

Beyond Tonal Centricity: Residual Diatonicism in Carl Nielsen's Fifth Symphony

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In 1922 the Danish composer Carl Nielsen (1865-1931) composed his *Symphony No. 5*. This work contains a number of passages that are not in one clear musical key, that is to say such sections are apparently not tonal. However, such passages still sound *diatonic*, meaning in simple terms that the music still bears some relation to music that is tonal or modal, where there is some kind of musical scale. This initial sense of ambiguous quasi-tonality is one of the most characteristic and intriguing features of Nielsen's fifth symphony.

This article will firstly introduce the problem of understanding the complex diatonic processes in the fifth symphony, on those occasions where the music has no perceptible tonal or modal centre. Secondly, the article will present a reasonable set of characteristics of *diatonicism*. These criteria will form the basis of case studies, using certain significant passages from the first movement of Nielsen's fifth symphony, to ascertain which of these diatonic characteristics are used or omitted. Then, Nielsen's diatonic processes will be compared with those of contemporaneous composers, in order to assess his originality with regard to this aspect of melodic and harmonic practice. Finally, the diatonic approach in the second movement, and its relationship with the first movement, will be discussed.

That there is a range of analytical interpretations of the opening of Nielsen's fifth symphony can be explained by the work's tonal ambiguity, i.e. there is no one candidate for the opening key. Moreover, the lack of one clear tonality is part of the deliberate ambiguity of the opening section from bars 1-43. Both Robert Simpson and David Fanning discuss the symphony's opening from the perspective of keys. Simpson, in describing the whole first movement as being centred on three tonal 'plains' – F, C, and G – chooses to perceive the opening section through the prism of F major, and describes its harmonic ambiguity within the context of this key.¹ David Fanning also highlights the lack of tonal commitment, stating that A minor, C major/minor, and D minor are 'opened-up' as possibilities.² Robert Rival's approach identifies 'implied' diatonic collections during this passage, almost on a bar-to-bar basis.³ In identifying 'implied' keys or modes, Rival suggests that the opening moves freely and frequently between pitch centres. These momentary 'implied' collections are not easily perceptible, however, as there is no 'tonic' between bars 1-43.

1 Robert Simpson, *Carl Nielsen: Symphonist, 1865-1931* (Virginia: Kahn & Averill, 1952), p. 95.

2 David Fanning, *Nielsen: Symphony No. 5* (Cambridge: Cambridge University Press, 1997), p. 19.

3 Robert Rival, 'Flatwards bound: Defining harmonic flavour in late Nielsen', in *Carl Nielsen Studies: Volume V*, ed. by Niels Krabbe (Copenhagen: The Royal Library, 2012), pp. 258-79.

While these interpretations offer useful perspectives for tracking harmonic progress in the music, the lack of ‘key’ at many points in the fifth symphony indicates that a different analytical standpoint – one that moves away from single tonalities as a starting point – could yield further useful insights into the melodic and harmonic processes in the music. Despite the tonal ambiguity in the opening of *Symphony No. 5*, the melody played by the bassoons (bars 1-16) is still audibly diatonic. But, to address the question of how this is so and how *diatonicism* can, in this case, exist in a context where there is no tonal centre, it is necessary to list those characteristics that occur consistently in diatonic music. Assembling a clear, concise, and rigorous definition of *diatonicism* is difficult and arguably pointless. Rather, this article lists those properties that are most commonly associated with this term. While such a list cannot be exhaustive, it comprises a reasonable set of criteria that most analysts and theoreticians would require.

Characteristics of *diatonicism* and ‘residual diatonicism’

This article identifies five ‘requirements’ that can be classed as consistent and essential to diatonic music. Firstly, with any diatonic passage, there is a discernible key centre – one note towards which the melody and harmony gravitate. A second characteristic would be the use of primarily step-wise linear movement involving tones and semitones. This leads onto the third requirement, that semitones be used sparingly, often maximally separated. Fourthly, it could be said that diatonic music works within the framework of a seven-note scale. Finally, diatonic music emphasises certain intervals over others. Strongly diatonic intervals would be the major and minor third – these intervals determine whether a chord is major or minor. Other important diatonic intervals include the perfect fifth and fourth, the major and minor sixth, and the octave. These intervals are diatonically expressive melodically and harmonically. The interval of a semitone can, in certain contexts, express *diatonicism* in melody as it can be used to create a tension or pull towards a tonic note at the base of a musical scale. This is the case with the major and harmonic minor scales, for example.

