Black Snow by Michael Smetanin: An Analysis

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This is to certify that the thesis presented by me in partial fulfilment of the requirements for the degree of Master of Music comprises only my original work except where due acknowledgement is made in the text to all other material used.

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Abstract

*Black Snow*, an orchestral work composed by Michael Smetanin in 1987, was named after the book *Black Snow* by Mikhael Bulgakov. Newspaper articles, reviews and the literature researched, all comment on Smetanin’s style and on the influences that shaped that style. The aggressive and confrontational style of much of Smetanin’s music can be attributed partly to his love of rock music and jazz and partly to his mentor in the Netherlands, Louis Andriessen. The same sources quote other composers who also influenced Smetanin’s style. Three works in particular are named, that is, *Trans* by Stockhausen, *Keqrops* by Xenakis and *De Tijd* by Andriessen. It was decided, in the light of previous investigations into Smetanin’s music, to take one of these composers, namely Stockhausen and his work *Trans*, and discover how much Smetanin was influenced by this composer and this particular work. *Trans* was chosen because the similarities with *Black Snow* are less obvious. All aspects of *Black Snow* were examined - namely the harmony, rhythms, the important textures, serial/mathematical techniques, orchestration, the dramatic program, how the instruments are played - and then compared with *Trans* for similarities and differences. The results of the analytical investigation show that, while the internal organisation of the two works is very different, there are significant similarities between the two works in most of these areas. Serial/mathematical techniques could only be demonstrated in one area, and this is only conjecture.
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Chapter One

Introduction

Michael Smetanin was born in 1958 and is considered to be one of the leading composers of the generation of twentieth century composers of non-British background in Australia. His tertiary music education was completed at the NSW Conservatorium of Music in 1981 where he studied composition with Graham Hair and Martin Wesley-Smith. He has received numerous prizes and commissions in Australia and abroad. He was awarded an International Fellowship by the Music Board of the Australia Council in 1982, in conjunction with the Netherlands Ministry of Education and Science and the Amsterdam Foundation for Arts Funds, which gave him the opportunity to study with Louis Andriessen at the Royal Conservatorium in The Hague. While there he collaborated with Hoketus, a contemporary music ensemble, to write Track. Ladder of Escape, (after the Miro painting of the same name and premiered at the 1984 Salzburg Aspekte Festival) was written for performance by Harry Sparnaay’s ‘Basklarinetten Kollektief’. In 1985 Per Canonem II was selected for performance in the International Gaudeamus Music Week in Amsterdam.

Smetanin’s music attracted more awards when he returned to Australia from the Netherlands in 1984. In 1985 he was awarded the inaugural NSW Young Composers’ Award by the NSW Government and the 2MBS-FM Public Broadcasting Foundation. In 1988 he was artist-in-residence with Musica Viva. In the same year as Smetanin won the Sounds Australian Critics’ Award, he also won the 1989 Olympia International Composition Competition (Greek Radio) for Red Lightning, and the 1991 Sounds Australian National Award for Best Chamber Work for Spray. He won first prize in the Georges Enescu International

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Composition Competition for the work *Flygjir* in 1992. Smetanin wrote *Chromium Yellow* for oboe d'amore, harp and tape in 1996, and won the Paul Lowin Prize for orchestral composition for the work *The Shape of Things to Pass* in 1999. In 2000 he wrote *Eternal* for flute, 2 B♭ clarinets, 3 saxophones, horn, 3 trumpets and piano.

Smetanin's music, encompassing the fifteen year period since his return from the Netherlands, has gradually widened in scope from purely concert pieces to include the theatre and most recently film. His interest in the 1990’s in vocal music and large scale works using live electronics resulted in *The Skinless Kiss of Angels* (1991-92). This work was premiered by the acclaimed Elision ensemble on a program entirely devoted to Smetanin’s works. His first opera *The Burrow* (1993), is a psychological profile of Franz Kafka during his last minutes of life. His second opera *Gauguin*, which was premiered in the 2000 Melbourne Festival, uses electronic music and digital animation. His most significant work in the theatre other than his operas is *The Ecstatic Bible* with libretto by English playwright Howard Barker, which was premiered at the 2000 Adelaide Festival.

Smetanin has held significant professional appointments since returning to Australia. He was a member of the international jury for the 1999 International Gaudeamus Music Week in Amsterdam in 1999; a guest teacher at the Fifth International Young Composers Meeting at Apeldoorn in Holland, also in 1999; and is currently the principal instructor for the Australian Composers Orchestral Forum held jointly by the Australian Music Centre and Symphony Australia. He has been a Lecturer in Composition at the Sydney Conservatorium of Music since 1997.

*Black Snow*, a work for orchestra, was commissioned by the Australian Broadcasting Corporation with assistance from the Music Board of the Australia Council in 1987. It was written in that year and premiered in May 1988 by the Sydney Symphony Orchestra.
The work shares its title with a book of the same name by Mikhail Bulgakov. In a preview of the premiere performance of *Black Snow*, it was claimed that this confrontational work satirises the ‘posturings of recently written Australian music in the same way as Bulgakov satirised Moscow’s avant-garde theatre of the 1930’s’. The title of this work, as for most of his other works, is illustrative rather than purely generic.

The first performance of *Black Snow* was not without its difficulties. For the initial rehearsal with the Melbourne Symphony Orchestra, the conductor was unwell, the orchestra was about to leave for tour in Japan and the players wanted instead to rehearse Mahler’s Symphony No. 5. Some of the music had been left out of the saxophone parts, and although the copyist was called in immediately to complete the parts, the management decided at that point not to go ahead with the performance.

The Sydney Symphony Orchestra was then approached to perform *Black Snow*. Again there were difficulties. Some members of the orchestra complained that the music was too difficult, excessively loud and largely unplayable. They threatened to go on strike. According to Smetanin,

> not all the members of the orchestra complained. There were some people in the orchestra who loved it, particularly the percussionists. Mostly the problem was that some of the orchestral players did not understand the music, it wasn’t that they necessarily disliked it.

In a newspaper interview with Paul Broekhuijse, Smetanin claimed that the problem also was more to do with musical vanity and fixed conservative ideas about how music should be written. In my piece, the instruments that are usually most prominent in a greater percentage of other orchestral works were pushed into the background by instruments that commonly had more subdued roles. Violins, being the traditional melody instruments in the orchestra, are usually assigned the most work.

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3 Michael Smetanin. Transcription of interview with the author, given in full as Appendix A: p. 78.
4 Smetanin. Appendix A: p. 78.
The bass instruments usually get less work. But this is not the case in many contemporary works. and was not the case with *Black Snow*. Commenting on the problems experienced during rehearsals of *Black Snow*, Smetanin draws a parallel between the characters in the book *Black Snow* where precious egos were put under the microscope and the orchestral players, who were behaving no better than the characters Bulgakov satirised in his book.  

*Black Snow* received very positive reviews from the critics and won the prestigious Sounds Australian Critics’ Award in 1989.

Researching the available printed material about a contemporary composer has inherent difficulties. In comparison with the older generation of Australian composers, not a great deal has been written about Smetanin. One has to read newspaper articles to discover how his music has been received, or read reviews of premiere performances or concerts. Fortunately, his music has attracted some research, resulting in a number of postgraduate dissertations eminating from Australian universities. In addition, Richard Toop, with whom Smetanin studied composition at the Sydney Conservatorium of Music during his undergraduate years, has published articles and reviews on Smetanin’s music. These articles provide an authoritative source of information about *Black Snow*.

The research dissertations referred to above have explored aspects of Smetanin’s musical style, influences of other composers and his compositional techniques. These are:

a) ‘Michael Smetanin: A Voice for Australian Composition Towards the Twenty-First Century’ by Ryan James Daniel, which looks at the individual, the composer and his compositional background, his compositions and the reactions of performers, critics and audiences. Against a background of the global state of

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5 Paul Broekhuijse. ‘Orchestral Uproar Has Ended on a Sweet Note’. *Sunday Telegraph* 16 Jul 1989:4  
6 Smetanin. Appendix A: p. 78.  
composition as well as contemporary Australian composition, it seeks to place the compositional career of Smetanin in perspective.

b) ‘Strange Attractions? Rock Music, Minimalism and Modernism in the Chamber Music of Michael Smetanin’ by Lindsay Both\(^8\), which examines the influences, the compositional processes and the changing musical style in the chamber music of Smetanin.

c) ‘An Investigation into Correlations between the Poster Design Red Lightning by Ignaty Nivinsky, and the Eponymous String Quartet’ by Matthew John Hindson\(^9\), which analyses the features or set of features of the poster design, including technical aspects, thematic content, organization of this thematic content, and the impact of the artwork as a whole, and secondly, presents equivalent musical translations found in Smetanin’s string quartet.

To date however, no detailed analysis of Black Snow has been carried out. Previous research into Smetanin’s music has been conducted on a broad front in the case of the theses of Daniel and Both, whereas Hindson analyses the correlation between Nivinsky’s poster and Smetanin’s string quartet in all aspects of the musical material present in Red Lightning. Hindson refers to Black Snow on two occasions, once in his thesis and once during his interview with Smetanin.

Mention is made in Daniel and Both’s theses of how Stockhausen, Andriessen and Xenakis influenced the music of Smetanin, but no comparison of any of their works has been undertaken in any detail to show precisely how this happens. Smetanin perceives Andriessen, Xenakis and Stockhausen to have the most significant influences on his style. This influence is referred to repeatedly in newspaper articles and reviews.

Three works in particular are named as having had a profound influence on Smetanin’s style, that is, Trans by Stockhausen, Keqrops by Xenakis

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\(^8\) Master of Music Thesis. University of New South Wales, 1996.
and *De Tijd* by Andriessen. For the purpose of this minor thesis, it was decided to take one of these works and discover why they significantly influenced Smetanin compositional methodology. The scope of this thesis did not allow for an analysis of all three works. *Keqrops* and *De Tijd* have obvious and interesting similarities of textures with *Black Snow* which are discussed in Chapter 2. In *Trans* the similarities are not so readily apparent. Because of this, it was decided therefore to examine Smetanin’s *Black Snow* from the standpoint of its form and compositional techniques, with special reference to its similarities and differences to Stockhausen’s methods in *Trans*. 
Chapter 2 Overview

2.1 Preamble

Smetanin’s musical style and how it evolved is well documented in newspaper articles, analyses of his works and reviews. Influences that composers have had on his music from his earliest works to that composed in the Netherlands and music composed upon his return to Australia have been examined and commented upon in the literature. Smetanin’s style has been commented on as being very different from other music composed in Australia at that time. The sources of this style, apart from references to his early influences, have consistently been reported to be that of Andriessen, his mentor in the Netherlands, Xenakis and Stockhausen.

2.2 Development of Style

Smetanin attributes the earliest influence on his musical thought to Stravinsky. Daniel, commenting on an interview with Smetanin, states

> the influence of Stravinsky goes back to his (Russian) family roots so that he hears and feels music in a Russian type of melancholic way, there’s got to be passion…(and) something hard-hitting.¹

and continues

> Russian folk music (influence) is why his music has such strident and powerful rhythms.²

In Daniel’s thesis, Smetanin comments on his own musical style as having

> a certain trademark about the sound – some is almost tonal really³

Smetanin claims, in his first interview with Daniel (1994), that although he does not deliberately set out to create a particularly Australian sound:

> a lot of my music is fairly expansive, fairly harsh and fairly robust – the works reflect the sheer physicality of such hard landscapes as Australia’s, as exemplified by the musical content of Black Snow.⁴

¹ Daniel: p. 103.
² Daniel: p. 103.
³ Daniel: p. 102.
⁴ Daniel: p. 105.
Smetanin’s dominant concern is with the future and the development of composition and he strives to demonstrate that post-modernist composition should incorporate modernist ideology and technique (and) isn’t just a simple negative reaction against modernism.\(^5\)

In an article by Peter McCallum, Smetanin contrasts his position with many Australian composers. I’m not only talking about the older generation, I’m really pointing the finger at the younger generation who are writing turn-of-the-century pastiche in the hope that it will become successful….\(^6\)

In discussing *Black Snow*, Both states that Smetanin’s ‘reaction against the more conservative types of contemporary music was more completely realised in the 1987 orchestral work *Black Snow*’.\(^7\)

Writing about Smetanin’s music, Terumi Narushima describes it as ‘strident, aggressive, confrontational and volcanic’ and Smetanin himself refers to this quality as ‘a musical idea, just like any other idea, is stated vehemently and strongly, with no mucking around’.\(^8\) This aspect of the development of Smetanin’s style can be attributed to Andriessen’s influence. Much has also been written about the confrontational nature of the music and the difference between Smetanin’s style and that of other Australian music being written around that time.

Matthew Hindson in his thesis writes:

> The confrontational nature of much of his work (exemplified in pieces such as *Track, Black Snow, Red Lightning* and *Stroke*) has ensured that Smetanin is amongst the most well-known of Australian composers of the younger generation.\(^9\)

Broadstock writes that the music of Smetanin’s youth was influenced by the modernist tendencies of Stockhausen and Berio. As well as these two composers, he states that

> his earliest acknowledged works display characteristics similar to the minimalist composers Steve Reich and Andriessen. In Smetanin’s second period of development can be found the first

\(^7\) Both: p. 33.  
\(^8\) Terumi Narushima. ‘Michael Smetanin’. *University of Sydney Union Recorder*. Issue 4, March 1993, pp. 34-5.  
\(^9\) Hindson: p. I.
evidence of his individual compositional voice emerging, especially in the major work Track, which could be viewed as a sort of 'dress rehearsal' for the later orchestral work, Black Snow. 

In the same article, Broadstock identifies a combination of European minimalism influenced by Andriessen and the reintroduction of a harder-line modernist approach to the music in Black Snow and modernist/virtuosic as evidenced in Red Lightning .

The influence of Andriessen, as well as Xenakis and Stockhausen is also acknowledged in an article by Richard Toop. In this article he analyses Smetanin's Stroke, which he states was written 'as a spin-off from the ‘notorious’ orchestral work Black Snow, written the previous year (1987). 

This article goes on to state:

In addition to the characteristic features of the Smetanin style, there are three major European orchestral works of the seventies and eighties that were clearly in his mind when writing Black Snow. These were Louis Andriessen's De Snelheid (1983), Karlheinz Stockhausen's Trans (1972) and Iannis Xenakis' Keqrops (1986).

