



The integration of synthetic scales and the African *Dies Irae* motif in Alexander Johnson's *Kahlolo*, *Letšatši* and *Vocalise Africa*

Oluwakayode S Ibiayo 

School of the Arts, University of Pretoria, Tshwane, South Africa
email: u13046285@tuks.co.za

Abstract

The South African composer Alexander Johnson frequently integrates diverse musical elements and post-tonal devices into his works. He employs distinct compositional techniques such as synthetic scales and the African *Dies Irae* motif (ADIM) to establish a recognisable signature. This is particularly evident in his organ pieces *Kahlolo* (2016) and *Letšatši* (2016), as well as in *Vocalise Africa* (2017) for soprano and piano. These three selected compositions clearly display Johnson's individual interpretations of 21st-century compositional devices. Given the limited literature on the composer and his works, this article provides valuable insights into the nuances of Johnson's compositional language, particularly his use of synthetic scales and the ADIM. By defining the original and varied versions of Johnson's scales and motifs, this research illustrates how he blends African melodic ideas with modern harmonic writing. The synthetic scales exhibit distinct pitch content, intervallic relationships and tetrachord structures, revealing their harmonic complexity and potential. The ADIM, a recognisable melodic motif based on the traditional *Dies Irae*, merges with these synthetic constructs, creating a sophisticated yet aurally recognisable balance.

Alexander Frederick Johnson

Biography

Born on 2 February 1968 in Pietermaritzburg, South Africa, Johnson began engaging significantly in musical activities from an early age. His debut concert appearance in 1990 featured him as the soloist in Maurice Ravel's Piano Concerto for the Left Hand (1930), accompanied by the then Natal Philharmonic Orchestra. This event inaugurated a series of performances in distinguished concert halls throughout South Africa. As a composer, Johnson often received commissions for both television and radio from South Africa's leading media entity, the South African Broadcasting Corporation. Johnson pursued musical studies at the University of Pretoria (UP), studying composition under the mentorship of Henk Temmingh and honing his piano skills with Joseph Stanford. By 1990,

he had earned a Bachelor's degree from UP and a Performer's Licentiate in Piano from the University of South Africa. Furthering his academic endeavours, Johnson obtained a Master's degree (1999) and a DMus in Composition (2000), both from UP. Johnson emerged as a beacon in the contemporary music landscape, artfully crafting compositions that appeal to both general music enthusiasts and seasoned musicians. As documented by Malan (2001), Johnson's genius lies in the intricate balance he strikes that make his compositions intellectually engaging for musicians while remaining accessible to casual listeners. His expertise is evident in the frequent performances and growing appreciation of his work, both domestically and internationally.¹

Selected works

Kahlolo (2016), *Letšatši* (2016) and *Vocalise Africa* (2017) utilise both tonal and non-serial atonal musical devices,² hence the term 'integration' in the title of this article. *Kahlolo* is scored for organ and dedicated to Theo van Wyk, a professional South African organist who commissioned the work. Van Wyk premiered *Kahlolo* at St Alban's Cathedral in New York in 2016 and later performed it in Texas and at Westminster Abbey in London. In 2016, the South African Music Rights Organisation (Samro) Foundation for the Creative Arts commissioned *Letšatši*, also for organ. It was dedicated to another South African organist, Herman Jordaan, who premiered the work at the University of Pretoria Chapel in October 2017. In the same year, the Samro Foundation commissioned Johnson to compose a piece for the 2018 Unisa International Singing Competition. The outcome was *Vocalise Africa*, a chant-based vocal piece with piano accompaniment dedicated to Hanli Stapela, a professional vocal coach and performer at UP.³

Distinctive compositional devices in Kahlolo, Letšatši and Vocalise Africa

Given that 'most personal styles do not consist of one concept, one process, one instrumentation, or one technique' (Cope 1997:230), elements of music can be represented using various analytical approaches, graphs and diagrams. When all these methods are fully applied, the final analysis may, however, become an overwhelming collection of visual data. Therefore, White (1994:18) suggests that the 'analyst must select only those techniques which are meaningful to the work under study'. Since *Kahlolo*, *Letšatši* and *Vocalise Africa*

1 Biographical details were obtained from the composer's official website <Johnson 2018> and *Academia* account <Johnson 2025>.