Having identified five characteristics that frequently occur in diatonic music, it is necessary to return to the opening of Nielsen’s fifth symphony – in particular the bassoons’ melody from bars 1-16 (see Ex. 1) – to assess which of these elements of *diatonicism* are present, and which are not. Firstly, the majority of the melodic movement is stepwise, with most of the linear intervals in the top bassoon line consisting of whole tones and semitones. Semitones seem to enhance a leaning towards a certain note; the tension in the pull upwards to E flat in bar seven would be a case in point. A third, defining diatonic characteristic that is retained in this passage is the consistent use of diatonic vertical intervals between the two bassoon lines. Only on five occasions (bb. 12, 13, 14 and 15) are the intervals not a third, sixth, perfect fourth or perfect fifth. Even in these five cases, four of the intervals can still be found within a diatonic scale i.e. the major ninth (bb. 12 and 14); the minor seventh, appearing in the natural minor scale, for example (b. 13), and the major seventh (b. 15). It is the emphasis given to parallel vertical motion in thirds between the bassoon lines, however, that suggests a diatonic purpose so strongly (see Ex. 1, bb. 5-8).

These, then, are the aspects of *diatonicism* listed in the previous section that are still present in the fifth symphony's problematic opening. So what has been taken away? The obvious aspect lacking in Ex. 1 is a clear tonal centre. Of course, the A-C viola pedal is partly responsible, due to its forming a constant underpinning from bars 1-43, while the melody above does not yield a harmonic centre. Despite this, with the exception of the first phrase, all of the phrases end on the open fifth, F-C. But this fifth is not established as a key centre in any diatonic fashion – there are too many altered notes in the melody, and consequently no feeling of belonging within one key over another. This leads on to another factor not present – a seven note scale spanning an octave.

Ex.1: Opening of *Symphony No. 5*, first movement, bb. 1-16.^{4 5}

This passage has much in common with music that would be described as diatonic. A choice to adopt certain elements of *diatonicism* over others would therefore explain why this opening passage *sounds* diatonic. It is not tonal, but it is certainly not atonal either. Such is the apparent process behind this passage, but the question of how it advances the current understanding remains. All this has established so far is that it is not completely diatonic. But, this is exactly why it is necessary to alter the current perspective. From what has been found out above, it seems that this section should be viewed on a broader basis, one capable of explaining the processes behind the construction of this freer diatonic exploration. In this discussion, this process will be termed *residual diatonicism*. This term seems to describe most accurately the process behind what is going on. The effect of removing some aspects of *diatonicism*, whilst others remain, is that the music retains qualities that are clearly borne out of historic tonal practice whilst simultaneously offering a fresh approach to tonal-sounding melodies and harmonies. Being left with these remaining diatonic characteristics unleashes new, freer, diatonic potential.

Such diatonic practice, bringing an enticing musical ambiguity to the beginning of the fifth symphony, seems to support the view of Dmitri Tymoczko who, in discussing expanded tonal practice in the 20th century, states that it is just as possible to write diatonic music in which no note is heard as a tonal centre as it is to write chromatic music with a very clear centre.⁶ However, the same can be said for the musical concept of pandiatonicism – where a seven-note scale is used, but the melody does not centre

⁴ All musical examples given in this paper are original reductions by the author.

⁵ Musical examples are taken from Carl Nielsen, *Symphony No. 5*, FS 97, unless explicitly stated otherwise.

⁶ Dmitri Tymoczko, *A Geometry of Music* (Oxford: Oxford University Press, 2011), p. 16.

on the root note of that scale. But Nielsen goes a lot deeper than this. Tymoczko's idea that diatonic music need have no tonal centre is absolutely true, but it is taken to a new level and is more complex in the case of Nielsen's work. The freer use of whole tones and semitones (i.e. *residual diatonicism*) by Nielsen comprises a free *diatonicism* that leaves behind the safety of the seven-note scale.

