right hand. Vivier intriguingly avoids octaves elsewhere in the entire piece, so one wonders why they are introduced here. This also means that instead of a tetrachord, a trichord is formed. This also happens once in CS4’ (chord 6). Also of interest in CS4 is the appearance of two tetrachords sharing the same pitch classes but in different voicing (chords 3 and 10). CS4’ could be subdivided into three shorter series of five chords, each starting on a (0157) tetrachord. Finally, CS4’ ends with the same type of tetrachord, (0257), as do CS3 and CS3’. The hand movements featured in CS4 and CS4’ influence the intervallic content in this section. The predominant interval class is ic6 (18 occurrences) for CS4, as it is repeated in the left hand throughout the unfolding of the series. However, ic5 is also
repeated 18 times and the other intervals occur in a rather balanced way, which is unusual compared to the other chord series. In CS4’, the interval class that is repeated in the right hand is ic5 (27 occurrences), which is also the predominant one in the series, as shown by Table 9.

Section B follows different processes. Its pitch content comes not from a chord series, but mostly from the thirty-seven-note scale described earlier, which is presented in the music itself in m. 128. In fact, most of the pitches in the following measures, until the arrival of section A’, can be linked to that collection of pitches. It includes every pitch class, with pitch class Ab occurring most often (five times), and pitch class A appearing least often (only once). There are only four kinds of intervals that can be observed between the adjacent pitches in the collection. The minor second occurs most often by far, with seventeen occurrences; the major second occurs nine times, the minor third occurs seven times, and the major third occurs three times. In Vivier’s sketches the pitch collection also included a low D, a major second below the low E that starts the scale in the final version of the piece. It is not quite clear why Vivier omitted that note, as it would seem likely that it was fully part of the plan in at least two ways. First of all, adding a major second to the collection of different intervals would fix the simple arithmetic, with the minor seconds getting seventeen occurrences, the major seconds now with ten, the minor thirds with seven and the major thirds with three, thus confirming a series of number obeying the Fibonacci principles which Vivier likes to use, (3, 7, 10, 17), in which the larger numbers arise as the sum of the preceding two. Also, in mm. 206-209 there is a harmonized version of the complete scale, including all thirty-eight
pitches in the same order presented previously, but this time with the low D. As such, it is very intriguing that Vivier removed that pitch from the original presentation of the complete scale.

That same idea can be seen in m. 123, right before the introduction of the scale. Here, however, Vivier only states the head of the scale, again in a harmonized manner. One might suggest that Vivier wanted to give more importance to pitch class E, which starts the scale and is repeated four times and, moreover, which can be heard predominantly in the note collection. Its first two appearances are more or less identical (E-F-Ab-C and E-F-Ab-B-C), while the last two both have five pitches and start with smaller intervals then end with larger intervals, a rather uncharacteristic choice since most of the bigger intervals happen earlier on.

The most interesting feature of the 37-note collection is the fact that smaller groups of adjacent notes are organized in chromatic or whole-tone scales. Scale degrees 7 to 12 are all separated by a semitone, and so are degrees 14 to 16, 18 to 21 and 32 to 35; meanwhile scale degrees 23 to 29 make a whole-tone scale (with the exclusion of C). Vivier uses these subsections of the larger scale and focuses on them in different parts of section B. The clearest example of Vivier’s utilization of the intervallic content of the scale can be seen in mm. 172-182. Here, the soprano line focuses on pitches from the whole-tone section of the larger scale. Surprisingly, the music does not develop toward amplification of a particular hand movement. Vivier goes back and fourth in the whole-tone scale, adding other pitches from outside the whole-tone collection, before returning
to the ascending material that is the main focus this section. This whole-tone section creates a very particular effect in the piece, discussed later on, in terms of its rhythmic content. However, it is important to mention at this juncture that Vivier purposely used the different interval content of this portion of the scale to create a totally independent and contrasting section within the ascending motion episode of Section B.