2 A defining feature of non-serial or free atonal music is atonality, achieved by masking the melodic, harmonic and rhythmic patterns that create tonality in tonal music (Kostka & Santa 2018 [1989]:169–187). Certain 'tonal centres' are, however, present in this instance due to the utilisation of the ADIM, which has tonal elements in its melodic construction.

3 Information on compositions was generously provided by the composer (Johnson 2019).

follow the 'decategorisation' model (Cope 1997:230),⁴ combining multiple 21st-century stylistic techniques, this paper focuses on two principal compositional devices that stand out and permeate Johnson's selected works: distinctive synthetic scales and motivic elements.

Synthetic scales

A salient stylistic attribute shared by *Kahlolo*, *Letšatši* and *Vocalise Africa* is the use of specific synthetic scales as a foundational structural element. Every composition Johnson has written, from 1990 to his most recent work, consistently incorporates variations of this synthetic scale, creating a signature motif across his oeuvre (Johnson 2019). This recurrent feature fosters instant recognition of the composer's distinctive sound. Cope (1989 [1971]:11) provides insight into synthetic scales,⁵ explaining that they 'involve the creation, usually by the composer, of unique scales for the purpose of composition'. As these characteristic scales diverge from the traditional major–minor scale paradigm, constructing a synthetic scale results in an innovatively designed pitch collection tailored to the composer's distinctive use within a composition (Persichetti 1961:43; Cope 1989 [1971]:12). In the three works analysed here, Johnson – consistent with both his earlier and subsequent compositions – employs a synthetic scale with two variations.

Original version of the synthetic scale

In the original scale setup (Example 1), Johnson employs a sequence of eight distinct pitches, divided into two tetrachords: C, D \flat , E \flat , E \natural and F, F \sharp , B \flat , B \natural . In set theory, the scale conforms to set class [01235678], Forte number 8–6 and interval vector $\langle 654463 \rangle$. The vector indicates a variety of intervals, particularly minor seconds and major sevenths, which contribute to the scale's tension. The two tetrachords correspond to set classes [0134] and [0156], with Forte numbers 4–3 and 4–8, and interval vectors $\langle 212100 \rangle$ and $\langle 200121 \rangle$ respectively. Both tetrachords are symmetrical, with semitone intervals bookending a varied central interval. The first tetrachord has a smaller interval between its central pitches, spanning two semitones (D \flat to E \flat), whereas the central interval in the second tetrachord extends four semitones (F \sharp to B \flat).⁶

4 Cope (1997:230–238) outlines several approaches to decategorisation, including eclecticism, quotation, sectionalisation, overlay and integration.

5 These scales are sometimes also termed 'original' scales (Persichetti 1961:43).

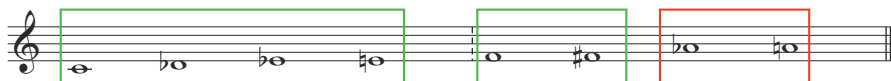
6 While set theory has been used here to investigate the structure of the scales and motifs fundamental to Johnson's compositional language, it has not been applied comprehensively in the examples discussed. Instead, the analysis focuses on how fundamental building blocks are utilised and varied by the composer. More comprehensive set-theory analyses in the future will complement the conclusions drawn here.

Example 1: Original version of the synthetic scale

*Variation 1 of the synthetic scale*

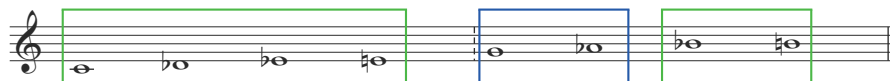
In the first variation of the synthetic scale (Example 2), notes highlighted in green are identical to those in the original version, while those in red are altered. This variation results from a downward transposition of the last two notes of the second tetrachord of the original scale by a whole tone. In set theory, this variation of the scale corresponds to set class [01345689] with Forte number 8–17 and interval vector $\langle 546652 \rangle$. This vector shows a balanced distribution of intervals, with an emphasis on major and minor thirds and sixths. The varied second tetrachord now also corresponds to the [0134] set class of the first tetrachord. Another level of symmetry is thus achieved, as this variation of the scale consists of two identical and symmetrical tetrachords, the roots of which are separated by a perfect fourth.