Thus far, it has been argued that residual *diatonicism* is used at the beginning of Nielsen's fifth symphony, but this diatonic process is also put to structural use when it intensifies the build up to tonal resolution during the second half of the first movement, the Adagio section. There are a number of passages in the first movement of Nielsen's fifth symphony that strongly suggest the consistent use of *residual diatonicism*; however, due to limited space, this paper will address a particularly salient section of the Adagio section in the first movement. The Adagio section introduces a new theme, and Nielsen subjects this theme to four subsequent developed restatements or rotations as part of a teleological or goal-directed motion towards a properly established tonality of G major at bar 377 – a momentous musical event, as this is the first point in the symphony where tonality is truly established. The tension preceding this resolution is at its highest in the 16 bars before this resolution takes place, and this harmonic tension is intensified by the improvised snare-drum solo which reaches a peak of aggression just before the tonal resolution at bar 377. The melody from bar 361 in the horns and first and second trombones – a continuation of the theme introduced at the start of the Adagio section, but using an even more reduced *diatonicism* – works to establish a firm musical key or tonality against a harmonically static background. In Ex. 2, the melody achieves the same effect as the opening of the first movement (Ex. 1) in that it is diatonic, but does not establish any key centre.

Ex. 2 shows that the melody found in the horns and lower trombones uses stepwise motion almost exclusively, involving both tones and semitones. Whilst semitones are used frequently, particularly between bars 361 and 369, this passage cannot simply be labelled as chromatic. Whole tones are also used in the two melodic lines, achieving the recognisable diatonic effect of moving up and down a stepwise scale, only, again, the melody does not gravitate towards a tonic; nor is it confined to any scale structure. But the effect here is that the melody is *working* towards a key, thus intensifying the musical drama of the pre-resolution.

361
Hns. Tbn. 1. 2.
Tpt. 3. 4.
Woodwind
Strings
Timp. Tbn. 3. Tba.

366

370

374
ff

Ex. 2: Melody in horns and trombones, first movement, bb. 361-376.

As Fanning observes, where the music ends up in the fifth symphony is more important than where the end comes from,⁷ and the melodic exploration shown in Ex. 2 thus forms a significant component in the first movement's prolonged, large-scale transition from ambiguity to clarity (or from chaos to order).

Contextualising Nielsen's *residual diatonicism*

As Nielsen was not the only composer exploring means of moving away from tonal centrality while retaining *diatonicism*, it is necessary to assess the significance of Nielsen's diatonic practice in the fifth symphony through contextualisation with contemporaneous compositional practice. These comparisons will be based on pre-existing interpretations of diatonic processes by other composers. The first comparison to be made is with Sergei Prokofiev's *Piano Concerto No. 3*, completed in 1921. Nielsen's *residual diatonicism*, as introduced in this paper, resonates closely with the way Prokofiev, in the opening clarinet melody of his third piano concerto, uses the notes of a C major scale in a way that avoids a harmonic pull towards the root C major triad. Nielsen's diatonic approaches in Exs. 1 and 2, however, go beyond this freer diatonic framework by seemingly broadening his diatonic perspective to move still more freely between whole tones and semitones, rather than upholding a pre-determined scale structure.

As part of his discussion on the melodic practice of Russian composer Dmitri Shostakovich, Ellon D. Carpenter introduces categories of *diatonicism* developed by certain 20th-century Russian theorists.⁸ A number of these theories align to some degree with the concept of *residual diatonicism*. Firstly, there is Yuriy Tyulin's concept of 'altered diatonicism', which allows for eight- and nine-note modes to fall under a certain type of *diatonicism*.⁹ Similarly, Alexander Dolzhansky applies his theory of 'lowered modes' to Shostakovich's music, introducing such labels as 'double-lowered Phrygian' – an eight-note variation on the Phrygian mode where the fourth and eighth degrees are flattened, in addition to the second.¹⁰ This produces two effects: firstly, it alters the diatonic character of the scale and, secondly, it expands the mode beyond the seven-note collection. As Inessa Bazayev argues, the end of the first movement of Shostakovich's *Symphony No. 5* (1937) contains a passage that uses this mode introduced by Dolzhansky (Ex. 3).¹¹ Ex. 3 (b) shows this mode in ascending order, while Ex. 3 (c) shows an unaltered Phrygian mode for comparison.