Toop also writes that

The Xenakis influence is perhaps more visible than audible, apart from a fondness for bold descending chord sequences over several octaves, and the motoric four-notes at 6/4/5ff, which may well be a memory of Keqrops. At a general level, Smetanin's use of irregular scale patterns may derive from Xenakis (e.g. the opening of Mists), though many other composers, including Donatoni, use comparable scalar materials. Moreover, Smetanin's use of overlapping scale passages at different velocities (notated as irrational rhythms) is clearly more akin to Xenakis's use of such 'multi-layering' devices than to similar-looking passages in the British 'new complexity' school. Stroke for piano contains only one instance of this technique, which is probably more appropriate in works for several instruments.

Lindsay Both acknowledges this influence, stating that

New influences discernible in Black Snow are that of the major European orchestral works Trans (1971) by Stockhausen and Keqrops (1986) by Xenakis. (Australian Broadcasting Commission. Meet the Music Teaching Kit I. (Sydney: ABC, 1988). These and Andriessen's De Tijd relate to Black Snow by virtue of a similar manipulation of large blocks of sound,

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Ibid.


Ibid.

Ibid.
frequently made up of specific instrument groups, such as woodwind or brass, moving approximately in parallel\textsuperscript{15}.

Daniel further states in his thesis, that

after his studies with Andriessen and his subsequent return to Australia in 1984, Smetanin began to use more complex chords and dense textures under the influences of the music that Xenakis had been writing and also Stockhausen.\textsuperscript{16}

He goes on to state that

works which illustrate the transition into this new compositional phase include the ensemble work *Track* and *Black Snow*. Smetanin regards *Track* as a ‘dress rehearsal’ for the later orchestral work *Black Snow* which is the precursor to works of a more modernist nature including *Red Lightning* string quartet, *Flygjir* for ensemble and piano and *Stroke* for solo piano.\textsuperscript{17}

The similarity of textures found in other works and also in *Black Snow* are acknowledged in the literature. Toop states that Smetanin’s fondness for dense, high resonant chords was initially inspired by Andriessen’s *De Tijd*, and in some respects the voicings of their chords remain similar, though Smetanin typically uses much richer sonorities in the bass register\textsuperscript{18}.

These same type of chords are present in *Black Snow* and also presented in the extremes of registers. The use of tetrachords is extensively reviewed in Chapter Three of this thesis.

Smetanin’s interest in the music of Stockhausen is yet another instance of how Stockhausen’s profoundly creative approach to writing music has attracted the interest of generations of composers. Stockhausen and other European composers were influenced by Messiaen’s music after he wrote the first “totally organised” piece of music (*Mode `de valuers et d'intensities*), which Stockhausen called the “fantastic music of the stars”. What excited him was the music’s presentation of itself as constituted of single notes ‘existing for themselves in complete freedom’.\textsuperscript{19} Stockhausen’s style evolved, composing first with singular, isolated notes called ‘points’ in a Messiaen-like style (*Kreuzspiel* 1951). Realising the limitations of point form Stockhausen then wrote *Kontra-Punkte* (Against Points) in group form. Still later, when

\textsuperscript{15} Both: p. 34.
\textsuperscript{16} Daniel: p. 60.
\textsuperscript{17} Daniel: p. 60.
\textsuperscript{18} Toop: p. 5.
\textsuperscript{19} Griffiths: p. 31.
studying information theory and communication science, Stockhausen applied this knowledge to his music, and merged ‘masses of these groups into ‘moment form’", paralleling the scenario of cellular life with a higher level of organizational rules. This method can be observed in the organisation of Trans. Aleatory and statistical processes began to appear in Stockhausen’s ‘totally organized’ music in 1954 when he composed Gesang der Jünglinge.

Stockhausen wrote minimalist music (Prozession 1967) and cosmological ideas entered into Stockhausen’s work increasingly throughout the sixties and seventies as evidenced in the work Sirius (1975-7). Since 1977, Stockhausen has been writing a ‘massive’ week-long opera cycle called Licht. Based on the days of the week, it is due to be completed around 2006.

Stockhausen’s essay How Time Passes (1957) is one of his most important contributions to twentieth-century musical thought.

Time occupies a central role in Stockhausen’s theory and compositional craft. He has written a great deal of music about different manifestations of time – days, weeks, years, astronomical time – and has explored it acoustically, right down to the microsecond. He also has perceived time in unique and profoundly creative ways as the basic building block of his work.20

The use of time as a basic building block occurs in Trans. Stockhausen wrote two orchestral works in the medium of instrumental theatre in the early seventies, Trans (1971) and Inori (1973-4). In Trans, Stockhausen makes ‘theatre out of orchestral performance whereas Inori adds the actions of a mime, or pair of mimes, in attitudes of worship taken from many different cultures’.21 It was Trans that attracted Smetanin’s interest.

On the subject of Stockhausen’s influence on his music, Smetanin says that

a good system is one that can withstand a little pulling and mixing around. You have to be able to intervene - Stockhausen did it all the time – he actually developed ‘moment’ composition from his early need to put inserts into his serial music in the 50’s…the insert idea is actually a very, very big influence on me in the way I like to put my pieces together formally.22

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21 Griffiths: p. 182-3.
22 Terumi Narushima, pp. 34-5.
Smetanin is quoted in the review of the premiere of *Black Snow* as saying:

> in the 1960’s each piece had to have its own language. Today it is different. Australia’s best composers, such as Gerry Brophy and Ric Formosa, are all doing the same thing that I am – building on the language of previous pieces.\(^{23}\)

In his analysis of the musical content of *Black Snow*, Daniel claims in his thesis, that

*Black Snow* is Smetanin’s most controversial work. The influence of rock music is obvious in its loud and aggressive nature and the choice of instrumentation, which contains electric bass guitar, synthesiser and a large number of percussion instruments. Its relentlessly loud dynamic levels, verging on extreme volume in combination with the complex musical material, create a very challenging work for audiences. The first bar, marked fff, contains three elements which are essential to the structure of the entire work.\(^{24}\)

Daniel further comments that the chord from bar I plays a fundamental role in *Black Snow*…..it is similar to that employed in *Ladder of Escape*. The chord which appears in *Ladder of Escape* and which plays a fundamental role in *Black Snow* also occurs in both *Stroke* and *Something’s Missing Here*. This resembles very closely chords which Wright illustrates as fundamental to Andriessen’s *De Tijd* (1980-81) and which have exerted a strong influence on Smetanin.\(^{25}\)

> the chord that plays a fundamental role in *Black Snow* is a similar chord to that which also appears frequently in Andriessen’s *De Snelheid*.\(^{26}\)

He also further enumerates two generic shapes:

1. (2)…..rapidly ascending notes: the first violins in staggered entry present semitone trills which become ascending glissandi, while the second violin, viola and cello lines contain rapidly ascending demisemiquavers, primarily made up of notes from the principal chord. All the individual string parts commence (begin) on different notes, which increases the density of the texture.\(^{27}\)

2. (3) the percussion motif enters on the second beat of bar 1 with an explosive rhythmic motif by the untuned percussion section. The percussion consists of 31 different instruments requiring five players. This section provides an integral part of the work’s relentless and powerful volume of sound. Like the opening chord, this rhythmic motif occurs frequently during the work, in its original form and in slight variation.\(^{28}\)

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\(^{24}\) Daniel: p. 60-61

\(^{25}\) Daniel: p. 67-68.

\(^{26}\) Daniel: p. 68.

\(^{27}\) Daniel: p. 61.

\(^{28}\) Daniel: p. 62.
These motifs are not attributed any structural role by Daniel, rather they are ‘melodically and rhythmically extended which increases their level of technical difficulty’. It will be shown in this thesis that these motifs play a very important part in the structure of the work as a whole.

On the form of Black Snow, Daniel notes the following:

The second bar marks the beginning of the first section. The strings, harps, piano, flutes, oboes and saxophones provide the harmonic foundation of this section, with a dense and essentially chromatic texture built above the bass notes F and G. The chord from bar one appears in transposed form. During the first section, the texture is frequently interrupted by the percussion motif and passages of rapid notes. This process first occurs in bar 7 where the percussion motif, slightly varied, and a rapidly ascending passage in the winds appear within the chordal texture. As in the opening, the melodic material of the individual wind instruments is predominantly chromatic and each part commences on a different note thus creating a moving block texture.

The first melodic motif of the work appears in bar 13, in the alto saxophone and first horn parts. This descending motif is supported in a chordal texture by the horns, violas and cellos. The parts move in rhythmic unison and have an interval structure similar to that of the opening chord. Bar 22 sees the introduction of extended passages of rapid notes in the winds.

The opening section gradually increases in intensity until its climax at bar 47 where the orchestral parts rapidly descend in blocks of sound to a low register based on the original opening chord.29

Daniel also states that the development commences (at bar 48). He states that:

The main structural segment of Black Snow based primarily on the opening material, with frequent recurrence of the percussion motif, and extended passages of rapid notes for the winds and strings. The harmonic structure again features the original opening chord in its original form and in transposition. One of the principal features of the development section is Smetanin’s frequent use of moving blocks of sound as evident in numerous passages of rapid notes in the winds, strings and percussion. Compared with the opening section, these passages are melodically and rhythmically extended, which increases their level of technical difficulty.

The development heads towards the work’s climax when the texture becomes extremely dense with the full orchestra gradually approaching rhythmic synchronisation. This section features written out accelerandi which propel the orchestral parts towards the climax at bar 340, where three chords based on an extended transposed version of the opening chord, and covering the extremities of the orchestral ranges, are played at ‘fff’.

After the climax, the intensity quickly diminishes as the winds, brass and percussion all finish at bar 347; the dense texture is maintained by the strings and organ/synthesiser parts until the final bar where the violins, cellos and basses fade into silence in a descending glissando.30

29 Daniel: p. 62-64
It will be shown that the form of Black Snow is significantly different to that described by Daniel.

Noting Daniel's comment on the use of the percussion motif, this thesis' analysis of Black Snow examines the structural role of the percussion motif and compares it with the structural role of the weaver’s shuttle taped sound in Trans. In the latter work, the weaver’s shuttle taped sound (referring to the regimentation of the entire orchestra synchronised by a tape with sounds of a weaving loom – see page 19) functions at regular deviations from a basic large unit, namely the 20 seconds between successive weaving loom sounds. It also controls the orchestral players' bowing, marks the end of each ‘moment’ (explained in Chapter Four) and the end of each section with a ‘triple strike’.

The structural role of the percussion motif is acknowledged in Lindsay Both’s thesis “Strange Attractions? Rock Music, Minimalism and Modernism in the Chamber Music of Michael Smetanin”, where he writes, quoting from a Master of Music thesis by Struan Smith (New Dimensions in Percussion: Black Snow by Michael Smetanin), that

Smith notes both the general importance of percussion in Black Snow and the role of a key, rock like percussion figure. Repeated statements of this figure mark the structural points in the piece in the same way as the recorded weaving shuttle sounds in Stockhausen’s Trans.  

Smetanin’s significant interest in the allied arts is also chronicled by Daniel, stating that Smetanin

searches for some kind of extra-musical inspiration in his works. Such inspiration comes from such artists including the poets Mayakovsky and Bulgakov and the painters Miro, Légêr, Dali, Malevich, Kandinsky and Whitely. Smetanin's compositions are never programmatic but are in sympathy with what he uses as an inspiration or a starting point.  

This interest is reflected in the use of the poster Red Lightning and the string quartet by the same name and in the choice of title for Black Snow. Whether it bears any relationship to the novel is discussed in subsection 2.3 of this chapter - Dramatic Program of Black Snow and Trans

31 Both: p. 34-35. The present location of Smith’s thesis is unknown.
Musical material from works by Smetanin can also be found in other works of his. Richard Toop writes that

Stroke is a spin-off from the notorious orchestral work Black Snow, written the previous year; thus the rising figure and high repeated chords at 5/3/3 (5 referring to the page number, 3 to the 3rd system and 3rd bar in this system) of Stroke are very similar to the string parts at the opening of Black Snow, while the opening piano chord of Black Snow with changing bass notes, also has a major role to play in Stroke. 33

When commenting on the material within Stroke, Toop states that

the form of Stroke could fairly be described as kaleidoscopic, in the sense that it consists of constant, unexpected rearrangement of some basic elements. A single element or a constant combination of them developed over a sustained period is present in the texture at only a couple of points (p. 5-6 and 9-10). 34

There are parallels with the textures within Black Snow and, according to Toop, Stroke has ‘swirling, mainly wave-like demisemiquaver passages, usually in both hands…..and ascending and descending scalar passages’. 35

Toop describes Stroke’s scalar passages as ‘aleatoric chords with only the top note of the right hand exactly notated…a static, frequently recurring chord sequence using the whole range of the keyboard’. 36

In Both’s discussion of Bellevue II, he notes that ‘Bellevue II (1986) for tenor saxophone, trombone and percussion reveals a greater move away from the rock influences seen in Track and Ladder of Escape. There are also certain stylistic similarities between Bellevue II and Black Snow, both being written at very much the same time’. 37

He continues on to state that

unlike Ladder of Escape, Bellevue II only uses Andriessen like harmony in one short passage, at the end of Part I. There are tetrachords made up of the intervals of a minor third and two semitones (for example G, B♭, B, C), which can be derived from the Ladder of Escape chord (in transposition G B♭, B, C F). Smetanin explains that two of these tetrachords combined together form the mode that he used extensively in Black Snow (for G B♭, B C D F #, G). 38

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32 Daniel: p. 103.
34 Toop: p. 4.
35 Toop: p. 6.
36 Toop: p. 8.
37 Both: p. 35.
38 Both: p. 36.
Further, Both states that

*Bellevue II* is also very linearly conceived, having many extended passages where the harmonic element is almost non-existent. This can only partly be explained by the work’s instrumentation, and it draws attention to the few places where the marimba provides a chordal accompaniment. The two melody instruments often move in parallel, being separated by intervals (or their inversions) or semitones and tones. This type of parallel movement is seen on a larger scale in *Black Snow.*

Toop also writes that

as for the piano style, the aim in producing this piece was to produce a ‘block-buster’: an aim that has united post-war composers as disparate in style as Messiaen, Xenakis and Rzewski. The style of the piece reflects the fact that, like his teacher Andriessen, and Andriessen’s spiritual mentor Stravinsky before him, Smetanin composes at the piano.

The issue of whether there is a chordal structure in *Black Snow* organised in the same manner as *Trans* ‘central-tone’ is also addressed. Of interest were the harmonies in the bass registers, particularly the bass guitar, as the bass harmonies in *Black Snow* appear to influence the chords built above them.