Example 2: Variation 1 of the synthetic scale

*Variation 2 of the synthetic scale*

In the second variation of the synthetic scale (Example 3), the modified notes are highlighted blue, while notes from the original scale are again indicated in green. This variation is formed by raising the first two pitches of the second tetrachord of the original scale by a whole tone, thus differentiating it from the original version and the first variation. From a set theory perspective, it is notable that the second variation of the scale has the same set class as that of the first variation [01345689] and thus consists of two [0134] tetrachords. In this instance, however, the roots of the symmetrical tetrachords are separated by a perfect fifth and thus horizontally swapped.

Example 3: Variation 2 of the synthetic scale



Considering all three scale formations, it is apparent that Johnson applies only minimal variation, achieved through whole-tone transposition of two consecutive steps in each scale. A set-theory perspective clearly shows how the composer prefers scales constructed from symmetrical tetrachords. All six tetrachords are symmetrical and also fairly consistent, as is evident in the use of five [0134] and one [0156] tetrachord. All six tetrachords consist of semitone intervals bookending a larger central interval. The only difference between the two varied scales is the transposition of the second tetrachord: a perfect fourth in variation one and a perfect fifth in variation two, which thus also corresponds to a reversal of the two tetrachords. While the individual interval vectors are largely balanced, the original scale has a stronger emphasis on the minor second (or major seventh) and perfect fourth (or perfect fifth), while the varied scales incorporate more instances of major and minor thirds and sixths.

The African *Dies Irae* motif

Another hallmark of *Kahlolo*, *Letšatši* and *Vocalise Africa* is the incorporation of a characterful motif. The significance of this short melodic fragment is highlighted in its substantial repetition, both in its original and varied forms, throughout the compositions analysed. As mentioned earlier, all of Johnson's compositions after 1990 display commonalities. Earlier works are linked with later ones through the establishment of a consistent 'stylistic signature' (Johnson 2019). While this signature melodic fragment, named the African *Dies Irae* motif (ADIM), was coined by Johnson, its historical roots extend back centuries. It can be deduced that some form of paraphrasing has been applied since the ADIM clearly draws inspiration from the widely recognised ancient *Dies Irae* motif.⁷ The foundational melodic material of the conventional *Dies Irae* is framed within mixed modes, incorporating both the Dorian and Hypo-Dorian modes. Johnson conceived the 'African' version of this device as a distinctive element for the instant recognition of his compositions, yet each piece retains its unique identity (Johnson 2019).

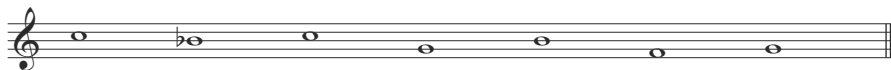
Original version of the ADIM

Example 4 illustrates the pitches of the original version of Johnson's ADIM. In contrast to the synthetic scales, the motif has a more tonal character, primarily anchored in the minor pentatonic scale. A set-theory analysis of the four pitch classes applied corresponds

7 Post-tonal composers frequently quote, arrange and paraphrase earlier music, a practice that has become particularly prevalent since the mid-1960s (Kostka & Santa 2018 [1989]:152–154).

to set class [0257], with Forte number 4–23 and interval vector $\langle 021030 \rangle$. A symmetrical tetrachord is again utilised, as with the synthetic scale and its variations, but is here constructed from whole-tone instead of semitone intervals.

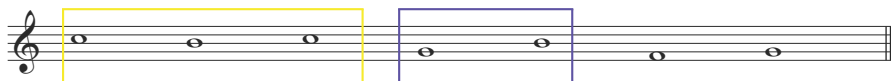
Example 4: Original version of the ADIM



Variation of the ADIM

Example 5 shows a slight variation of the ADIM, featuring intervallic diminution (yellow) and augmentation (purple) of the various intervals following the replacement of B \flat with B \natural . With this semitone change, the varied pitch collection now corresponds to set class [0157], or Forte number 4–16 with interval vector $\langle 110121 \rangle$. This is the first tetrachord discussed that does not have a symmetrical foundation.