Generally speaking, using a large scale to generate the pitch content of Section B allows Vivier much more variation throughout the middle section of the piece. The specific features of the smaller scale segments allow him to create distinct sections in terms of sounds and colors, and also create much more variety in the harmonization of the top line. In fact, with the chord series, Vivier would use the four notes of each chord and apply different techniques of variations to them, as has been shown earlier with the analysis of section A. In section B, Vivier can not only use different variation techniques, but can also simply change some of the chords by harmonizing them differently. The multiple possibilities allowed by the use of the scale may explain why the ascending similar motion section is by far the most common type in section B, accounting for about a third of the entire piece.

In summary, an understanding of how Vivier uses pitches in *Shiraz* is vital information for the performer. In addition to assisting the performer in learning to move through the rather dense notescape, it also makes clear the delineation of events in the piece, through a recognition of the fundamental materials and the composer's most characteristic ways of working with them.
The length and scope of *Shiraz* can be daunting, but as in a traditional sonata form, pitch is used not only to create harmonies but also to mark the major formal events. Using his chosen pitch materials, Vivier shapes similarities and differences in order to create arrivals, tension, and resolution. We have also seen that use of aggregate-forming melodies in the coda help to create and signal closure for the piece. Without a basic analytical understanding of the pitch properties in *Shiraz* the performer not only risks a more difficult learning process, but ultimately might also remain unaware of the inherent momentum of the different sections. Recognizing these elements and understanding their properties is essential to a performer’s appreciation and expression of the formal elements so carefully and expertly organized by Vivier.

2.3 Rhythm

The rhythmic elements of *Shiraz* may appear relatively straightforward at first reading. As is readily apparent from Vivier’s sketches, the basis for the entire piece is the sixteenth note. In some sections, the durations of the different elements are not only determined by the number of sixteenth notes they contain, but are also varied by different mathematical operations like multiplication or subtraction applied to that unit. Thus, when Vivier uses a mathematical formula or series, he often uses the sixteenth note as a common denominator. A clear example is the usage of the Repeated Chords in Section A as a representation of the Fibonacci numbers. Similar examples pervade the entire work. In the discussion about form, it has been indicated how the different elements of section
A1 undergo mathematical transformations. If Sections A and A’ are founded on simple ways of using sixteenth-note durations, Section B is a bit more complex. To be sure, the sixteenth note is a prevalent unit in Section B, but Vivier also incorporates new rhythmic elements. To vary the rhythmic character of the piece and to contrast Section B with the outer sections, Vivier introduces triplets and compound meters. The triplets not only change the rhythmic contour from the sixteenth notes heard previously (e.g. m. 125) but also “confront” those sixteenth notes, creating polyrhythm (e.g. m. 143). Most of page 14 is written in compound time signatures based on eighths (6/8, 9/8, 12/8), and the liberal use of eighth notes, in groups of three, creates a clear shift from the sixteenth-note texture that dominates the A and A’ sections.

In Section B, Vivier also frequently deploys staggered units between the two hands, generating a rhythm-based polyphony. Instead of both hands playing in synchrony, as is the general modality of the piece, there are multiple instances where the hands begin their phrases a sixteenth or eighth note apart. This rhythmic displacement, along with the distinct sonorities and rhythms used by each hand, creates a perceptual shift in texture and color. For instance, at m. 139, the left hand strikes its two notes a sixteenth note after the right hand has initiated its phrase. The right hand then moves to another chord while the left hand continues to sustain the perfect fifth (A-E). By using the vibratory compass of the keyboard’s string resonances as a component of the rhythmic interplay, it is possible to hear a shift in the harmonic content as soon as the right hand plays its second chord. This asynchronous process alternates with moments of rhythmic unison throughout the section.
In Section B it is also possible to observe the technique of *kotekan*, which is common to Balinese music. The two hands do not necessarily play at the same time, but their combination nonetheless creates a consistent sixteenth-note pulse. An example of this technique can be seen at mm. 206-209. The first two beats of m. 206 are incomplete as their inverted rhythms, sixteenth-dotted-eighth, and dotted eighth-sixteenth, omit the third sixteenth note of the beat. However, at the third beat it is possible to see that while the left hand is sustaining a note from the previous beat, the right hand strikes the first three sixteenth notes of the beat and the beat is completed on the fourth sixteenth note by the left hand. Starting there, all beats but one feature interlocking rhythms in both hands, creating a smooth and regular sixteenth-note activity, even though many notes in the left hand are held or tied for longer values. Understanding the concept of *kotekan* is extremely useful to the performer, offering an analytical mechanism to elucidate and simplify the visual intricacy of the rhythms, as well as a contextual paradigm that elucidates the content of the passage.