⁷ Fanning, p. 18.

⁸ Ellon D. Carpenter, 'Russian Theorists on Modality in Shostakovich's Music', in *Shostakovich Studies*, ed. by David Fanning (Cambridge: Cambridge University Press, 1995), pp. 76-112 (pp. 81-82).

⁹ *Ibid.*, p. 83.

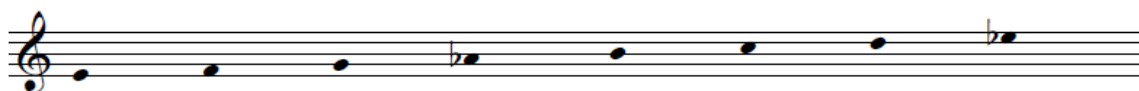
¹⁰ *Ibid.*, p. 91.

¹¹ Inessa Bazayev, 'The Expansion of the Concept of Mode in Twentieth-Century Russian Music Theory', *Music Theory Online*, 20 (2014) <<http://www.mtosmt.org/issues/mto.14.20.3/mto.14.20.3.bazayev.html>> [accessed 12 March 2017]



276 **Moderato** ♩=42
Flt. 1.
p
Vla. Vc. Db.

Ex. 3 (a): Dmitri Shostakovich, *Symphony No. 5*, Op. 47 (1937), flute solo, first movement, bb. 276-279.



Ex. 3 (b): Notes from flute solo melody in Ex. 3 (a) arranged in ascending order, outlining double-lowered Phrygian mode.



Ex. 3 (c): Example of an unaltered Phrygian mode.

The theoretical model of the double-lowered Phrygian mode is based on the notion that Shostakovich's music avoids clear-cut tonality, but retains diatonic elements. This model holds water in the way it can explain the diatonic source in Ex. 3 (a). But how does Ex. 3 (a) relate to the 'requirements' of *diatonicism* outlined earlier? The expanded mode shown in Ex. 3 (b) does use step-wise motion combining whole tones and semitones. Two of the 'requirements' are not present: viz. the need to have a seven-note scale, and the practice of semitones being used sparingly. However, the lowered Phrygian mode theory assumes that there is a modal centre and that each note has a diatonic function in relation to this harmonic 'root'. This differs fundamentally from Nielsen's approach, where there is the objective to avoid one scale construction with tonal or melodic centricity. However, the fact that, in Ex. 3, different defining features of *diatonicism* can be removed, whilst certain diatonic characteristics remain, indicates the potential to use residual *diatonicism* in conjunction with other theoretical standpoints, such as double-lowered Phrygian.

A final comparison can be made to the diatonic practice of Igor Stravinsky (1882-1971), specifically the debate surrounding the relationship between the octatonic scale and *diatonicism*. Pieter C. van den Toorn, for example, has remarked on the interpenetration of diatonic and octatonic collections in Stravinsky's music, including both the *Firebird* (1910) and *Petrushka* (1911).¹² Again, this is a strategy that reveals a prominence of diatonicism, whilst exceeding tonal boundaries. But Nielsen demonstrates the possibility of writing diatonically outside of pre-determined scale structures.

¹² Pieter C. van den Toorn, 'Some Characteristics of Stravinsky's Diatonic Music', *Perspectives of New Music*, 14 (1975), 104-138 (pp. 136-137).

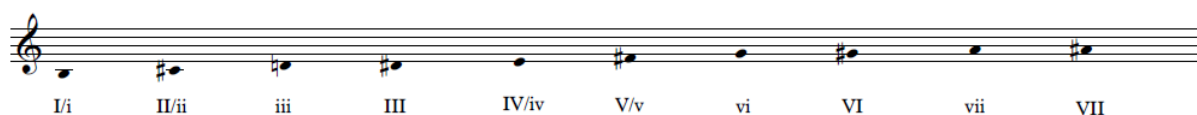
Applicability to the second movement

As *residual diatonicism* has been defined by the absence of certain diatonic characteristics and the retention of others, it is a model that can also explain those sections in Nielsen's fifth symphony, particularly in the second movement, that sound more tonal, whilst still demonstrating tonal ambiguity. The opening passage of the second movement, shown in Ex. 4, is in B major-minor – it uses all of the notes that are found within both the major and minor modes. However, this passage does not simply switch between the major and minor scales in any traditional way.