Example 5: Variation of the ADIM



Kahlolo, Letšatši and Vocalise Africa

In the following sections, Johnson's application of the two principal compositional devices – the synthetic scales and the ADIM – is discussed. While an analysis of the vertical dimensions or chordal content of these works is not the central focus of this study, it is important to note that these vertical compounds are also based on the pitch collections of the synthetic scales. The focal point of this study is Johnson's horizontal constructions, and how both synthetic scales and the ADIM are integrated to create the compositional building blocks of the three works discussed.

Kahlolo

The first integration of the synthetic scales and the ADIM appears in bars 79–82 (Example 6). The ADIM is presented in a D \sharp tonal centre and is slightly varied through motivic elongation (added notes are indicated with black squares) and skeletonisation.⁸

8 Skeletonisation refers to the omission of notes and the subsequent truncation of motifs (Cope 1997:29).

The first three pitches of the original ADIM (D \sharp , C \sharp , D \sharp) are highlighted in green. In bar 81, Johnson integrates the original synthetic scale with the elongated ADIM, producing a C, D \sharp , F \sharp , G \sharp , B pitch combination. As previously noted in relation to the composer's treatment of vertical dimensions – specifically in the three compositions discussed here – the collection of pitches in these bars derives from the original synthetic scale. Johnson extends this compositional idea into bar 82 when the original version of the synthetic scale appears in the third-mode retrograde, beginning with pitch D \sharp and thus producing D \sharp , E, F, F \sharp and A \sharp , B, C, C \sharp tetrachords. The scale then returns to its normal ascending order on the initial D \sharp (orange), while the C \sharp (purple) acts as a bridge linking the skeletonised ADIM and the synthetic scale, thereby integrating them into a single unit.

Example 6: *Kahlolo*, bars 79–82

The musical score for Example 6, *Kahlolo*, bars 79–82, is presented in two systems. The first system covers bars 79 and 81, and the second system covers bar 82. The score is written for a flute (III: Flute 8', Quint 1 1/3') and piano accompaniment. The key signature is one sharp (F \sharp), and the time signature is 5/8. In bar 79, the flute part features a melodic line with a green box highlighting the first three notes (D \sharp , C \sharp , D \sharp) and a purple box around the C \sharp note. In bar 81, the flute part features a melodic line with a red box around the first four notes (C, D \sharp , F \sharp , G \sharp) and an orange box around the last three notes (F \sharp , G \sharp , B). In bar 82, the flute part features a melodic line with a green box around the first note (D \sharp), a purple box around the second note (E), a red box around the next three notes (F, F \sharp , A \sharp), and an orange box around the final note (C \sharp). The piano accompaniment provides harmonic support with chords and arpeggiated figures.

Another integration of the two compositional devices appears in bars 83–88 (Example 7). In bars 83–85, Johnson employs a skeletonised ADIM (green), while the melodic line is extended in bars 86–88. In bar 86, the first tetrachord of the original synthetic scale is played (C, C \sharp , D \sharp , E in red). In bars 87–88, Johnson employs the first variation of the synthetic scale in a truncated and retrograde form (D \sharp , E, F \sharp , G \sharp in blue), starting on G \sharp , but with some scale degrees omitted (C, C \sharp , F, A). As is customary with the composer's treatment of vertical dimensions, the entire pitch collection in Example 7 is derived from a combination of the synthetic scales.

Example 7: *Kahlolo*, bars 83–88

The integration of compositional devices continues from bars 89 to 92 (Example 8). In the vertical dimension, Johnson distributes the pitches of the original synthetic scale in an unordered fashion within mixed-interval chords⁹ that extend second, third and fourth intervals (red). At the same time, he blends the original version of the ADIM (green) with its variation (yellow) and employs motivic elongation for variation. The pitches of the elongated original version of the ADIM are marked in blue, while those of the varied ADIM are marked in black.

9 Kostka (2012 [1989]:54) explains that mixed-interval chords are not built from a single interval series, but from a combination of two or more different interval series, producing an intricate sonority. Such mixed-interval chords are commonly found in atonal music (DeLone et al. 1975:368).

Example 8: *Kahlolo*, bars 89–92

The musical score for Example 8, bars 89–92, is presented in two systems. The first system, labeled 'I: Principal 8', Flute 4'', covers bars 89 and 90. The second system, labeled '+ Principal 16', Bourdon 16'', covers bars 91 and 92. The score is written for a piano, with a treble and bass clef. The treble clef contains a melodic line with notes circled in red and yellow. The bass clef contains a bass line with notes circled in green and blue. The music is characterized by mixed-interval chords and a complex rhythmic structure.