Smetanin regards works from 1988, including *Flgjir, Red Lightning* and *Stroke* as ‘a lot more modernist’. He explored the possibilities of Chaos Theory, in particular in his work *Strange Attractions* (1990). Both writes that the idea behind writing *Strange Attractions* came to Smetanin after reading Stephen Hawking’s *A Brief History of Time.* This unlikely best seller generated a certain amount of public interest in chaos theory, and in fractals, Mandelbot sets and cellular automata in particular. *Strange Attractions* is one of two works that Smetanin named after sub-atomic particles described by Hawking; *Spin zero* is the other. Strange attractors are particles in a chaotic state that spiral into or away from a single point. To apply this concept musically, Smetanin chose to generate his material using one of the methods described by Hawking: the cellular automaton. After much experimentation he arrived at one that produced sounds he liked and that ‘organised things more elegantly than the others’.

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39 Both: p. 44.
40 Toop: p. 4.
41 Both: p. 63.
A reference to *Black Snow* is recorded in the first of Hindson’s interviews with
Smetanin, where Hindson enquires about whether Smetanin uses
mathematical constructs in *Black Snow*.

Hindson: I remember you talking once about *Black Snow*, and you said that you
didn’t use mathematics a lot in the piece.

Smetanin: Yes, *Black Snow* was entirely intuitive.

Hindson: Did you use mathematical-type constructs earlier in your compositions?

Smetanin: I found that one of the things about writing music was that if you keep the
one method all the time and it is intuitive then you start to write yourself
into a corner, and I’ve always thought right from the beginning that you
need to have compositional mechanisms/tools to compose, not just
intuition. What I did first of all was to exercise the intuition and to know
my musical materials – harmonically, melodically, gesturally, etc – inside
out. It was better to become accustomed to that intuitively, rather than
use mechanisms, because mechanisms often throw up music that we
would not normally have come up with using intuition. That’s the beauty of
using some of these mechanisms and structures. Now I’m able to use the
same-old-style intuition, but use the mechanisms as well, such as the
cellular automaton, or my object-composition idea.\(^\text{42}\)

On the subject of *Black Snow* being an intuitive work, Smetanin makes
this statement consistently, as is shown above as well as in newspaper
articles and to the author in the interview recorded at the end of this
thesis.

According to Both, since ‘*Strange Attractions*’, the cellular automaton has
become an important compositional tool for Smetanin\(^\text{43}\). Both states that
the application of the automaton is most readily seen in *Strange
Attractions*….Not only is the use of the automaton more straightforward in
*Strange Attractions*, probably because it was the first piece written with it, but
more importantly, it is the only one of these pieces for which the composer has
written explanatory analytic notes. These have proved indispensable in
understanding Smetanin’s application of the automaton.\(^\text{44}\)

Therefore, as stated by Smetanin on the previous page, *Black Snow*
contains no mathematical-type constructs. He also does not use
cellular automatons, because the first use of this compositional device is

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\(^{42}\) Hindson: p. 70

\(^{43}\) Both: p. 66.

\(^{44}\) Both: p. 67.
most readily apparent in *Strange Attractions*, which was written after Black Snow (see footnote 44 on previous page).

2.3 Dramatic Program of *Black Snow* and *Trans*

According to Smetanin, Richard Toop wrote the program notes for the first performance of *Black Snow*.

I remember speaking to him when he was writing those notes. There was definitely the thinking of snowdrifts kind of thing (sic), but it was not going to be a sort of a Victorian pastoral kind of thing\(^45\).

The novel *Black Snow* is a fictional story by Mikhail Bulgakov that relates how he came to write the novel *The White Guard* and then recast it as a play *The Days of the Turbins*. Having read *The White Guard*, these descriptions of swirling snow and snow drifts in Richard Toop’s program notes belong more to that novel, and not *Black Snow*.

Bulgakov carried on a deeply felt love-hate relationship with the Moscow Art Theatre and its two co-directors. One half of the duumvirate which had ruled the MAT since its foundation in 1897 was Vladimir Ivanovich Nemirovich-Danchenko; the better-known one of this pair of theatrical autocrats who is the target for the full force of Bulgakov’s withering satire is Konstantin Sergeyevich Stanislavsky. It had been the general custom, in Russia as everywhere else, to describe Stanislavsky in terms of unadulterated respect and admiration. In this savage caricature *Black Snow*, far from being captivated by the great man’s legendary charm and theatrical genius, Bulgakov depicts him as vain and tyrannical. Although prepared to acknowledge his talent as an actor, he tears every other element of Stanislavsky’s reputation to shreds. His charm is revealed as no more than a tool with which to manipulate people, his dedication is unmasked as the purest egomania, his fostering of artistic talent as sheer favouritism; his famous ‘method’ ossified into a set of idiosyncratic mannerisms deeply inimical to any spark of original talent.

\(^45\) Appendix A, p. 78.
The very essence of the novel is the savage satire directed towards the characters, whose real identities are thinly veiled. If there is a link with the novel *Black Snow* other than the title, then it is in the confrontational style which Michael Smetanin uses to convey this heavy-handed satire.

The dramatic program for *Trans* is very different. The word *Trans* in German can mean ‘change’ or ‘transfer’, and therefore may refer to the regimentation of the entire orchestra, synchronised by a tape with sounds of a weaving loom. It also includes in its meaning the word ‘trance’ associating it as a work based on a dream. At the first time-stroke, the groups start playing. At each time-stroke, each string player changes to the next note. It could also refer to the organisation of the work as a whole, an explanation of which is presented in Chapters Three and Four.

The mood of *Trans* lies in its theatrical presentation. According to Richard Toop in his article in “Karlheinz Stockhausen: Da Kreuzspiel a Trans” which analyses some ten or so works of Stockhausen written between 1951 and 1971, *Trans* is ‘a sort of requiem for the orchestra, an epitaph on the mechanisation and enslavement of the individual player within a regimented mass. Its perspectives aren’t limited to the orchestra, though the orchestra is to be understood simply as a symbol of the general curtailment of individual liberty’. The piece is played on the stage of a theatre, and as the curtain rises, a large body of string players come into view, illuminated by a misty, dream-like purple light (the basic ideas of the piece were all dreamt’).46

Smetanin’s use of the instruments of the orchestra in *Black Snow* is very much in families of instruments with doublings in other families. The same is true in *Trans*, but the orchestra is organised into four groups which are subjected to rigid organisation as to when they play. They are ‘slave’ to the textures present in the music, merely playing the notes rather than being used for their individual qualities. There are melodies, presented by a viola, cello,

and trumpet, but here again they play the notes as directed, by memory, as if improvised and in as virtuosic a manner as possible, not as an interpretation of the mood or feeling of the music.

2.4 General Conclusions
In the discussion of Smetanin’s style as set forth in theses and publications and Smetanin’s own comments, similar observations have been made on the sources of influence on Smetanin’s style and common musical material between works. The style of writing has been described as strong, aggressive, confrontational, both in Black Snow and other works. Richard Toop, in his analysis of Stroke, comments on the influence of Stockhausen’s Trans, and Smetanin also acknowledges this influence, commenting that ‘moment’ composition and ‘inserts’ have had a very big influence on him and how he likes to put his piece together formally. Comment has been made on the similar roles the weaver’s shuttle sound in Trans and the percussion motif in Black Snow plays in the organisation of both pieces.

Observations have been made on the influence of Xenakis and Andriessen in Smetanin’s music, with the use of similar chords and overlapping musical material. As observed by Daniel, Smetanin uses a particular chord which is integral to the organisation of Black Snow, but is also used in Ladder of Escape, Something’s Missing Here…a Postcard from Holland No. 4 and Stroke. Daniel also observes that a similar chord plays a fundamental role in Andriessen’s De Snelheid and De Tijd.

Smetanin gains inspiration from the allied arts. He states that he likes to use artworks as inspiration, but not pictorially.

In the light therefore of repeated references to Andriessen, Stockhausen and Xenakis, it was decided to take the aforementioned work of one of these three composers and compare it with Black Snow to discover why this work is constantly alluded to as having influenced Smetanin’s musical style.
It was found that *Black Snow* contained textures similar to those found in *Trans*. There are parallel chords sustained over a number of beats, most noticeably at the beginning of each of the two works, though recurring throughout; ascending and descending scales containing irregular intervals; a wave-shaped motif; glissandos; and a stepwise motif, particularly in *Black Snow*, and echoed in *Trans* at the end of that work. All textures occur within the first section of both of the compositions. Both works have a device, namely the weaver’s shuttle taped sound for *Trans* and the percussion motif for *Black Snow*, functioning at regular intervals for *Trans* and irregular intervals for *Black Snow*, the organisation of which is seminal to both works. Stockhausen organises *Trans* around ‘central-tones’, and the entire work is built on ‘moments’.

It will be shown that *Trans* is organised very precisely. Apart from observing similarities of textures, *Black Snow* will be analysed to discover whether the procedures present in *Trans* - the organisation of ‘moments’ and central tones - are also present in *Black Snow*, how much these procedures influenced Smetanin in its composition or whether the work as a whole has been composed ‘intuitively’ as previously stated by Smetanin.
Chapter 3: Analysis of Musical Content of *Black Snow* and *Trans*

The previous chapter examined the sources of Smetanin’s musical style and recorded the constant references in the literature to Andriessen’s, Xenakis’s and Stockhausen’s influence on Smetanin’s works. Mention is made of the manipulation of large blocks of sound moving in parallel in Andriessen’s music, and bold, descending chord sequences over several octaves and motoric four-note patterns in Xenakis’s music. Stockhausen was an originator like Xenakis, but his compositions took their own individual path (see Ch. 2, pp. 10-11).

Turning now to Stockhausen’s *Trans*, the work selected for comparison with *Black Snow*, it will be demonstrated that every aspect of its material is completely organised. The processes can be clearly explained. By contrast, *Black Snow*, although following a plan, appears not to be subjected to the same sort of rigid organisation and this becomes more apparent as the analysis of *Black Snow* proceeds.

### 3.1 Sections

As stated by Michael Smetanin in the interview transcribed in Appendix I, the overall structure of *Black Snow* falls into the following sections:

- Bars 1-49  
  Section 1  
- Bars 50-159  
  Section IIA bars 50–91  
  Section IIB bars 92-159  
- Bars 160-248  
  Section IIIA bars 160-206  
  Section IIIB bars 207-248  
- Bars 249-311  
  Section IV  
- Bars 312-359  
  Section V
Trans has seven sections, the final one of which functions as a coda. The end of each section is reached at the end of precisely measured units of time. Section I ends at 4’12”, Section II at 8’26”, Section III at 11’58”, Section IV at 16’26”, Section V at 19’53”, Section VI at 21’53”, and the coda at 24’13”. Black Snow’s sections are also all of different lengths.

There is therefore no similarity in the general organisation of form between the two works. There is a similarity, however, in a recurring sound/motif in both works in the form of a taped weaver’s shuttle sound in Trans as mentioned in Chapter Two, p. 14, and a percussion motif in Black Snow. In Black Snow the percussion motif announces new textures, new sections and any event in the work that has an important place in the scheme of things. In Trans, the taped weaver’s shuttle sound is heard at the beginning of every section and ‘moment’ of the entire work at timed intervals of around 20”. It also functions as part of the dramatic program. The dramatic program of both works has been discussed in Chapter Two.

Initial examination of Black Snow and Trans reveals recurring textures that are common to both works. Sustained chords moving in parallel rhythms are doubled by different orchestral groups, particularly in the first and last sections of each of the works. There are ascending and descending scales, wave-like patterns of notes (see example 1 Black Snow and Trans, p. 24), and a stepwise shape (example 3 Black Snow, p. 25), often doubled throughout the orchestra. Textures are used both as foreground and background. There appears to be very little melodic material in Black Snow. Trans does have melodies in the solo sections and the group material.¹

Wave-like patterns in Trans and Black Snow are present throughout both works. There are descending and ascending wave-like scales in either short or long note values, used as building blocks and extended and developed, often doubled by families of instruments, for large-scale events. They

¹ Group material refers to Groups I-IV in the score of Trans, which are made up of wind, brass and percussion instruments. The instrumentation for Trans is given in Appendix C on page 90.
function as part of the musical background and are extensively used as the main textural shape throughout many sections. The origin of the wave-like pattern is discussed in Chapter 4.

Example 1: wave-like pattern bars – *Black Snow* - bars 22-24

The stepwise shape in *Black Snow* appears to accompany the ends of events, either at the end of a sub-section or at the end of a section, which can be observed in Example 3 below, before the end of Section One at bar 49.

![Example 3: stepwise pattern - Black Snow - bar 46.](image)

A similar shape can be fleetingly observed in *Trans*, but is really only present in any significant way in its closing bars. In *Black Snow* during the final section, there is a marked similarity to these closing bars in *Trans*. The similarity can be observed in examples 16A and 16B in Chapter 4, pages 54 and 55.

Glissandos form part of the orchestral textures of *Black Snow* and *Trans*. Smetanin has stated that "in *Black Snow* they are not an important texture, are not used in a structural way but rather for orchestral coloration." In *Trans*, glissandos are used to vary chordal presentation in places, but also do not appear to be an important orchestral texture.
Both *Black Snow* and *Trans* are written using a scale or scales, which are verticalised to form chords. In Smetanin’s case just one scale (pitch class set) and its transpositions are used. On occasions in *Black Snow*, the scale is also played just as a scale. The chords used in *Trans* are listed over two pages at the beginning of the score and their use is highly organised.

### 3.2 Trans: Chords and Central-Tones

(a) Chords

The two pages of chords at the beginning of the *Trans* score, give the notation for the cluster chords (cc) as well as of the chords with other fixed intervals. They are also written at the top of the score and change from a cluster chord to chords made up of different combinations of intervals with each occurrence of the weaver’s shuttle taped sound. All the chords are played by the two rows of string players sitting at the front of the stage in front of the curtain. The four groups behind the curtain play the musical material in the body of the score.

The musical material for the chromatic clusters (cc) and chords (ch) can be found in the two-page plan of chords at the beginning of the *Trans* score, and follows a plan as shown on the following page:

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2 Appendix A: p. 79.
At 18" the chord material is a chromatic cluster

20" cc
20" chord 1 (m3-M2)
21" cc
20" chord 2 (M2)
19" cc
20" chord 3 (m3)
19" cc
21" chord 4 (m3-M2)
19" cc

19" chord 5 (m7th-M7th-m9th-aug5th-M7th-M7th-m7th)
18" chord 6 (M2-M2-m2-M2-M2-M2)
17" chord 7 (m2-M2)

(The shaded area denotes an accelerando section, where the frequency of occurrence of the weaver’s shuttle taped sound accelerates in events from 19" to 18" to 17").