Vivier breaks again from the feeling of the sixteenth notes with the descending motion material starting at m. 216. The durational values are extended and again framed in compound meters and here Vivier also introduces the use of fermatas to create pauses in the midst of the descent. The result of this process is a “written out” rubato, and it

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21“*Kotekan* is usually expressed in English as 'interlocking parts,' because although it sounds as one melody it is actually composed of two independent musical lines that are incomplete when played alone and dependent exclusively on each other for obtaining the desired result.” Michael Tenzer, *Balinese Music* (Periplus Editions: Berkeley and Singapore, 1991), p. 46.
generates a striking contrast in character and momentum. Vivier repeats the rhythmic displacement gesture in a gentle mezzo piano dynamic, effecting a fascinating juxtaposition against the rhythmic unison, which is in a fortissimo dynamic (m. 219 see. m. 221). This section also introduces a recurring chord in measures without time signatures. This chord appears several times, foreshadowing its emergent presence as the basis for the next sections (e.g. m. 222). It acts as a punctuation sign in the second half of section B (descending motion), like the measures of rest in Section A and A’, and the first half (ascending motion) of Section B.

The stasis subsection closing Section B from mm. 235-238 only employs one chord (the recurring chord mentioned above); the composer features dynamics, articulations, and rhythm to create diversity. It is an elegant example of how he uses mathematical operations upon units of time to build momentum. Measure 235 shows two kinds of sounds: a longer soft chord, and a louder short staccato chord. The soft and long chord is subjected to the principle of contraction, from four beats to one beat, while the brisk chords, notated in grace notes, are incrementally extended through repetition. The next measure uses this short-long confrontation over a decrescendo. Thirteen repetitions of the chord can be heard, including the grace note figure, and this is probably a reference to the Fibonacci series. Measure 237 uses another process, subtraction, as the chords in sixteenth notes are first repeated four times, then once, then three times, and finally twice, while the longer chords are expressed in Fibonacci numbers, 8 beats, 2 beats, 5 beats, 1 beat and 3 beats, again alternating longer and shorter values.
Recognizing Vivier’s use of the Fibonacci numbers also helps the performer of *Shiraz* in the rendition of its elements. For instance, how should one count fifty-five repeated chords, as in the first measure of the work? Starting from the insight that the repeated chords function within the Fibonacci series, it seems rather convenient to use Fibonacci numbers when counting the repeated chords. The following division is therefore suggested: $55 = 4 \times 13 + 3$, $34 = 4 \times 8 + 2$, $21 = 4 \times 5 + 1$, $13 = 4 \times 3 + 1$ (or simply 13), $8 = 4 \times 2$ (or simply 8), and $5 = 4 \times 1 + 1$ (or simply 5). The advantage in counting repetitions in these manners is that the practice creates a very stable pattern and awareness in the performer’s mind, which consists of repeating four times the larger amounts of repeated chords. I came upon this discovery while practicing *Shiraz*. While tackling the problem of how to count through the 55 repeated chords at a fast tempo, I realized that spoken in French, every number up through thirteen has just one syllable, making them easy to pronounce without losing track of counting. I was amused by the fact that thirteen was also part of the series, and then thought of applying the multiplication by four to the other smaller Fibonacci numbers.