In bars 95–97 (Example 9), Johnson again uses motivic elongation (added notes in black) to present the ADIM in a varied form (yellow). Similar to the previous excerpt (Example 8), the composer employs mixed-interval chords, built from second and fourth intervals in particular (red). The vertical dimension, including the pitches in the bass clef, encompasses content derived from the combined synthetic scales. In this example, pitch D (purple) stands out, as it is not part of the pitch collections in the synthetic scales. The inclusion of this pitch ultimately results in a presentation of an aggregate, with all 12 pitches utilised.¹⁰ For the purposes of this study, pitch D will henceforth be referred to as a ‘borrowed pitch’.

¹⁰ Kostka and Santa (2018 [1989]:183) define an aggregate as a ‘statement of all 12 pitch classes without regard to order or duplication’.

Example 9: *Kahlolo*, bars 95–97

The musical score for Example 9, bars 95–97, is presented in three systems. The first system (bars 95–97) features a grand staff with a 6/4 time signature. The top staff contains a melodic line with several notes highlighted by yellow boxes. The middle staff contains a bass line with notes circled in red. The bottom staff has a long note in bar 95. The second system (bars 96–97) features a grand staff with a 6/4 time signature. The top staff contains a melodic line with notes circled in red. The middle staff contains a bass line with notes circled in red. The bottom staff has a long note in bar 96.

In bar 101 (Example 10), the original synthetic scale is played as a chord cluster on the middle staff (C, Db, Eb, F, Gb, A#, B),¹¹ while the lower part (bars 101–103) constitutes a different pitch combination (C, Eb, E#, Ab, A#, Bb, B#). Bars 102–103 outline the ADIM (C, F, G, Bb in green), whereas the vertical dimension of these bars includes pitches derived from the original synthetic scale (C, E, Gb, Bb, B#). The borrowed D (purple) reappears in this excerpt, again forming an aggregate. The original synthetic scale is presented in bar 104, starting with the second tetrachord and extending to the last note of the first tetrachord (orange). The remaining pitches in this bar (including those in the vertical dimension) are plucked from the original synthetic scale and its first variation (red).

11 Tone clusters – stacked chords with pitches separated by a semitone or a whole tone – are often employed by contemporary composers. Persichetti (1961:129), however, explains that ‘a cluster is not always introduced by sounding all its tones simultaneously’. This is evident with the tone cluster in bar 101, which is played in linear fashion.

Example 10: *Kahlolo*, bars 101–104

101

102 I: Principal 8', Flute 4' I: + Trumpet 8'

III: Flute 8', Quint 1 1/3"

103

104

Another integration of compositional devices is illustrated in Example 11. In bars 105–106, the ADIM is presented in its original form (green). The vertical dimension here utilises the same pitch collection as in bars 102–103, derived from the original synthetic scale (red). In bar 107, the synthetic scale is outlined in its original form in the treble clef (orange), whereas the remaining pitches are also taken from the original synthetic scale (red). Bars 108–109 feature a pitch collection derived from the combined synthetic scales (C, Db, E, F, G, A, B). An aggregate is again achieved in this section due to the borrowed D (purple) in bar 106.

Example 11: *Kahlolo*, bars 105–109

105 I: - Trumpet 8'

I: + Trumpet 8'

108 I: Flute 4'

The larger notes indicate a melodic line

- 16' (II/Ped only)

Finally, in bars 122–123 (Example 12), Johnson presents the ADIM in an E_b tonal centre in its original form (green). The vertical dimension in the middle part again encompasses a pitch collection derived from the combined synthetic scales and follows the technique of combining mixed intervals (red). The rest of the accompaniment also includes pitches from the combined synthetic scales. Notably, the original version's second tetrachord is outlined in retrograde (F, G_b , B_b , B^{\natural} in orange). An aggregate is again achieved in this section by the addition of the borrowed D (purple).

Example 12: *Kahlolo*, bars 122–123

Letšatši

The first integration of synthetic scales and the ADIM in *Letšatši* is illustrated in Example 13. In bars 32–38, the synthetic scale, with pitches derived from all three forms, is introduced with the initial statements of pitches F, G \flat and B \flat . In bars 39–43, Johnson utilises the ADIM in an E \flat tonal centre in its original form (green), coupled with motivic elongation (added notes in black). The accompaniment in bars 32–50 again includes a collection of pitches derived from the combined synthetic scales.