Example 4: chromatic clusters and chords – Trans Section 1

On the following page is a plan of the subdivision of the remaining five sections and the distribution of chromatic clusters and chords in each section. The shaded parts are the accelerandos at the end of each section. The numbers in the table denote durations of sub-sections in seconds. Each section of Trans is divided into a number of ‘moments’, the first of which is explained in Chapter 4, 4.4. Rhythmic Organisation, pp. 62-63.
The alternation of chromatic clusters and chords does not occur in the accelerando sections at the end of each section. As the work progresses, these chords, which span several octaves, become less dense with intervals expanding from fifths and sixths to sevenths.

(b) Central-Tones

Stockhausen’s *Trans* contains pitch centres or central-tones, which change with every new ‘moment’ and metronome marking, creating sub-sections within each of the six sections. Each wind group plays parallel mixtures over a low fundamental melody, like a ‘whole succession of imaginary mixture stops on an organ’. Stockhausen wrote out the low-register melody for each wind group and indicated the basic mixture chord for that particular time signature section. These melodies are built from a basic pitch set which also

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3 Richard Toop: Email to author dated 19/09/99.
yields the ‘central pitches’. The following table shows a plan of the central-tones for each of the six sections, which make up a pitch reservoir that provides the basis for the melodic material of the individual sections.

<table>
<thead>
<tr>
<th>Section I</th>
<th>E</th>
<th>C#</th>
<th>B</th>
<th>A#</th>
<th>F#/C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section II</td>
<td>G</td>
<td>A♭</td>
<td>F</td>
<td>E♭</td>
<td>A</td>
</tr>
<tr>
<td>Section III</td>
<td>E</td>
<td>F</td>
<td>E♭</td>
<td>F#</td>
<td>G#</td>
</tr>
<tr>
<td>Section IV</td>
<td>B</td>
<td>A</td>
<td>B♭</td>
<td>E♭</td>
<td>B</td>
</tr>
<tr>
<td>Section V</td>
<td>F</td>
<td>E</td>
<td>F#</td>
<td>C</td>
<td>G/G#</td>
</tr>
<tr>
<td>Section VI</td>
<td>e♭</td>
<td>f</td>
<td>g♭</td>
<td>a♭</td>
<td>g</td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>D</td>
<td>C#</td>
<td>B</td>
<td>C</td>
</tr>
</tbody>
</table>

Table 2: Central-tones – *Trans* (NB. Only upper case letters represent central tones)

* An explanation for the frequent change of bass notes can be found at each recurring weaver’s shuttle taped sound. Because the bass harmony is being examined here, the notes a-b-a#-c#-d are the top notes of a written out scale upon which the bass instruments in all four groups come to rest at the end of their scales. The notes have a pause over them and therefore are more audible, being the highest note in the scale and the longest value.

+ In Section VI, the notes e♭-E, f-D, g♭-C#, a♭-B, g-C, a-b♭, B♭-A denote the ‘central-tones’ for the bass instrument parts for each moment.

Further examination of the score reveals that these formal processes continue throughout the work. The following conclusions can be drawn:

a) The chords are precisely notated as per the list of chords at the beginning of the work, and their use is a total representation of the notation.
b) The ‘central-tones’ are those tones found in the bass parts in each sub-section delineated by a change of metronome speed, and within which are a number of ‘moments’.

c) Central to the work is the organisation of time as represented by the weaver’s shuttle taped sound.

3.3 Black Snow: Chords and Central-Tones

c) Chords

The scale upon which Black Snow is based is CE♭E♮FGB♭B. Smetanin has stated that

the scale functions like the C major scale, in that the C major scale has two tetrachords and you do not restrict yourself to using one tetrachord, you use others for example, like the circle of fifths. The mode I use does not work in tetrachords, but is treated in the same way, so that I might use one tetrachord on C, for example the lower tetrachord C E♭E♮F with another tetrachord from a transposition [of the original scale].

In the case of Black Snow, the scale is presented in its vertical aspect as a chord, and the scale and its transpositions are used throughout the work. Each transposition of the chord (expressed as T⁰, T⁴ etc.) is examined in all of the five sections to determine how it is used horizontally or vertically and whether, as in the case of Trans, the chord is used in its entirety, using only the notes of a particular transposition. Also examined is whether more than one transposition is used at the same time as a chord, whether there is a central tone for each section as demonstrated in Trans, and whether these central-tones, if present, provide the melodic material and the central-tones of the work as it proceeds. The percussion motif is examined to see if it functions in any way similar way to the taped weaver’s shuttle sound in Trans.

Table 3 on the following page shows the scale for Black Snow and its chromatic transpositions.

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4 Appendix A: p. 77.
Table 3: Original scale and chromatic transpositions – Black Snow

Each of the sections are examined in detail and documented. In Section I, the work begins with a transposition of T⁰ as T⁴ expressed as a chord.

Example 5: Transposition T⁴ in its vertical aspect – Black Snow – bar 1, showing the notes (from bass upwards) EG § G♯D § E♯F. Missing B and A are present in harp and pianoforte parts in the same bar.

From bar 2 for the duration of the work, it is apparent that Smetanin uses his scales in a composite manner, and as the upper and lower tetrachords are
intervallically similar, it is problematical to say precisely which transposition is being used, unless all of the notes of a particular transposition are present. The transpositions chosen in the following tables represent, on the basis of the notes that occur, the most likely transposition. At bar 1, the vertical expression of the scale on E expressed as \( T^4 \) is used, with \( EG_\flat G_\sharp D_\flat ED_\flat \) in lower winds, \( EED_\flat EG_\flat G_\sharp BD_\flat \) in bass guitar, piano and celeste, and \( ED_\flat EA \) and \( EG_\flat G_\flat D \) in harps I and II, so that the entire transposition is present in the chord.

Between bars 2-11, \( T^4 \) is present in the texture, along with \( T^0 \), \( T^5 \) and \( T^6 \), as shown in table 4 below.

**Bars 2-11**

<table>
<thead>
<tr>
<th>Instruments</th>
<th>Bars</th>
<th>Transposition No. and Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper &amp; lower winds, upper &amp; lower brass</td>
<td>2-11</td>
<td>( T^4 (D \ E) ) &amp; ( T^0 (B \ C) )</td>
</tr>
<tr>
<td>Harp, synth., pf/cel., harps, B gtr</td>
<td>2-11</td>
<td>( T^5 (F \ A_\flat A \flat B) ) &amp; ( T^5 (F_\sharp A A_\sharp B) )</td>
</tr>
<tr>
<td>Upper strings</td>
<td>2-11</td>
<td>( T^5 (F \ A_\flat A \flat B) ) &amp; ( T^6 (F_\flat A A_\sharp B) )</td>
</tr>
<tr>
<td>Lower strings</td>
<td>2-11</td>
<td>( T^6 (B C_\flat F F_\flat C_\flat) )</td>
</tr>
</tbody>
</table>

Table 4

Between these bars there appears to be three different transpositions of the mode in use as well as part of the original mode. The lower tetrachords of \( T^5 \) and \( T^6 \) are present in the upper strings. In the lower strings with the exception of C, all the notes belong to the upper tetrachord of \( T^6 \). In the upper winds, the BC belongs to \( T^0 \). The only notes that are not accounted for are D and E, and although these notes are singly present in these transpositions, the only transposition they are both present in is \( T^4 \).

The scale at bar 7 in the upper winds appears to be made up of a random selection of notes that belong in part to no more than two notes of each transposition.
Bars 12-21

<table>
<thead>
<tr>
<th>Instruments</th>
<th>Bars</th>
<th>Transposition No. and Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper winds</td>
<td>12-22</td>
<td>T⁴ (D E) T⁵ (E F, B C)</td>
</tr>
<tr>
<td>Upper brass</td>
<td>12-22</td>
<td>T⁴ (E D♯ D♭) &amp; T⁵ (C B♭ A F E)</td>
</tr>
<tr>
<td>Lower brass</td>
<td>22</td>
<td>Wave pattern</td>
</tr>
<tr>
<td>Harp, synth., pf/cel., harps, B git</td>
<td>12-22</td>
<td>T⁵ (F A♭ A♯ B) &amp; T⁶ (F♯ A A♯ B)</td>
</tr>
<tr>
<td>Upper strings</td>
<td>12-22</td>
<td>T⁵ (F A♭ A♯ B) &amp; T⁶ (F♯ A A♯ B)</td>
</tr>
<tr>
<td>Lower strings</td>
<td>12-22</td>
<td>T⁶ (B C♯ F♯ F C) &amp; Wave pattern</td>
</tr>
</tbody>
</table>

Table 5

The descending scale between bars 13-20 is the descending version of T⁴ (ED♯D) second tetrachord and T⁵ (CB♭AFE) (most of the mode). The descending version of a mode, according to the composer, ‘is not an inverted version but a straightforward rendition of the mode played backwards’. From bar 12-22 after another statement of T⁴, the same transpositions continue, but with a different rhythmic configuration (triplet quavers). There is a reorganisation of the melodic material between the instruments, but the same transpositions are used. Between bars 23-46, the predominant texture is the wave pattern and the predominant transpositions are T⁴, T⁵ and T⁶.

At bars 46-47 the stepwise shape is first presented (see Example 3, p. 25). This important motif is expressed by three chords, on C (T⁰)-D(T²)-D♭(T¹). Chords built upwards from these notes also include notes taken from all three transpositions T⁰, T¹ and T², but the chords in their lowest parts emphasise the notes of the transpositions C-D-D♭.

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5 Appendix A: p. 78
In summary, the use of transpositions $T^0$, $T^4$, $T^5$ and $T^6$ is found to be consistently present throughout the section. $T^0$ and transpositions $T^1$ and $T^2$ are present in bars 46-47 in the stepwise shape. $T^4$ is the most predominant transposition in the texture for almost all of Section I. Chords do not always consist of a complete lower or upper tetrachord but most often part of a tetrachord, or a complete lower or upper tetrachord plus an additional note or notes from the other tetrachord in the same transposition.

Section IIA Bars 50-91

<table>
<thead>
<tr>
<th>Important Textural Events</th>
<th>Bar Nos.</th>
<th>Transposition Nos. &amp; Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-60</td>
<td>$T^4 (E\ G\ G\ A\ D\ D\ E)$</td>
<td></td>
</tr>
<tr>
<td>Stepwise shape</td>
<td>61</td>
<td>$D\ E\ D\ E\ T^4 (E\ G\ A\ D\ -T^4 (F\ G\ A\ E\ B)$</td>
</tr>
<tr>
<td></td>
<td>62</td>
<td>$T^4 (E\ G\ G\ D\ D\ E)$</td>
</tr>
<tr>
<td>63-70</td>
<td>$T^4$</td>
<td></td>
</tr>
<tr>
<td>Stepwise shape</td>
<td>71</td>
<td>$E\ F\ T^4 (E\ G\ B\ A\ D\ A\ F\ B\ F\ E\ A)$</td>
</tr>
<tr>
<td>Deceleration section</td>
<td>74-81</td>
<td>$T^4$ (all the mode)</td>
</tr>
<tr>
<td></td>
<td>79</td>
<td>Upper and lower tetrachord</td>
</tr>
<tr>
<td>Extended stepwise shape</td>
<td>82-83</td>
<td>$T^4 (F\ A\ A\ F\ &amp; T^4 (E\ F\ A\ B\ D)$</td>
</tr>
<tr>
<td>Descending wave pattern</td>
<td>85-91</td>
<td>Transpositions indeterminate</td>
</tr>
</tbody>
</table>

Table 6

In Section II, $T^4$ is again the transposition that dominates up to bar 70, and from bar 74 to 83. The step-wise shape between bars 61-62 contains the entire pitch content of transpositions $T^4$ and $T^6$. Again at bar 71, the stepwise shape on $E\ F$ uses all the notes from $T^4$ and $T^5$. At the 3/4 bar at bar 74, a deceleration section appears until bar 80/81. This is particularly noticeable in the brass and the section with the harp, piano and bass guitar parts. It points towards the very brief return of the block chord texture on $T^4$, before the extended stepwise shape between bars 82-83 of $F\ E\ F\ E\ F\ E\ F$. Upper or lower tetrachords are not used here to form the chord on $T^6$, rather the first three notes of the lower tetrachord are combined with a note from the upper tetrachord. $E$ ($T^4$) is used in its entirety.
The descending chords in the bass part at bars 85-90 are shaped like the wave pattern in a descending motion. The notes don’t appear to follow any particular transposition.

Section III B - Bars 92-159

<table>
<thead>
<tr>
<th>Important Textural Events</th>
<th>Bar Nos.</th>
<th>Transposition Nos. &amp; Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stepwise shape</td>
<td>Bar 92</td>
<td>E-F#</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T₄ (EG A D♯) T₅ (F A♯ B♭ C E) and T₆ (F♯ A♭ F B E).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Transpositions, use first &amp; second tetrachords</td>
</tr>
<tr>
<td></td>
<td>Bar 92</td>
<td>T₄ (E A D♯ G G♯ D)</td>
</tr>
<tr>
<td></td>
<td>Bar 93-96</td>
<td>T₅ (F A♭ A B)</td>
</tr>
<tr>
<td>All sections</td>
<td>Bar 100</td>
<td>E-F♯-E-F♯</td>
</tr>
<tr>
<td></td>
<td>Bar 101</td>
<td>F♯ is T₄ (F B C) &amp; T₅ (F♯ A♭).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E is T₆ (E A D♯ G G♯ D)</td>
</tr>
<tr>
<td>Stepwise shape</td>
<td>Bar 147</td>
<td>E-F-E</td>
</tr>
<tr>
<td></td>
<td></td>
<td>E is composite chord made up of T₄ (E G B), T₅ (F A B♭ E♭ C) and T₆ (F♯ A♭ B C♯).</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F is a composite chord made up of T₇ (F C E♭), T₈ (C E G G♯ D) and T⁹ (F♯ A♭ B C♯).</td>
</tr>
</tbody>
</table>

Table 7

In this section, apart from the stepwise shape, the dominant tones are those found in the orchestral bass notes, above which other transpositions are used in the chordal material. T₄ also dominates Section II. Transpositions T₅ (bars 93-96) and T₆ (bars 102-103) ‘colour’ the T₄ harmony. The recurring tones of B♭ and B♯ in the bass guitar part, present from bar 111 to 136, culminate in an ascending bass of C, C♯, D, E♭ (and finally F). The original pitch-class set of T₀ and transpositions T₁, T² and T³ are used as “V⁷” type chords in the ascending bass, which finally culminates at bar 147 in the stepwise shape.
Table 8

Smetanin’s scale and its transpositions in Section III are used in a more complex way than earlier in the work. The use of composite transpositions becomes the norm. The tones of C, G and E dominate the bass parts throughout the section, and the rhythmic development of the stepwise shape in block chords is a notable feature. This rhythmic development may be observed in bars 182-184 with the upper notes A and B♭, bars 192-194 with the upper notes F and G♭, and 195-200 with the upper notes of G♯ and A. Section IIIIB culminates at bar 245 in a huge chord that appears to be a cluster chord on C in the bass, containing all notes within an octave.