In summation, the rhythm in most of *Shiraz* is based on the unit of the sixteenth note, and undergoes varied processes of alteration, including mathematical transformation, organization into arithmetic series, and the use of *kotekan* technique. Analysis helps the performer to understand and prepare the rhythms, and to grasp a clear vision of the resulting smooth pulse coming out of the staggered *kotekan* attacks, facilitating a comfortable knowledge of what can at first seem daunting. The biggest rhythmic challenge in *Shiraz* resides in the counterpoint achieved by the rhythmic
displacement in section B, as described above. An utmost precision is needed in order to achieve the smooth shift of chords wanted by the composer. If the rhythmic unison sections appear simpler rhythmically, technically they are nonetheless difficult to execute precisely. Not only should the constant rapid sixteenth notes all be played evenly. The fact that Vivier uses two voices per hand moving in all varying directions, and by skips of varied sizes (especially from the end of a chord series back to the beginning of a new pattern), demands a tremendous degree of bravura from the performer.
Conclusion: Performing Shiraz

Analysis of the form, pitch content, and rhythm of this work facilitates comprehension for the prospective performer in many ways. A few more aspects should also be considered when undertaking the study and preparation of Vivier’s piece. First of all, the performer needs to bear in mind that Vivier studied with composers who used integral serialism in their works. While Shiraz does not follow these principles with the same scope as, for example, *Modes de valeurs et d'intensités* by Messiaen, Vivier is nonetheless extremely meticulous with his indications of dynamics and articulations, and a performer needs to understand that this comes directly from the serialists’ legacy. Besides the relationship of the notations to the structural design, in Shiraz the markings are often used to contrast and characterize different musical materials. It is therefore of the utmost importance to observe Vivier’s indications.

Shiraz requires exceptional technique. Its notorious technical difficulty centers primarily on the rapid-fire movements of the hands, the consistent assignment of two parts per hand, and the need for balanced and nuanced voicing throughout, despite those prior exigencies. Critical for learning Shiraz is the discovery of an effective solution to the manifold puzzles of fingerling the passagework. In traditional piano writing, determining the choreography of the fingers is usually a rather quick task. In Shiraz, it is virtually a primary, essential task without which purposeful engagement of the score cannot be commenced; the piece is unplayable until a fingering map has been completed.
The challenges to finding a successful fingering reside in the fact that Vivier often requires legato articulation in his long sequences of rapid sixteenth notes, and in the nature of the writing itself with two voices per hand, which limits the pianist’s options. Playing two voices per hand means that often, only one voice will be able to adopt a true finger legato. Because the soprano is almost always the most important voice, it is extremely important to discover fingerings that will allow the pianist to keep the soprano line connected even across some rather large skips.

Another issue emerges from something that might seem, *a priori*, like a blessing: the constant repetition of patterns, especially in passages built from the various chord series, in which Vivier cycles through varied repetitions or segments of the series. At first, the pianist might feel relieved by the amount of repeated material in *Shiraz*. With the large scope of the piece, the repeated material means less material to decode. But Vivier’s variation processes of contraction and addition using the chord series do not always put the material in the exact same context, and one frequently encounters the chords or patterns in new environments, either slightly or significantly different from other occurrences. The performer’s natural reaction might be to use the same fingering associated with the material previously, but the reconfiguration of the recurrent patterns demands constant investigation, to find the most effective and comfortable fingerings for each specific context. Therefore, repeated configurations often require a variety of different fingerings, and this can be rather confusing, especially at fast tempo. For all these reasons, it is advisable to devise a rigorous method for deciding upon the desired fingering. Its complexity is of such a degree that it may well require notation above each
chord, a degree of detail rarely necessary in the study of a work. The de-coding of the fingering is best regarded as a fascinating puzzle – a sort of brainteaser specific to the realm of pianism – so as to enliven this otherwise frustrating task. Until the fingering is resolved, the real work of engaging this musical masterpiece must wait. Keeping in mind that pianists select fingerings based on their personal physiognomy, Example 31 helps to indicate the challenging variations encountered with the truncating of chord series, as explained above.

Example 31. Shiraz, section A’, fingering alteration, m. 257

With proper understanding of the fingering, the legato playing required by Vivier will be more effectively achieved. The multitude of leaps and the speed at which chords are played also demand a judicious use of the pedal. Vivier seldom indicates his pedaling specifications throughout Shiraz, but he does so for the repeated chords in section A, and in section B, for the rolled chords in the left hand or for rare occurrences of a sustained sound. The lack of pedal marking elsewhere does not mean that it should not be used. Indeed, the pedal should also be utilized to facilitate the slurring requested throughout the piece. This being said, care should be taken to prevent overcompensation for the legato
exigencies of the hands and to avoid a blurring effect that will damage the clarity so essential to the performance. In a private discussion with Louis-Philippe Pelletier, he suggested the use of a light fluttering pedal, as one might employ in Mozartean contexts.