Example 13: *Letšatši*, bars 31–50

31

39

46

I: Principal 8'; Flute 4'; Principal 2';

Principal 16' + 8', Reed 4'

The next integration of the two main compositional devices is illustrated in Example 14. The entire section in bars 227–230 consists of a pitch collection derived from the combined synthetic scales. Johnson truncates the original ADIM, which is here stated in an E \flat tonality in bars 231–232 (green), by omitting pitches D \flat and E \flat . As is customary in his compositional language, the vertical dimension of the entire section (bars 227–235) utilises a pitch collection derived from the combined synthetic scales. For example, in bar 232 Johnson clearly outlines the synthetic scale in its original form (red). As noted in *Kahlolo*, the borrowed D, which is not part of the fundamental scales, transforms this section into an aggregate.

Johnson's integration technique continues in the extract included as Example 15. The section in bars 248–249 consists of a pitch collection derived from the combined synthetic scales. In bars 250–251, the ADIM appears in an E \flat tonal centre in its original form (green), while the vertical dimension, as usual, encompasses pitches derived from the combined synthetic scales. In bar 252, Johnson applies pitches of the original synthetic scale, starting with the second tetrachord (F, G \flat , B \flat , B \sharp in red), and extending it into a pitch collection derived from the first tetrachord (C, D \flat , E \flat , E \sharp in red). The chordal material, in black squares, originates from the combined synthetic scale forms. From bars 254 to 255, Johnson again presents the ADIM in its original form in an E \flat tonal centre (green), while the pitch content of the accompaniment is derived from the combined synthetic scales. In a figure similar to bar 252, pitches of the original synthetic scale are stated in bar 256 without any alteration (red), whereas the chords are derived from the different synthetic scale forms. Following Johnson's earlier treatment of vertical dimensions, all the pitches in bars 258–260 originate from the combined synthetic scales, and the entire section forms an aggregate through the addition of the borrowed D (purple).

Example 14: *Letšatši*, bars 227–235

227

231

A tempo ♩=100

III: Flute 8', Sesquialtera 2 2/3'

233

Example 15: *Letšatši*, bars 248–260

248

252

256

I: Mixture 1 1/3', Trumpet 8'

II: Soft Reed 16', Soft String 8'

Vocalise Africa

The integration of synthetic scales and the ADIM in *Vocalise Africa* appears from the opening of the composition, as illustrated in Example 16 (bars 1–2). The ADIM, in a D \sharp tonal centre (green), undergoes rhythmic alteration and durational augmentation. Simultaneously, Johnson integrates and employs synthetic scales as chord clusters in the vertical dimension (C, D \sharp , E, E \sharp , F \sharp , A \sharp , B).

Example 16: *Vocalise Africa*, bars 1–2

The musical score for Example 16, bars 1–2 of *Vocalise Africa*, is presented in two systems. The first system is labeled '1' and the second '2'. The tempo is 'Drowsy and free' with a metronome marking of 55. The Soprano part is in a D \sharp tonal centre, indicated by a green box around the notes D \sharp , E, F \sharp , G, A, B. The Piano part features a synthetic scale in the vertical dimension, with notes C, D \sharp , E, E \sharp , F \sharp , A \sharp , B. The piano part is marked 'p sonore' and 'mp'. The score includes a 'Ped.' marking at the end of the first system.

This unique blend of compositional devices continues in bar 3 (Example 17). The vocal part maintains the pentatonic melodic representation of the ADIM in the chant. In the piano part, Johnson emphasises the integration of devices by employing the ADIM in the outer parts, while featuring fragments of the synthetic scale in the vertical dimension in the middle parts. The ADIM is played in the upper piano part in an A \sharp tonal centre, which is varied through motivic elongation (added notes in black) and intervallic diminution

(altered note in purple). In the lower piano part, the passage in a $D\sharp$ tonal centre mirrors the upper part at an interval of a compound perfect fifth. The motivic variation techniques applied in the upper part are also used here: added notes are marked in black, while the altered note (diminution) is indicated in purple. In the middle part of the same bar, the chord cluster is identical to that in bars 1–2.