The last two sections continue the rhythmic development of the stepwise shape in block chords. In Section IV, choosing the correct transposition was problematical. There appeared to be no particular pattern in the choice of
notes for the chords, but every note within an octave is present in the vertical aspect, with the exception of B₃. These composite chords, having been configured, continue along in that shape. Interspersed between the stepwise shape. The wave pattern is extended in length and shape (in ascending or descending scale forms or arpeggios) and rhythmically developed. Against the sections of block chords, it is possible to define the use of T² (284-290) which persists, along with the original transposition levels T⁰, and T¹¹ (296-311) until the end of the section.

In the final section, the development of the stepwise shape alternates with the extension of wave pattern material, using chords on T⁰, T², T⁴ and T¹⁰, which are constructed from a combination of these transpositions. The section closes on T¹⁰.

After examining the chordal material of all sections, the following conclusions are drawn:

i The general body of the work uses combinations of transpositions of an initial eight-note scale to form complex verticals.

ii The transposition most used is T⁴, which occurs in its entirety in bar 1, and present in the chordal texture for most of the rest of the work.

iii Because the lower and upper tetrachords are intervallically similar, the note in the bass parts dictate which particular transposition occurs immediately above it.

iv The transpositions may use either the upper or lower tetrachord, or can combine notes from both tetrachords.

(d) ‘Central-Tones’
A table of the central-tones in Trans is shown in Table 2, page 29. Mention was made there that these central-tones, which appear in the bass parts in Trans make up the pitch reservoir and provide the melodic material for the individual sections. Black Snow is now examined to see if the same is true for this composition.
Tracking the bass notes in each section of *Black Snow*, a grid is formulated as follows:

<table>
<thead>
<tr>
<th>Bar Nos</th>
<th>1</th>
<th>2-11</th>
<th>12-22</th>
<th>23-47</th>
<th>50-60</th>
<th>61</th>
<th>62-70</th>
<th>71</th>
<th>74-81</th>
<th>82-83</th>
<th>92-101</th>
<th>111-136</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Section I</strong></td>
<td>E</td>
<td>F</td>
<td>E/F</td>
<td>C♯/D/E</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bar Nos</td>
<td>137-146</td>
<td>147</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Section II</strong></td>
<td>E</td>
<td>E-F♭</td>
<td>E</td>
<td>E-F</td>
<td>E</td>
<td>F♭-E-F♭-E-F♭</td>
<td>E/F♭</td>
<td>B♭-B♭</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Section III</strong></td>
<td>C</td>
<td>C/E/G</td>
<td>E/G</td>
<td>E</td>
<td>E/G/A</td>
<td>E</td>
<td>E</td>
<td>E-F-E</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bar Nos</td>
<td>256-262</td>
<td>266-275</td>
<td>285-291</td>
<td>292</td>
<td>295-311</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Section IV</strong></td>
<td>A/F♯/D♭/B/F♯/D</td>
<td>A/A♯/G/D/B/B/F/D</td>
<td>D</td>
<td>C</td>
<td>D</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bar Nos</td>
<td>312-318</td>
<td>317-320</td>
<td>321-322</td>
<td>328-335</td>
<td>339-359</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Section V</strong></td>
<td>D♭</td>
<td>D♭/E</td>
<td>E</td>
<td>D♭/E</td>
<td>B♭</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 9

The single pitches of the bass guitar placed in the middle of the score are often doubled in the lower strings and other bass instruments with a chord built above them. These pitches are now examined to see if they provide the melodic material for the individual sections. The following is noted:

In Section I, where the melodic material is mostly $T^4$ (EGG♯ABDD♯E), $T^5$ (FA♭A♯B♭) and $T^6$ (F♯AA♯B), the bass parts in the strings and/or the bass guitar have the notes E/F/F♯. At bar 23, $T^1$ reflects the note C♯ played by the bass guitar, but here again as in other places, it is used in a composite way with other transpositions. This is true also at bar 29-30 with the pitch E, D and C♯, and true all the way through to the end of this section. The transposition $T^5$ (FA♭A♯B♭) and $T^6$ (F♯AA♯B) are also present when the bass parts have
an E, F or F♯ harmony. At the end of this section, the stepwise shape is composed of the transpositions notated in the bass parts C-D-D♭, namely T⁰, T² T¹.

In Section II, the melodic material again is mostly T⁴, and this is reflected in the bass parts. The stepwise shape with bass notes on E-F♯-E, E-F♯-E-F♯-E-F♯ and E-F♯ form chords the transpositions T⁴, T⁵ and T⁶. This occurs at bar 71, 82-83 and 91, and continues on in bars 97 to 101. A section now occurs between bars 111-136, where the bass guitar has the notes B♮ or B♭. The note B♮ belongs to T¹¹ (BD♯AA♯E) and B♭ T¹⁰ (B♭DA♭) which function between bars 111-136. Whichever note is in the bass part, it has above it a chord that belongs to that particular transposition. Transpositions are used like V⁷, with ascending chords on T⁰ - CEB♭, T¹ - C♯FB, T² - DF♯C, T³ - E♭GD♭ built on the bass parts, C, C♯, D, E♭. Often, as in bar 147, the bass notes in the stepwise shape (E-F-E) will have the transposition belonging to that note immediately above it as a chord, but as another transposition building the chord above that. This has been shown in Table 7.

In Sections III and IV, the stepwise shape is treated in a similar way, but the notes in the bass part that point to a particular transposition, provide only some of the notes for the chord above it. In Section III, the most dominant pitch is E with C, G and F (T⁰) present in the bass guitar part.

Section IV contains the pitch D in the bass guitar part (284-290) and C (291) and B♭ (301-311). The final section contains the pitches E (T⁴, except for A♯ and C♯) or C (T⁰ except for A and C♯). The work closes on the transposition on B♭ (T¹⁰ except for G♭ and E).

In Section V, the slow stepwise shape with the notes D and D♭ in the bass use both transpositions of T² and T¹. By bar 339, the composition ends with a B♭, which is in this case an ‘inversion’ of T⁰ (EFGB) and T¹⁰ (B♭E♭A♭D♭DFA) with B♭ in the bass part.
According to Smetanin

The percussion motif signals changes, which is a Trans idea. The weaver’s shuttle taped sound - double, and then a triple – that’s only at the end of a section. Stockhausen has one idea and sticks to that idea in Trans⁶.

The stepwise shape, mostly with three notes also represents the triple strike of the weaver’s shuttle sound that is present at the end of each section of Trans, and has been observed at the end of Sections in Black Snow.

Also in Section I of Black Snow, the change of ‘central-tone’ occurs whenever there is an event. For example at bar 12, after a number of bars with F in the bass part, there is a brief return to E, marked by the percussion motif. After further bars on F until bar 22, the change of note to C♯ in the bass parts coincides with the percussion motif and the introduction of the wave pattern. The tones C♯/D/E continue until the introduction of the stepwise shape, a three-note shape or triple strike as in Trans, which completes the first section. This can also be observed in Section II, at bars 74-81, 92-101. Another example occurs in the subsection which features the tones B♭-B♯ in the bass parts without the percussion motif in its original configuration, which returns around bar 145.

The conclusions to be drawn here are as follows:

a) The bass notes represent the ‘central-tone’ and indicate which transposition (or part therof) is present in the chord built above it in Black Snow.

b) The bass notes representing the central-tone of Trans are the lowest notes of the chord built above them.

c) Bass notes in Black Snow sometimes have chords built above them that can involve other transpositions as well.

⁶ Appendix A, p. 79
d) Stockhausen changes the central-tone in *Trans* whenever there is a new ‘moment’.

e) It could be argued that Smetanin uses the idea of ‘central-tones’ by writing bass notes that dictate transpositions immediately above them, changing whenever there is new compositional idea. However, no rigid organisation as exists in *Trans* ‘central-tones’ could be discovered

### 3.4 Percussion Motif/taped weaver’s shuttle sound

Both *Black Snow* and *Trans* have a device (percussion motif for *Black Snow* and a tape of a weaver’s shuttle for *Trans*) that occurs at regular intervals during *Trans*, and irregular intervals in *Black Snow*. The functions they perform are very different. For Stockhausen’s work, it functions as a signal to the players to start playing (after a silence of some seconds at the end of each block of 20 or so seconds, whereas for Smetanin, the motif functions to pinpoint an event of some importance. Both have a final section (Section VI for Stockhausen), where the music is broken up with pauses.

The occurrence of the percussion motif and weaver’s shuttle for the first two sections of *Black Snow* and *Trans* is shown in Example 6 below. It is not intended to compare nos. of bars with timed occurrences. It is included to show that both works contain a device that occurs at intervals throughout the two works. Because this example highlights the differences between the treatment of the two devices, it is not necessary to show all the other sections of the two works, as differences can be observed in the other sections.

*Black Snow* (*★* = percussion motif with accompanying bar numbers & *Â* to denote pauses)

*Trans* (*▲* = weaver’s shuttle taped sound with timed occurrences & accel. sections bracketed)

**Section I Black Snow**


**Section I Trans**

▲18▲20▲20▲21▲20▲19▲20▲19▲21▲20▲19▲18▲17

**Section II Black Snow**
Example 6

The weaver’s shuttle is organized on regular deviations from the norm of plus or minus an average of 20” between successive weaving loom sounds. Example 6 shows how this occurs in the first two of the work’s six sections. The bracketed numbers at the end of each section are accelerando sections.

Below is the original version of the percussion motif in *Black Snow*, as it occurs in the first bar.

Example 7: Percussion motif – *Black Snow*

Between bars 1-49 of *Black Snow*, the percussion motif is played 11 times. It occurs in bars 1-2, 7-8, 12-13, 20-21, 22-23, 26-29, 32-33, 35-36, 40-45 and 46-49. The first statement accompanies the vertical version of the original scale transposed to E. Some occurrences of the percussion motif are simply used to signal a change from triple time to duple time. Other occurrences accompany the introduction of a new texture, rhythmic configuration or the close of a section of sub-section.

The final statement of the percussion motif (example 8, p. 43, bars 46-49) is repeated four times, the first accompanying the first rendition of the stepwise motif, and the other three functioning like the triple strike which can be observed at the end of each section of *Trans*.
Example 8: Percussion motif – *Black Snow* - bars 46-49

In Section II, the percussion motif takes on various roles. It adopts the rhythms of other orchestral instruments, accompanies varying rhythmic configurations in the orchestra, announces written-out decellerando scales,
pauses, fermatas and is present at the end of rhythmic cadences, with their accompanying changes of time signature.

Example 9: melodic development of percussion motif – Black Snow - bar 66, explained in Smetanin’s notes on the organization of Black Snow as echoing the rhythms present in the other instruments.
Example 9 on the previous page shows how the percussion motif undergoes some 'melodic development', where it echoes the rhythms present in the rest of the orchestra. It also accompanies the stepwise motif at bars 69B-71 (and change of time-signature from 5/8 to 2/2), bars 82-83 and bar 91, followed by a fermata and the beginning of the second sub-section at bar 92.

Example 10: Rhythmic extension of the percussion motif – bars 117-119

From bar 111 onwards, the percussion motif functions as a ‘pointer’ to events, for example when the percussion section echoes the rhythms of the wave motif. Between bars 116-119, the rhythmic extension of the percussion motif can be observed before another fermata after a 3/4 bar.

Between bars 120-145, there are three statements of the percussion motif, heralding no more real statements of the percussion motif until bar 145 where the return of the original version of the percussion motif occurs. Again the three-chord shape of the stepwise motif is accompanied by the percussion motif at bars 147-148, signalling the end of Section II.

In Section III, the orchestral texture is rhythmically very complex. The percussion motif is also rhythmically extended. Pauses in Black Snow function as the completion of one idea and the beginning of another.

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7. Smetanin. Sketch notes of Black Snow. Refer to Bibliography p. 93
In Section IIIA, the percussion motif accompanies changes of transpositions, rhythm and textures. This can be observed at:

i bars 170-171 in the bass parts with the changes of transpositions $T^0$ and $T^4$

ii bars 179-180 the beginning of triplet rhythms in the body of the orchestra is present also in the percussion section.

iii Bars 186-187 accompanying the stepwise motif and in bar 195 the extended stepwise motif.

iv Bar 198-206 a major extension of the percussion motif occurs before the beginning of Section IIIB.

v Bars 227-248 an extended percussion motif accompanies multiple changes of time-signatures. Over these changes the percussion section also marks time, functioning rather like a pedal point on the dominant in a cadenza before the next event, which at this point is the beginning of Section IV.

Section IV has no percussion motif, but the percussion section adopts the rhythms of the rest of the orchestra. At bar 263 the strings play a melodic version of the percussion motif. At bar 291 material from a previous extension (bar 198) is inserted into the percussion texture. Four statements of the percussion motif herald the beginning of Section V.

The percussion motif returns in Section V to accompany the huge block chords and accelerating rhythms of this final section, for example, at bars 321-323, where there are six statements of the percussion motif played against the block chords of the stepwise motif in all parts. Between bars 335-339, the percussion motif is less structured, playing ‘ad lib’ until bar 339.