Ex. 4: Opening of second movement, bb. 1-18.

Considering the melody in Ex. 4 in isolation, the first six bars unambiguously express B major. Then, in bar seven, the C sharp steps up to the borrowed minor third (highlighted in Ex. 4) from the B minor mode, and continues in B minor until bar 14 – although, from bars 10 to 14 the third scale degree is not heard in either its major or minor forms, so B major-minor still represents a broadened diatonic field:



I/i II/ii iii III IV/iv V/v vi VI vii VII

Ex. 5: Extended diatonic scale: notes used in the second movement opening, bb. 1-18.

At bar 15 in Ex. 4, the major sixth, G sharp, appears. Melodically, the G sharp seems to serve as a diatonic alternative for the sixth scale degree (G natural), as the A resolves onto it for the first beat of bar 15. When it comes to achieving melodic and harmonic variety in tonal music, this was hardly a new

practice, as Robert Gauldin observes.¹³ And yet, there is a marked difference between Ex. 4 and what Gauldin refers to as 'modal exchange'.¹⁴ In the cases dealt with by Gauldin, a short passage or phrase will close in either the major or minor key. To break this down further, if a major and minor scale each start on the same note, these two keys will have a chord in common – the dominant chord which pulls back towards the home, tonic, chord. Therefore, as Gauldin states, a phrase that begins in the minor could follow a phrase that ends in the major.¹⁵ In other words, as the major and minor mode share the same dominant chord, access between the two is easy in a totally tonal context.

But in Nielsen's case, there is no dominant chord function. In fact, it could be said that there is no functional tonality, meaning there is no sense of a harmonic pull from the dominant chord to the home (tonic) chord. This was also the case in the first movement's opening. This is really a ten-note major-minor mode. The passage does not begin in B major and then modulate to B minor; instead, the two keys form one extended scale. Carpenter describes the major-minor mode as an example of 'expanded diatonicism', where 20th-century diatonic practice moves beyond the boundaries of the seven-note scale, stating that each constituent note still has a diatonic function.¹⁶ This indicates that the opening of the second movement has a similar purpose to earlier musical examples, but has more diatonic features present. Instead of continuing Carpenter's use of the phrase 'expanded diatonicism', however, the analyst could, employing the more general concept of *residual diatonicism*, once again determine which diatonic aspects have been removed, and which remain.

The most obvious component missing in Ex. 4 is confinement to a seven-note scale. Also, step-wise movement between tones and semitones in the melody is significantly reduced. Three diatonic characteristics therefore remain: orientation towards a key centre, B; the consistent use of 'diatonic intervals' including descending perfect fourths, major/minor thirds, and major/minor sixths; and a sparing use of semitones which here achieve major and minor shifts. Ex. 4 therefore differs from the opening of the first movement, for example, as it is limited to a note-configuration spanning an octave which, by its nature, orientates around a 'tonic'. Each note, including the major-minor alternatives, therefore has a diatonic function. However, this passage still demonstrates the intent to avoid establishing a tonality, and this idea is supported by the fact that certain diatonic aspects have been removed. Consequently, Ex. 4 shows a different kind of ambiguity to that shown in previous examples.

There is, however, a similarity between the section shown in Ex. 4 and the residual diatonic approach discussed earlier from the opening of the first movement. In both cases, there is the weakening of the note B as a tonal centre, both harmonically and melodically. In terms of harmony, the use of repeated notes from outside of the tonic chord results in a static harmony and pandiatonic effects. This undermines the emphasis on the note B. The G natural heard underneath the B major melody indicates harmonically the use of the 10 note mode, B major-minor – belonging as it does to B minor. However, it

13 Robert Gauldin, *Harmonic Practice in Tonal Music* (London: W. W. Norton & Company, 1997), p. 391.

14 Ibid.

15 Ibid.

16 Ellon D. Carpenter, 'Russian Theorists on Modality in Shostakovich's Music', *Shostakovich Studies*, ed. by David Fanning (85).