Example 17: *Vocalise Africa*, bar 3

The musical score for Example 17, bar 3, is presented in a three-staff format. The top staff is the vocal line, written in a treble clef with a 2/8 time signature. It begins with a whole note 'o' followed by a half note 'io'. The middle and bottom staves represent the piano accompaniment. The upper piano staff (treble clef) contains a melodic line with four notes: a circled quarter note (black), a quarter note (black), a quarter note (purple), and a half note (black). The lower piano staff (bass clef) contains a similar melodic line with the same note values and colors. A large chord cluster is shown in the middle of the piano part, with a circled quarter note (black) and a quarter note (purple). Dynamics are marked 'mp' and 'mf'.

The next notable integration of compositional material is illustrated in Example 18. In bar 49, Johnson utilises a truncated ADIM in a $D\sharp$ tonal centre in the vocal part (green). The outer parts of the piano accompaniment feature the complete motif (green) with elongations (added notes in black). Consistent with this pattern, the middle parts of the accompaniment present the original synthetic scale as chord clusters ($F\sharp$, $A\sharp$, B , C , $E\sharp$ in red), which are derived from the second tetrachord.

Example 18: *Vocalise Africa*, bar 49

The image displays a musical score for bar 49 of 'Vocalise Africa'. It consists of five staves: two vocal staves (soprano and alto) and three piano staves (right hand, left hand, and a lower bass line). The key signature has one sharp (F#) and the time signature is 3/4. The vocal parts feature the syllable 'nu' repeated. The piano accompaniment includes a complex texture of overlapping lines in the left hand, highlighted with a red box, and melodic lines in the right hand and lower bass line, highlighted with green boxes. A text box indicates 'click tongue to produce a "ntu" sound' pointing to the vocal line. Dynamics include *p* (piano) and *mp* (mezzo-piano). A fermata is placed over the final note of the vocal line and the lower bass line.

Finally, in bar 50 (Example 19), Johnson continues developing the compositional elements from the previous bar through durational augmentation and rhythmic alterations of the motif (green). As in bar 49, the composer truncates the ADIM in a D# tonal centre in the vocal part (green). The original synthetic scale also reappears as chord clusters (red) from a pitch collection derived from the second tetrachord.

Example 19: *Vocalise Africa*, bar 50

The image shows a musical score for Example 19: *Vocalise Africa*, bar 50. The score is written for five staves. The top staff is a vocal line with the lyrics "nu nu nu nu nu nu nu". The second staff is a piano accompaniment line with a green box highlighting a specific melodic phrase. The third staff is a piano accompaniment line with a green box highlighting a specific melodic phrase. The fourth staff is a piano accompaniment line with a red box highlighting a complex, dense texture of overlapping lines. The fifth staff is a piano accompaniment line with a green box highlighting a specific melodic phrase.

Conclusion

Kahlolo, *Letšatši* and *Vocalise Africa* richly employ a diverse range of post-tonal techniques, deserving analysis from multiple perspectives. This study undertook the task of briefly analysing these works, focusing on Johnson's integration of two principal compositional devices. This is essential given the absence of comprehensive studies on the composer's work and, in particular, the interesting compositional aspects apparent in the selected compositions. A more detailed examination of the connections between these works and other compositions by Johnson, as well as the different compositional phases in his life, are avenues for further research. His compositions display various post-tonal characteristics concerning horizontal and vertical dimensions, rhythmic variation, textural density, as well as timbre and organ registration – all of which warrant more in-depth study.

This exploration of Johnson's *Kahlolo*, *Letšatši* and *Vocalise Africa* highlighted the integration of two distinctive attributes shared among the compositions: synthetic scales and the ADIM, as well as their respective variations. According to Johnson, his compositions from 1990 to the present are rooted in an original synthetic scale, which provides the foundation for the melodic and harmonic fabric of each piece. Despite this shared basis, Johnson's creative prowess ensures that no two compositions are audibly similar,

demonstrating his skill in varying the arrangement of horizontal and vertical dimensions. In a manner similar to a unique signature or fingerprint that differentiates individuals, the melody from Johnson's ADIM functions as his musical signature, consistently present in the three works analysed here and pivotal in the composer's expansive repertoire.

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