The function of the percussion motif in Black Snow is different to the function of the weaver’s shuttle taped sound of Trans. The roles of the two devices can be summarised as follows:
a) The use of these devices is shown to exist on an organisational level. They persist throughout both works.

b) The weaver’s shuttle in *Trans* functions as a call to the players to begin playing after timed silences. It does not develop rhythmically and does not mirror the rhythm of chordal textures as does the percussion motif in *Black Snow*.

c) As in *Trans* where the weaver’s shuttle directs the action, the percussion motif in *Black Snow*, apart from accompanying events and rhythms, functions also as a call to pull the orchestra back into a regular duple beat. This occurs at places where the time signature changes from triple to duple time, particularly where the texture is rhythmically and texturally complex. This is further discussed in Chapter 4, 4.4 Rhythmic Organisation, p. 66, example 23, Rhythmic Cadence.

d) In *Trans*, the weaver’s shuttle accompanies new events, textures and rhythmic development just as the percussion motif does in *Black Snow*. The difference is that it does so within a rigid time frame, and its role, with either single, double or triple strikes, delineates in the frame of the entire work. In *Black Snow*, the percussion motif functions in a far less rigidly organised way, being composed along with the other material and not predetermined as to the places it occurs and the number of strokes.
Chapter 4: Textural Material

In *Black Snow*, melody plays no part in the structure and development of the material as a whole. The work has textures, readily identified, which are developed rhythmically, extended, augmented, joined to one another, and as Smetanin states

….the extremely long opening section and extremely limited material …is all about trying to get mileage out of the material without it sounding minimalistic.¹

*Trans* does have melodies, in the solos for viola, trumpet and cello, which are part of the dramatic plan of the work. Also, melodies exist in the material for the Groups². Both *Black Snow* and *Trans* reveal similar recurring textures, for example, block chords, a wave pattern and a stepwise shape (mainly *Black Snow*) which are introduced in the first section of both works and are present in various ways throughout. *Trans*’ first section also contains other textures, such as repeated notes and arpeggio-derived material.

4.1 Chords

Chords are covered in the previous chapter from the viewpoint of their transpositional relationship to Smetanin’s scale on C in *Black Snow*. They have not been discussed as a texture. Both *Trans* and *Black Snow* open with sustained block chords. The length of the sustained block chords is bound up with the organisation of a ‘moment’ in *Trans*. This will be fully discussed in the rhythmic organisation of both works in subsection 4.4 of this chapter. In *Black Snow*, no such organisational device exists. The staggered entries that can be observed in the opening bars are reminiscent of *Trans*, but here are written in such a way because the composer wished the two chords to be more clearly heard (see 4.4).

Block chords moving in parallel rhythms occur throughout the orchestral families in *Black Snow* and the groups in *Trans* and persist throughout both works in all sections. They occur within the wave motif, in ascending or

¹ Appendix A: p. 82
descending scales or the stepwise motif. Sometimes the doublings exist in all the groups in *Trans* or in one or two, according to Stockhausen's plan, which is discussed in this chapter at subsection 4.5. At the end of both works, there are huge doublings of material throughout all the orchestral families or groups in both works. Examples of this similarity of texture can be observed in 4.4.

### 4.2 Wave pattern

In *Black Snow* at bar 22, the wave pattern is introduced (Chapter 3, p. 24 examples 1 & 2). There are similar wave-shaped note patterns also in *Trans*. In *Trans* this texture, as with other textures played by the four groups, consists of parallel mixtures over the melody of the bass instrument. The groups consist of one bass instrument and four higher instruments of the same type with percussion (See Appendix C, page 90). Their material is built from a basic pitch set which also yields the ‘central pitches’ for each section.

Maconie attributes the source material (for the first – and following- central-tone of *Trans*) for the groups as follows:

> The four flutes of group I form a cluster of harmonics corresponding to 14, 15, 16, and 18 of a fundamental E1; the group II oboes to harmonics 13, 15, 16, and 19, and the clarinets of group III to harmonics 16, 17, 21 and 22 of a second harmonic at the same pitch; finally the cup-muted trumpets of group IV approximate to harmonics 20, 21, 23 and 28 of a fundamental of which E1 is the fourth harmonic.

There has been conjecture, when investigating the possible source of musical material for this pattern in *Black Snow*, that it may have been generated by the use of a cellular automaton. Lindsay Both, discussing the source material of the wave shape in *Strange Attractions*, has a graph showing how the wave shape (and irregular scale pattern) can be generated with the use of such a device.

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5 Both, Lindsay: pp. 64-66.
The notes in the wave pattern in *Trans* have the appearance of being improvised. According to Richard Toop:

> When Stockhausen wrote out the sketches for the chords in the wind groups, he indicated the basic ‘mixture chord’ for each section. It was left to the copyists to write out the four upper parts in the group. His wave shape gives the impression of being improvised, given Stockhausen’s relatively fleeting interest in Indian Classical music. He describes the pitch reservoir for *Indianertelider* as a ‘raga’ and one could regard the pitch reservoir for *Trans* in the same way.\(^6\)

The wave pattern appears to function as a means of ‘filling in’ in places in the score, often doubled in the instrumental families and used for large scale events. Smetanin has said that *Black Snow* is an intuitive work and that he has not used any mathematical processes in the work. Given this information, Smetanin was possibly influenced by the look of the wave pattern in *Trans*.

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Example 11: Rhythmical development of wave pattern: *Black Snow* - bars 148-150.

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\(^6\) Richard Toop: Email to author dated 19/09/99.
In *Black Snow*, the wave pattern is part of the musical background throughout the entire work. To quote examples, in Section I, the wave pattern occurs against the rhythmic development of the block chords into triplet quavers (bars 22-43) and just prior to the first statement of the stepwise motif (bars 46-47). In Section II, it is doubled throughout the orchestra and extended (bars 108-113). On two occasions it occurs with glissandos in the violas and has the effect of suspending the musical action before the full orchestra resumes (see bars 71-73 and 83-85). It accompanies a decellerando in the harp section where the musical material moves towards the stepwise motif in bar 85; at the beginning of Section IIB; and as an extended stepwise motif in huge block chords in Sections IV and V. It is developed rhythmically and extended throughout *Black Snow*. One example of rhythmical development of the wave pattern is shown below, between bars 148-150, where it functions as an codetta between the end of one section and the next.

Another example of rhythmical development is shown below, occurring in Section IIIB where the wavelike figure changes to a slow wave pattern with note values of semiquavers changing to quavers grouped in 3’s and 4’s in a 7/8 bar (2\textsuperscript{nd} half of bar 208) and further slowed down in the next bar (209) with a metronome marking of $\frac{4}{4} = 63$.

![Example 12: Rhythmic development of wave pattern: Black Snow - bars 208-210](image)

With all the development of the wave pattern in this section, Smetanin’s comment of ‘trying to get mileage out of the material without it sounding minimalistic’\(^7\) holds true.

\(^7\) Appendix A: p. 82.
4.3 Step-wise motif

In *Trans* there is a shape similar to the stepwise motif in *Black Snow* which appears at the end of the work (see examples 13A for *Trans* and 13B for *Black Snow*, page 54 and 55 respectively). The example, which has its parallel in *Black Snow*, is between bars 502-507 where it concludes the work in diminishing divisions of the crotchet beat, from quavers to triplet quavers to semiquavers to triplet semiquavers to finally demisemiquavers.

In *Black Snow*, the same shape can be observed between bars 328-334, also near the end of the work. Over these bars in accelerating divisions of the crotchet beat are triplet crotchets, quavers, triplet quavers, semiquavers, quintuplet semiquavers, sextuplet semiquavers to finally septuplet semiquavers (example 13B on the following page).
In *Trans*, the stepwise pattern appears in the body of the work in various rhythmic configurations. In *Black Snow*, the stepwise motif is part of the general organisation of the work as a whole. Examples of this shape can be seen throughout *Black Snow*, for example, between bars 81-83 as shown below, where it occurs at the end of a de-accelerando section and just prior to the close of Section IIA at bar 92.

It later concludes Section II with the motif on bass notes E-F-E at bar 147-148. Section III shows few references to this motif, which is momentarily present at bars 186-187 before a rising chord in the strings. In Section IV it is completely absent in its role as a reference point. In Section V, it functions in
an entirely different way, in huge blocks of parallel harmonies in a step-wise shape, first on $D\#-E$ in all groups except lower strings before coming to rest on $E$. This step-wise shape resumes at bar 323 this time on $E-F$ in the bass for that bar, before culminating in bass notes of $D-E\flat-D$ shape in all groups at bar 326. This is followed by all groups on bass notes of $D\#-E$ from bar 328 until bar 335. Therefore, the step-wise motif is functioning here as the closing chords of the section. What is also noticeable here is the similarity, as mentioned previously, between these bars and the final bars of Trans, which has an identical shape and diminishing divisions of the crotchet beat.

Finally, as stated earlier, (Chapter 3 example 3, p. 25) and according to Smetanin, the three-note shape of the stepwise motif in Black Snow has a similarity of function with the triple strike of the weaver’s shuttle at the end of each section of Trans.

4.4 Rhythmic organisation

The opening bars of Black Snow show similarities with the opening bars of Trans, in that both scores begin with groups playing block chords using parallel harmonies and parallel rhythms. The chords are not always present on the first beat of a bar in all groups in both scores, but rather have staggered entries. Initially this occurs for the first 41 bars of Black Snow and the first 19 bars of Trans.

Beginning with Black Snow, it can be seen that the 1st violins have a crotchet on the first beat of the bar (bar 2) which is accented, tied to a dotted quaver and sustained for 7 semiquavers followed by a semiquaver rest. The 2nd violins have the last semiquaver of the bar (bar 2) which is accented and sustained for seven semiquavers followed by a semiquaver rest (see example 18 on the following page).
Example 15: Staggered entries of block chords: Black Snow - bars 2-6

In flutes 1 & 2, the minim on the first beat of the bar (bar 2) is accented and its duration lasts for eight semiquavers followed by a comma. The flutes 3 & 4 and the saxophones have the last semiquaver of the bar (bar 2) which is accented and sustained for seven semiquavers followed by a semiquaver rest. Each individual part’s entry note is accented, and completed by a ‘comma’ or a rest. Each individual part’s entry is echoed in the harps, keyboards and bass guitar group by accented single notes. So that if mathematical techniques were to be applied to these bars as for Trans, the attacks (those notes with accents) should follow some numerical pattern as they do in Trans. Upon examination, the sustained chords really amount to staggered entries of seven semiquavers duration followed by a semiquaver rest, or eight semiquavers’ duration followed by a comma.
This idea can be seen in an augmentation of note values with the minim as the basic beat, which begins at bar 50 and continues on to bar 70 in 2/2 time. Again, although there are two minims to each bar they are not tied, so the sustained durations still last for eight semiquavers (see Example 16 below). The staggered entries are present again in the brass in the same example. The duration of their sustained notes however, is much longer. There appears to be no correlation between these longer durations and those at the beginning of the previous section.

Example 16: Staggered entries & augmented note values: Black Snow - bars 50-56

After looking at two of the sections of Black Snow and finding no discernible overall grand plan, it was decided that if mathematical techniques were evident, they would carry through to the final bar, as is the case with Trans. When questioned on the look of the opening bars of Black Snow, Smetanin replies as follows:

Those type of markings (commas and the accenting of notes) were not intended to be structural in any way. Once again they are there to render the music much more clearly and effectively. The separation allows a sort of superimposition, to make the harmony a little bit easier to hear- to hear the more fundamental element of the harmony.\(^8\)

\(^8\) Appendix A: p. 81.
Therefore, in the case of these rhythms present in *Black Snow*, Smetanin has not applied any mathematical techniques to his score. The ‘commas’ are merely indications of where the instrumentalists are to breathe, and the accents mark where the attacks begin for the designated durations.

The process in *Trans* is quite different. The chords are subject to very tight serial organisation, the organisation of which is evident in the first ‘moment’ of the work. The entire piece is worked out on the basis of the values 1-2-5-4-6-3-7, or permutations of the numbers 1, 2, 3, 4, 5, 6, 7, numbers that Stockhausen uses a lot in his compositions. The numbers are determined by the number of attacks in each moment and the number of crotchet beats before the next attack. The process is explained below, and followed by markings on the example. The first ‘moment’ of *Trans*, worked out on this basis, has the units organised as follows:

- The first 4/4 bar contains the first 2 units, ‘1’ and ‘2’ (2+1), 1 being the first crotchet of the bar in all Groups, followed by 2+1, the accented minim lasting 2 crotchets in Groups II and III before the next attack, a crotchet in Group IV.

- The next 3 bars (6/4, 6/4 and 3/4) contain the next unit ‘5’ (5+1+4+2+3). The first attack lasts 5 crotchets in all Groups before the next attack in Group II lasting 1 crotchet followed by the next attack in Group I with a semibreve (4 crotchets). So far then we have 5+1+4. The next attack on the 5th beat of the 6/4 bar with a minim in Group III (2 crotchets) is followed by the last attack in Group IV with a semiquaver followed by a dotted quaver which is tied to a minim (3 crotchets). Therefore this completes the 5+1+4+2+3 numerical plan of Stockhausen’s for this unit.

- The next 4/4 bar and the following 6/4 comprise the next unit. The first attack lasts a semibreve in all Groups (Group III has a dotted minim (for breathing) before the next attack comes in Group III lasting a dotted minim (3 crotchets). The next attack comes in Group I with a dotted minim, but with only a duration of a crotchet before the last
The attack for this unit comes with a semiquaver followed by a double-dotted crotchet (lasting a minim or two crotchets). Therefore, the numerical plan for this unit is 4+3+1+2.

- The next unit lasts over four bars of 6/4, 4/4, 6/4, 5/4 and 6/4. In the scheme of things, there should be six attacks in this unit. The first attack comes on the first beat of all Groups and lasts 6 crotchets before the next attack. This comes in Group I and lasts 1 crotchet before the next attack. This comes in Group IV as a dotted minim (3 crotchets) before the next attack in Group II. This attack lasts one semibreve (4 crotchets) before the next attack in Group III of a minim (2 crotchets) before the last attack of a semiquaver followed by a dotted quaver tied to a minim lasting 5 crotchets. Therefore, in this unit, the numerical scheme is 6+1+3+4+2+5.

- The next unit comes in the 64 bar, with an attack on the dotted minim (3 crotchets) followed by 1 crotchet, and ending with a minim (2 crotchets), making the numerical scheme 3+1+2, making 3 attacks.

- The final unit in this 'moment' lasts over 7 bars (7/4, 6/4, 3/4, 5/4, 4/4, 2/4, 1/4), and in the scheme of things should have 7 attacks. The first attack is in all Groups and lasts 7 crotchets. The next attack comes in Group IV as a dotted semibreve (6 crotchets), followed by the next attack of a dotted minim in Group III (3 crotchets). The 5/4 bar has the next attack of a semibreve tied to a crotchet (5 crotchets) before the next attack of a semibreve (4 crotchets). The 2/4 bar has Group IV playing the next attack of a minim (2 crotchets), followed by a semibreve and a dotted quaver playing the last attack (1 crotchet). The numerical scheme for this last unit in this moment is 7+6+3+5+4+2+1, making the required 7 attacks.