also has a pandiatonic purpose. Its static emphasis on the minor sixth scale degree undermines the tonal associations of B as a centre. Furthermore, there is a continuous trill on the note E in the flutes, clarinets and lower violas. This static note from outside either tonic chord (major or minor) produces an audible, exposed interval of a perfect fourth. Indeed, Robert Simpson observes how the persistent E note makes the key of B unstable.¹⁷ In terms of how melody de-emphasises orientation towards the home note of B, greater emphasis is placed on intervallic variety during those few occasions of step-wise melodic movement. This is seen when stepwise tones change to stepwise semitones when repeated. During bars 2-3, for example, the melody steps from C sharp to D sharp, whereas in bar 7, the motion is from C sharp to D natural. Whilst such intervallic variety could be said to be a result of shifting between B major and B minor, the 10-note major-minor scale is really what gives access to this wider stepwise interval range.

This argument for tonal insecurity and diatonic expansion is supported by Nielsen's apparent uncertainty regarding the key signature for the second movement's opening. Early sketches reveal that he originally indicated a key signature of A major.¹⁸ This initial choice is interesting, given the apparent, albeit weakened, harmonic emphasis on B major-minor. The early choice of A major may, firstly, have been a matter of convenience – having three sharps in the key signature would have produced the smallest number of written-in accidentals. Secondly, it suggests that, from Nielsen's point of view, the opening of the second movement was never about establishing B as a clear, long-term home note. The reason for Nielsen's eventual decision to settle on no key signature will probably never be known, but it may indicate the long-term transition from tonal ambiguity to tonal clarity in this second movement. The same tonal scheme exists in the first movement – another reason to compare the tonal ambiguity of Ex. 4 with examples discussed earlier. In the openings of both the first and second movements, nothing is revealed of the keys that they eventually end up in (G major and E flat major, respectively). Even with the so-called 'progressive' tonality in the first movement of Gustav Mahler's Symphony No. 7 (1904-05), where the overall tonal trajectory moves from B minor to E major, there is a journey from one key to another;¹⁹ but in Nielsen's case, the journey in each of the two movements is choosing to establish a key in the first place.

Conclusions

This article has introduced the concept of *residual diatonicism* as a new and useful analytical perspective on Nielsen's fifth symphony which offers additional insights alongside those pre-existing analyses of this work. This theoretical model has revealed, first of all, a sense of tonal freedom which has been embraced by the composer. It is also clear that this approach to controlled and limited *diatonicism* is a reasonably consistent feature of Nielsen's melodic and harmonic approach in the fifth symphony – there is not just one isolated incident. Furthermore, this perspective reveals Nielsen's extraordinary control over diatonic

¹⁷ Simpson, p. 102.

¹⁸ Fanning, pp. 46-47.

¹⁹ Dika Newlin, *Bruckner, Mahler, Schoenberg* (New York: Newlin Press, 1947), p.186.

and harmonic construction, with large-scale symphonic significance. Indeed, the way in which this concept enhances our understanding of the fifth symphony's large-scale struggle to establish a tonal centre endorses Robert Simpson's general observation that Nielsen found new ways to express tonal language when others believed it to be a spent force.²⁰ Nielsen balances when to use tonal clarity and when to open up the *diatonicism* to exceed tonal boundaries. Consequently, this reveals a possible process behind the long-term tension in this piece between ambiguity and clarity. Moreover, this balance lends flexibility, as tonal centricity can exist on a spectrum of sorts, depending on which and how many characteristic diatonic aspects are removed. A tonal centre could therefore be sustained indefinitely, or avoided altogether. Based on this evidence – that Nielsen is able to systematically avoid tonal centricity and scale structures whilst retaining a freer diatonic process – it is clear that *Symphony No. 5* is a leading example of progressive diatonic and tonal practice at a time when increasingly chromatic music was being developed elsewhere. Nielsen demonstrates an independent mind-set in the context of the 20th-century symphony, advancing compositional techniques by building upon previous tonal principles, and thereby contributing to a highly individual musical style.

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²⁰ Simpson, p. 20.

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