Memorization is a rather personal topic when it comes to performing works of the 20th and 21st Century. It is a common and accepted practice to perform contemporary works with the score. However, many pianists including myself feel freer when performing any work from memory. In many cases, the task of learning every note by heart is not that much more difficult than it is in traditional tonal music. However, I do believe that in the case of Shiraz, if memorization can be an asset in terms of the physical demands of the piece, it can also lead to a tragic lack of precision on many other levels. For instance, the many repetitions of entire measures are much easier to achieve when there is visual contact with the score. Moreover, the peculiar precision of the composer with regards to dynamics needs to be respected, which is rather difficult to achieve by memory, without the help of the score. Finally, as Vivier uses the whole measure of rests as an element going through different level of mathematical transformation, it complicates once again the task of playing Shiraz without the score. Thus, even though a thorough analysis and complete understanding of Vivier’s variation processes will greatly facilitate knowledge of the piece, I believe that it is more than justified to play it with the score.

Finally, as is customary in the serious study of any repertoire, it is important to consult the different editions, the manuscript and the sketches for Shiraz, because some
discrepancies have indeed been revealed in this process. In her discussion of the work, Brigitte Poulin offers many corrections to possible mistakes in these sources. Whether or not some of the seemingly anomalous notes were the ones Vivier really wanted or are mistakes to be corrected is a topic for debate. It seems that the fact that Shiraz uses defined pitch material (i.e. the chord series and the long scale), provokes expectations for the performer, especially in terms of pitch. However, if indeed there are some mistakes, one must also consider that Vivier mentioned he did not always adhere perfectly to what would be logically predictable, and that he might occasionally create surprises by altering the pitch content slightly, to serve a musical idea (as was demonstrated earlier with the slight change in the harmonization of the Chorale). In other words, before making corrections it is very important for the performer to conduct a very thorough investigative analysis and complete research of the available material. Louis-Philippe Pelletier confirmed that there are “very few” mistakes throughout Shiraz, and that Vivier was extremely precise with the use of accidentals, valid only for the immediately succeeding note. It seems therefore, as is so often the case with scores whose lives transcend those of their creators and enter the realm of timeless art, that the performer must use all available means, scholarly, interpretative, and intuitive, to achieve the most accurate performance of Shiraz to the best of his/her knowledge and with the best of his/her aspirations.

This study of Shiraz has been “un voyage au fond de moi-même,” to use Vivier’s words. I hope this document casts a helpful guiding light for the performers who would decide to embark on a similar journey.
Bibliography


Appendix 1: Score of Shiraz

Claude VIVIER

SHIRAZ

pour piano
Measure numbers given for the first measure of each line: 1, 6, 10. (Repeated measures count for 1 measure.)
Measures: 12, 15, 17, 20.
Measures: 23, 28, 29, 31, 33, 34. Nota bene: the two measures of 9/16 at line 2 and 5 need to be omitted and therefore do not count in the numbering.
Measures: 36, 37, 41, 44, 46, 48.
Measures: 53, 57, 59, 63, 66.
Measures: 68, 70, 75, 77, 81, 83.
Measures: 87, 90, 92, 94, 98.
Measures: 100, 104, 107, 110, 113, 117.
Measures: 119, 121, 122, 125, 128.
Measures: 129, 131, 133, 135, 137 (continued from previous line).
Measures: 139, 141, 143, 144, 147, 150.
Measures: 152, 156, 159, 163, 165, 167.
Measures: 169, 172, 175, 177, 179, 181.
Measures: 184, 188, 191, 194, 198, 201.
Measures: 203, 206, 208, 210, 212, 215.
Measures: 217, 220, 222, 224, 226.
Measures: 241, 244, 245, 246, 250, 253.
Measures: 254, 257, 258, 261, 263.

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