The following examples are provided to illustrate these points on the following pages.
Example 17: First moment in Trans: bars 1–19 (see over page)
Example 17 (cont.): First moment in Trans: bars 1–19 (see over page)
An important feature that should be noted is the change of central-tone at the same place as the change of metronome marking. Although the whole of Trans has not been analysed for ‘moments’, it could be argued that, given the rigid organisation of the piece, a new moment also begins at the same point.
Another rhythmic device which can be observed in *Black Snow* is present between bars 13-20 is a written out decellerando in the horn parts (Example 18). Over these bars, and against the rest of the orchestral texture with dynamics of ‘fff’, the following pattern is observed, where increasing durations gradually slow down the speed of the descending scale.

As shown below, in *Black Snow*, bars 74-80 in 3/4 time also contain a written-out decellerando in another form, that is, the number of quaver beats between a repeating ‘ostinato-like’ pattern of notes becomes gradually greater:
Smetanin rhythmically develops the textures in *Black Snow* with quaver values expressed in a ratio of 5:4 at the beginning of Section IIB, bar 92. This occurs within a 2/2 time signature and in a texture reminiscent of that at bar 50. For the next 9 bars, events accelerate towards bar 100 with the number of events in a bar increasing, the ratio of 5:4 quavers breaking down into triplet quavers against 5:4 quavers. By bar 102, their disappearance is marked by a GRAND PAUSE after which, up until bar 159, the musical content undergoes further rhythmic development.

Between bars 103-159, there are a number of time signature changes. The reason for them appears to be that their function is to lengthen the musical phrase. From bar 104A to 119, there are eight time-signature changes. These occur from bars 104A, 104B and 105 (2/2), bars 107-112 (3/2), bar 106 (2/2), bar 113 (3/2), bar 114 (2/4), bar 115 (4/4), bars 116-117 (2/4) and finally the 3/4 (119), ending within a pause. During these time-signature changes, the introduction of a 3/8 or 3/4 or 5/8 time signature at a particular point just before the resumption of duple time, elongates or holds up the musical progress. It also has the effect of reinforcing the first beat of the bar. This reinforcement comes after a period of time when the music has been functioning ‘off the beat’ (by that is meant not reinforcing the first beat of the bar). The composer states that this idea is precisely meant to function as a rhythmic cadence:

Messiaen uses this rhythmic elongation thing – rhythmic cadences often on notes with the extra beat in the bar. There is this kind of feeling of going up and taking a little bit longer before it comes down. Here it makes musical sense to bring something in on a downbeat like that after taking a little bit longer (to get there).9

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9 Appendix A: p. 78.
Example 20: Rhythmic cadence: *Black Snow* - bars 146-147
The rhythmic development of the wave motif also blurs the regular beat, with its wavy streams of notes continually subdividing into different rhythmic configurations. This figure, offset by accented tied crotchet chords across the bar line has the effect of extending a musical phrase. For example, at bar 111, upper winds and harps etc. have accented crotchets tied over the bar line against the rhythmic development of the wave figure. The musical phrase ends at bar 116 (2/4 time).

Trans begins very simply, but very soon becomes rhythmically complex, using demisemiquaver triplets in repeating note patterns, and ascending and descending interval leaps. A corresponding texture can be observed in Black Snow in bars 268-272. There are also sections where there are ritardandos and accelerandos, but these are more a slowing down from one metronome marking to another, or vice versa.

Both Black Snow and Trans contain pauses, both short and long. This use of silence, also a rhythmic device, is present in both works but for totally different reasons. Stockhausen’s silences are regimented by the stop-watch and are worked into the dramatic fabric of the piece. Just before the end of Trans, there is a very dramatic pause of 40", where Stockhausen indicates at the front of the score that ‘NO ONE MOVES’, presumably to highlight the dramatic effect at that point, thirty-seven bars before the end of the work. Likewise, Smetanin has also a long dramatic pause in Black Snow occurring at fifty bars before the end of the work and lasting a few seconds, which differs from Trans in that there are no directions in the score for it to last a certain length of time. In the normal course of events, pauses in Black Snow occur where an event is completed.

4.4 Groups

Both Black Snow and Trans operate with distinct groups of instruments, Stockhausen with four and Smetanin with five. In Trans, one to three wind groups are in use during the cluster/chord alternations, but during the accelerandos at the end of each section, all the wind groups are playing.
Stockhausen organised the combinations of the groups and when they played, so that the greatest possible number of combinations should occur. The other main criteria for when the groups play are:

a) the equal occurrence of all 4 groups  
b) the avoidance of a completely uniform rotation of 1-4; in the first section, for example, group 1 is used 4 times before the accelerando, whereas the other groups are used only twice each; by way of compensation, 1 is absent in the 2nd section, and group III, which predominates in this 2nd section, is absent in the 3rd.

No discernible evidence could be found of any mathematical organisation of the instrumental families in the orchestra of *Black Snow*, as exists in *Trans*. Smetanin’s use of the instruments of the orchestra here is very much in families of instruments with doublings in other families. Noticeable also is his use of the extremes of registers. There is no attempt to use the timbres of any of the instruments for their particular qualities, as for example Debussy did in *L’Apres Midi d’Un Faun*. This is also a feature of the way the music is played in *Trans*. In neither work are the musicians directed to play the notes with interpretation, but in the case of *Trans*, as slaves to the stopwatch, and in *Black Snow*, as slaves to the dynamics. This is also commented upon by Maconie, who states

Not here the dreamlike shades of Ravel or Debussy, or even Boulezian impressionism. Rather a combination of tunnel vision and interiorized, amplified polyphony.¹⁰

### 4.5 Glissandos

Glissandos are part of the texture in both pieces, but not a major part of *Trans*. There they appear to be used fairly sparingly (bars 48-52, 64-69, 70-71, 204-219). In *Black Snow* glissandos feature right throughout the work as an extension of chordal writing, with harmonics in rising configurations, or as slow glissandos (not unlike bars 204-219 of *Trans*), with augmented note

¹⁰ Maconie, Robin, p. 225.
values lasting over minim beats. They are also used to decorate the wave texture in Section II. and as a fill-in texture against other events. Smetanin has described them as providing orchestral coloration rather than being a structural texture. There appears to be no discernible influence of Trans in the use of this texture in Black Snow, except to note that glissandos are not an important texture in either work.

4.6 Dynamics

Michael Smetanin’s orchestral work is a strong work with dynamic markings of fff, sfz, ffff to f possible dominating. There are no places where a texture stands out in the foreground with accompanying dynamics in the background being muted. In Trans, as with all other musical functions, the dynamics are specifically organised.

4.9 Summary

To summarise the important similarities and differences in this chapter, the most outstanding are as follows:

(a) The recurring percussive motif of both works, the percussion motif in Black Snow and the taped weaver’s shuttle sound in Trans. Of all the material compared, this is the most striking similarity. Both devices have the same function; to exert control over events, to pull proceedings back into line. Having said this, the most striking difference is the completely controlled function of the device in Trans and the much more arbitrarily organised device in Black Snow.

(b) The most similar texture in both works is block chords doubled throughout the orchestra, particularly at the beginning of both works, where the texture has a somewhat similar appearance. Examination of the reasons for the staggered chordal entries at the beginning of Trans reveals the most important difference, that of a rigidly organised first ‘moment’ of the work. In Black Snow, Smetanin is more concerned

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11 Appendix A: p. 79.
with staggering the chords so that the two different chords can be heard. The block parallel chords persist throughout both works in other textural shapes, for example the stepwise motif (more prominent in *Black Snow*) and the wave motif.

(c) The wave motif forms part of the texture in both works. According to Toop, given Stockhausen’s fleeting interest in Indian ragas, one could regard the wave pattern in *Trans* as manifesting that interest. However, Maconie’s information as to the source of the wave motif is the most precise. After consideration of the use of cellular automata, it is conceded that no mathematical devices exist in *Black Snow*, although the shape of Smetanin’s wave motif is reminiscent of the shape produced by a cellular automaton. As noted at (b), it is presented in block chords in both works.

(d) The stepwise motif is an important motif in the organisation of *Black Snow*. Its correlation to the weaver’s shuttle of *Trans* has been noted. The same shape is not nearly so prominent in the body of the material in *Trans*, although it features significantly over the last bars. The stepwise motif of *Trans*’ final bars, with accelerating note values is strikingly similar to that found towards the end of *Black Snow*.

(e) The use of pauses as part of the structure of both works is another similarity. Smetanin’s longest pauses come near the end of *Black Snow* as do those in *Trans*. Both works use pauses for dramatic effect, but the important difference is that they are used as part of an overall dramatic program in *Trans* and are rigidly timed. This is not the case with *Black Snow*.

(f) Another similarity is the use of bass notes to determine the use of a particular chord. Again with Stockhausen’s work, this is part of a grand plan, that of central-tones; and if one follows through the work, it can be discovered that in the case of *Trans*, these notes have a structural role to play. Examination of Smetanin’s work reveals that the bass notes are also important in the scheme of events, although *Black Snow*’s bass notes denote one of the transposition, and often occur with composite chords of more than one transposition.
(g) Both works have complex rhythmic subdivisions of the beat, ranging from triplet quavers to demisemiquavers, and between one instrumental group/family and another at the same time.

(h) Glissandos are used for their colouristic effect, but are not an important texture.

(i) *Black Snow* does not have melodies, but they exist in *Trans* in the solos and the material for the groups.

(j) A feature of both works is the lack of use of instrumental timbre for effect, as in Debussy’s music, for example.

(k) The most striking difference is the total organisation of *Trans* and the far more ‘intuitive’ approach of *Black Snow*. Stockhausen applies mathematical-type organisation to all aspects of *Trans*. No such plan could be discovered for *Black Snow*. 
In the preamble to Chapter Two, the sources of Smetanin’s musical style and how it evolved were discussed. Newspaper articles, analyses of his works and reviews stated that the composers who had the most influence on his musical style were Louis Andriessen, his mentor in the Netherlands, Xenakis and Stockhausen.

On the subject of style, it can be said that style in terms of a musician’s output is something that is achieved after many years of intense creative activity. A musician’s energy is directed his or her ideas resulting in an effective realisation of a musical work in performance, where considerations of unity, coherence, rhythmic balance, balance of contrast and consistency of idiom, are all brought to bear. As the music is being written, the composer questions how the music is developing with regard to rhythmic balance, flow, clarity of instrumental texture, instrumental spacing and phrase structure. The answers to these questions are all part of the artist’s vision, which is fed by his inner conviction and development of this vision over many years towards an ultimate self discovery of his or her own style.

Stockhausen’s ‘tendency to describe himself as an originator, influencing many but influenced by none is understandable in view of the way his works from Kreuzspiel to Gesang der Jünglinge were received, by composers from the very youngest to the most distinguished of the time, Stravinsky. Griffith comments further however, that when Kagel, Ligeti and Cardew came to live in Cologne along with the critic Heinz-Klaus Metzger, the poet Hans G. Helms, and various people in the art world, it had the effect of extending Stockhausen’s circle and providing a forum of debate and artistic stimulation. Exchange of ideas took place that found their way into Stockhausen’s music. Stockhausen’s music changed from writing highly detailed and rapidly changing music to slower tempos, more complex sounds and greater latitude in the execution of detail in his next group of works.

1 Griffiths, p. 140.
Therefore Stockhausen was influenced by his circle of creative artists but the music he produced as a result was intrinsically his own.²

Chapter One contains details of how Smetanin’s career has developed, his early teachers and his time working with Andriessen in the Netherlands. The music written since returning to Australia has been commented on as containing influences of rock and jazz, being confrontational, harsh, physical and robust in style and the descriptive titles of Strip, Stroke, Spray, Track, The Speed of Sound, Vault, to name a few, echo Smetanin’s style of writing music. Smetanin squarely acknowledges the influences present in his music, those of Andriessen, Xenakis and Stockhausen, and they are acknowledged in this thesis.

Where the first and greatest difference lies between Smetanin and Stockhausen is that Stockhausen’s music is truly original. There are no places in his music where it is obvious that another composer’s recognisable textures, notes or compositional devices have been reproduced. In Smetanin’s music, there are recognisable similarities with textures and note shapes present in Andriessen’s, Xenakis’s music and also in Stockhausen’s music. Having said that, Smetanin has used these textures to create works that are entirely consistent with his own style.

The second most important different between the two works is in their organisation. It was my intent to discover similarities between the two works and whether Smetanin uses any mathematical techniques in Black Snow. The only one that could be said to be mathematical is the cellular automaton in the shape of the wave pattern. Smetanin states that Black Snow is intuitive and there are no such devices in this work. Trans is tightly organised in every respect, in harmony, rhythm and orchestration. The music is broken up into timed segments, each section organised into ‘moments’ which persist right throughout the work. Each ‘moment’ has a specific rhythmic formula. No such organisation could be discovered for Black Snow.

² Ibid.
As this thesis takes one of these three composers, Stockhausen and his work Trans, to measure how much of that work is present in Black Snow, the following points from previous chapters are summarised:

- Stockhausen precisely notates the Trans chords in a list at the beginning of the score, and these chords are a complete representation of the material realised in the full score. Black Snow on the other hand, is based on a pitch class set in its vertical aspect. Smetanin uses ‘tetrachords’ of various transpositions in a loose fashion, definitely not according to a grand plan. This is a very distinct difference between the two works.

- The harmonies for Trans are tightly organised by ‘central-tones’, which change with every change of tempo. This type of organisation could not be discovered in Black Snow. In the latter work, the bass notes indicate the transposition to be used immediately above the note in the bass parts, together with another tetrachord of a different transposition occurring above that. Stockhausen generally does not have his musical material dominated by bass notes, but in Trans this does appear to be the case.

- The percussion motif and the taped weaver’s shuttle sound are strikingly similar features of both works, not in their particular sounds, but in the organisational function they fulfil. Smetanin’s organisation of this motif is far more random. Stockhausen’s percussive motif behaves according to a set of rules set up at the beginning of the work.

- Both pieces are broken up by pauses, particularly in their final sections.

- An important similarity is the textures in both works, huge block chords moving in parallel rhythms involving the entire orchestra at times and at times involving families or groups of instruments. The idea of orchestrating Smetanin’s huge doubling of chords throughout the orchestra is strikingly similar to textures found in Trans.

- The stepwise motif is another shape that is not so much present in Trans, although it exists in that work. It represents, according to Smetanin, a parallel with the three weaver’s shuttle taped sounds at the
end of each section of *Trans*, an idea which Smetanin took up and expanded in *Black Snow*.

- There are other similarities between the two works. Both use complex subdivisions of the crotchet beat; both use glissandos as orchestral colouration; and both works avoid the use of instrumental timbre in a soloistic fashion.
- *Trans* has melodies that develop within the fabric of the work. *Black Snow* lacks any real melody at all.
- The dramatic program for each work is very different, if indeed any dramatic program for *Black Snow* is present at all. The book *Black Snow* is about the members of the Moscow Arts Theatre in Moscow and is a satirical work by Bulgakov. If the music of *Black Snow* in any way reflects the novel, then it is the parallel between the heavy-handed satire in the novel and the aggressive, confrontational style of Smetanin’s work. On the other hand, Stockhausen’s *Trans* which is written to be performed in a theatre, has been tightly organised in every aspect of its musical material. This organisation of the orchestral players, which could be described as subjugation, is apparent in the spectacle of the players on stage, sitting rigidly, all bowing in exactly the same manner according to Stockhausen’s instructions, and changing notes at the weaver’s shuttle sound.
- There is a place, given with examples in the thesis, where *Black Snow* mirrors the final bars of *Trans*. These bars feature the stepwise motif that Smetanin uses in a structural way throughout *Black Snow*, and can be seen to be an extension of his treatment of the stepwise motif.

Therefore, it is obvious that Smetanin has observed aspects of the compositional material in *Trans* that appealed to him, and has used it to his own purposes, the block chords, the percussive device, its parallel with the triple strike in *Trans* and the similar textures. But are the two works really all that similar? How much of Stockhausen is really present in Smetanin’s work, *Black Snow*? How much of Smetanin is present in *Black Snow*?
To answer the first question, I would say that, as observed above, superficially Stockhausen is present in *Black Snow*, but the essence of the work *Trans* is in no way present in *Black Snow*, neither in its organisation nor its mood. There is also a tightness to *Trans* that is entirely lacking in *Black Snow*.

To answer the second question, it is relevant to note that a composer’s individuality is achieved by virtue of what is present in the music. Smetanin has said that Stockhausen’s music is a source for him of compositional methodology. This is certainly evident in *Black Snow*. It is reflected in how he has shaped the percussion motif, how the step-wise motif reflects the triple strike, the sustained block chords, and the wave pattern.

But if the question is put as to whether Smetanin has expanded his present-day vocabulary in *Black Snow*, the answer would have to be in the negative. Is the man Smetanin present in this music? Yes, for those other attributes in the music, its confrontational style, the harmonies, rhythms, dynamics and instrumentation and freedom of spirit are uniquely those of Smetanin.
Bibliography


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APPENDIX A

Owing to the poor quality of the tape, this transcription is an edited version of the original interview. The questions at the end of about Stockhausen's *Trans* were the result of a telephone conversation with Smetanin to clarify the more important points in this interview that were inaudible on the tape.

J.O. Richard Toop says in his paper *Michael Smetanin's Stroke: An Analysis*, that *Stroke* is a spin-off from *Black Snow*.

M.S. The 2 pieces were written relatively closely together. I wrote *Black Snow* first and then immediately after *Black Snow* I wrote a solo mandolin piece which was my biggest piece and then *Stroke* was written in 1988. There were maybe only 1 or 2 pieces after *Black Snow*, which harmonically and melodically speaking, are the same type of pieces and at that time I was using a scale or a mode.

J.O. Can you confirm for me the notes of the mode, because Ryan Daniel is quoted as saying in his thesis that the mode contains a ‘D’, and there appears to be some confusion about the actual notes in your mode.

M.S. The notes of mode are \(CE\#E\#FGB\#B\#C\). It does have a ‘D’ transposition.

J.O. So (using transpositions and tetrachords) is how you worked out the use of your modes in *Black Snow*? In Ryan Daniel’s thesis, you are quoted as saying that the B-C actually belong to a number of the modes.

M.S. It’s not really working in tetrachords either, it’s just that the nature of the major scale is that there are two tetrachords, the bottom tetrachord and the upper tetrachord. As in a major scale, the two semitones or two consecutive notes in the modes will pivot to certain other modes. The top tetrachord is the transposition up a 5\(^{th}\), the bottom tetrachord will work in a kind of a cyclic thing – I mean if you have your circle of 5ths it will work almost systematically as well. With the notes B C, the last 2 degrees of that mode (C), they’ll be degrees 3 and 4 of the transposition a bit higher and all those kind of relationships always occur because they’ll be a circle of
5ths. It's just like the 7th and 8th degree of the C major scale are the 3rd and 4th degree of the G major scale. When you write in C major, you don't restrict yourself to one tetrachord. That's how it is in Black Snow. Also, you need to remember that the mode when it's descending, it's not the inversion, it's just the ascending version of the mode going backwards.

Sometimes you have notes that don't actually belong to the mode. If a note doesn't quite fit into a key, it's because the notes were used because they create a slightly off-key (sound) and more bite, notes that don't quite fit the harmonic system are there for orchestral coloration. Harmonically and melodically stick to the mode and you'll be right, and if things don't add up it's because they've been either added chromatically to, but you should be able to get some kind of notion of the majority of where the pitches actually fit.

I think the way Messiaen thinks. He uses his modes and transpositions in a very ad hoc way. If he wants his scales he'll use this one or that one, and if he wants his almost whole tone scale he'll use that, and he slips from one to the other when he wants, sometimes adding notes, starting with in a chord on the dominant, and all that kind of thing, and he has a kind of general pitch harmonic melodic language, taking it off the palette, taking anything. That's very much what that is there, in fact when you look at everything, you can see the mode quite clearly, most of the time there. It's almost a coloration of a chromatic mode. You might have G as a starting note, the other notes may be something in the harmony around it, having a hint of the G mode, but in a much more chromatic harmony, much more chromatic area maybe just for 1 or 2 bars. But it's a kind of different level, a different intensity of the colour of that transposition. Messiaen was about the only composer that ever published a tome on musical language and yet he's the one that uses his own language in the most ad hoc way. It's not serial music.

J.O. One of the things I noticed with your piece is that you have elements such as the sustained chord, the percussion motif, the scales, the wave pattern, glissandos with or without harmonics, and the step-wise motif. Richard Toop talks of elements in his analysis of Stroke.
M.S. Yes, they could be called elements. The glissandos are not an important texture. They are used to provide orchestral colouration, but not an actual musical device, rather a gesture. I think it could be called instrumental colour. In places they function as a kind of like a dramatic insert, but the natural harmonics - what I wanted was for them to work as a sort of resonance of the previous harmony, like an echo. The dark busy pages are inserts in Trans. But the other one I think after that, the triangular shaped motif (step-wise motif) is much more important.

J.O. Could you talk about the stepwise motif? What I noticed about the step-wise motif was that whenever you get to the 5/4 bar or another type of triple time, it appears with the percussion motif.

M.S. You could call it the resonant element. The figure is very full on, very confronting, and there are moments where it’s extremely important in the piece. (The step-wise motif) is realised on a number of levels. It’s also a kind of realisation of the percussion motif. The change of time signature at points where the percussion motif (plays) will be related to rhythmic cadences because rhythmic cadences are used at the end of sub-sections and phrases to assist in signalling the end of (that particular event) like a comma, or a punctuation mark. The wavy stuff (is an) undulating extension of stepwise.

Page 7, at the end of the 2nd paragraph, the extended (step-wise motif) E-F-E, F♯, however the thing is that that F♯, the bottom note of the chord is an F♯-but F♯ C D G, that is a transposition of the E chord to a D version of the chord. What you get in the oboe, that is a revoicing of the E chord transposed onto the D.

The percussion motif signals changes, which is a Trans idea. The weaver’s shuttle taped sound - double, and then a triple – that’s only at the end of a section. Stockhausen has one idea and sticks to that idea in Trans. See the triple signals both the beginning of a section or the end of the previous one and then you have a double time stroke – here, and here, which signals the countdown. Once again, with Stockhausen, the original system doesn’t mean that the sound that he wants to target is one he will stick to if it doesn’t work. I had a form plan for the whole thing, what is going to happen and when, it’s not serial in that sense, but when something is put in
outside that plan, it is done so because of the music. This should be two beats and not three beats. (There are) all these inconsistencies when you analyse *Trans* about this. You find there’s an extra bar, and you find other inconsistencies, and the further and further you go into the piece, the more inconsistencies there are.

J.O. So in your piece here, is there a plan for changing the time signature? You plan deliberately to change it from 3/2 for some reason, the accents occur further into the bar, on different beats of the bar, and when you change the time signature back to duple, you have an accented marking with accents on the first beat of the bar.

M.S. Yes, it’s a little like Messiaen in the way that Messiaen, you know when Messiaen has dots or double dots – augmentation. Well Messiaen uses this rhythmic elongation thing – rhythmic cadences often on notes in bars with the extra beat. Also the other thing, the particular musical feeling is kind of allied to 3 + 4 in that there is a kind of feeling of going up and exactly the same kind of thing in retrograde of coming down, taking a little bit longer, so that inbuilt in that idea is a kind of a rhythmic cadence as well, because it trips you up.

The 3/8 bar actually is to accommodate that little rhythmic cadence. It makes musical sense to bring something in on a downbeat like that. The idea of the (3/4 bars, 3/8, 5/8 bars) this is a kind of a rhythmic cadence sort of thing.

J.O. Is this a melody that you have written out between bars 12-21? You’ve got this idea here where it’s something not unlike a melody. The music slows down through longer note values.

M.S. It’s not a melody, it’s a written out deceleration, it’s a written out ritardando, very like a kind of a sort of escapist point, a momentary writing away a little kind of bridge, it’s actually a dramatic insert. The music relates to low/high, low/high, gradually getting slower, that there is related directly to the E chord, to the F and then the E chord triangular thing that comes up at the end of it.

J.O. Would you explain the idea behind the opening bars of sustained notes? When you start off, you’ve got a lot of dynamics from fff and you have an accent on
the last quaver of the bar. It looks like phrases. You have an accent on the first beat of the bar lasting 8 semiquavers, and then you have an accent on the last semiquaver lasting 8 semiquavers, dislocating the main beat with the accents.

M.S. Dislocating the main beat kind of thing? The chord superimposition is, a lot of the time, the harmonic structure in the piece, but particularly in the beginning, the separation allows a sort of superimposition, it makes the harmony a little bit easier to hear, to hear the more fundamental element of the harmony. It’s a slightly “out” version.

J.O. So you mean to put them in a slightly ‘out’ version.

M.S. Those type of markings were not intended to be structural in any way. Once again they are there to render the music much more clearly and effectively.

J.O. In the tuba and bass guitar, you have quite long phrases, and in the 2/2 bars, you have uneven rhythmic phrases, which either last for 8 semiquavers or much longer.

M.S. That is a broadening out of the previous idea. The dynamics with the sfz do not necessarily play a huge structural part, I put them in there for attack, for the energy levels but they are not structurally important.

Then the 5:4 stuff, particularly where 5:4 in quavers in the percussion comes in, in the woodblocks etc., is actually a rhythmic – you can look at that as a kind of a rhythmic acceleration relative to the chord superimposition, the harmony superimposition - as a different superimposition of metric modulation like 2 tempos working at the same time.

J.O. That’s a rhythmic acceleration, two rhythms like that working at the same time?

M.S. It is the same species of material; it’s just that first time it is acceleration, that is the same piece of material of the stuff that we saw in de-acceleration the first time.
This time, it’s the same material, except that the first time it was de-acceleration, a low chord and a high chord, this time we take acceleration we take a high chord and a low chord, it’s the same notional material just treated slightly differently this time.

J.O. OK that’s related to this – it looks the same.

M.S. It starts off much more like that and it kind of accelerates, much of it is accelerating into that tempo, here at the beginning of the phrase, it’s as if you’ve got material you got before in the previous tempo, you suddenly got metric modulations in this material instead of before it accelerates to join into the 5:4 but then it returns.

J.O. Would you comment on the form of the piece? Ryan Daniel in his thesis says that it has an introduction, an extremely large developmental section and a short return or final section.

M.S. I don’t think I ever did actually think of it as a short introduction, and a short final section and an extremely large middle section, with the development of the elements. It has to be a bit more compartmentalized.

After discussion of my presentation on the first section of Black Snow, Smetanin comments:

You’re starting to get the picture of the extremely long opening section and extremely limited material and it’s all about trying to get mileage out of the material without it sounding minimalistic.

J.O. Bar 61 you have notes with the longer note values, and then at bar 63-71….

M.S. This is another sort of embellishment of that kind of idea coming through, a kind of descendingish melodic thing from the mode.

After further discussion about the presentation, the author turns to another aspect of Black Snow.
J.O. I would like to discuss the relevance of the novel. How pictorial is the music as related to the novel? I want to talk about your approach just a little bit – the use of tone colour to create an impression of snow drifts. The actual makeup of the chords is to create a snow (storm) or snow drifts?

M.S. I think we’re starting out to talk too much about snow drifts and that’s because it wasn’t in my idea – it was really a kind of a curtain sort of thing with fluctuations within it. The entire band, and sometimes, in order to make something clear, you need to open up space around it and have it a little bit isolated in the middle (makes a wavy sound)- like that, but I mean, but you’ve seen at the beginning of the piece you know the first time it [inaudible] (makes a wavy sound again), that’s the first of those disturbances and gradually through the piece, you get more and the bands become wider and wider through different registers, through being connected and you get these very wide stretches through 17 parts, and then at [mentions a particular point in the score], well the orchestra’s completely down and the orchestra is full from top to bottom.

That’s a musical death trap there allied to that idea. I know Richard wrote the program notes– I remember speaking to him when he was writing those notes. There was definitely the thinking of snowdrifts kind of thing, but it was not going to be a sort of a Victorian pastoral kind of thing. The other interesting thing is about the orchestra’s reaction to the piece as well. In Black Snow, their precious little egos were put under the microscope, and in the rehearsals of Black Snow, the orchestral players were behaving worse than the people that Bulgakov was satirising.

J.O. Would you comment on the premiere performance of Black Snow and how it was received?

M.S. There were some people in the orchestra that loved it, particularly the percussionists - they said they wouldn’t go on strike. A lot of the orchestra didn’t “get” it, they didn’t dislike, some of them really liked it. The audience reaction was largely very very good, but there was a good amount of booing, but there was a also a huge amount of ‘raaing’ and clapping and screaming and whistling, and a huge amount of people standing and clapping. So it was very good because it doesn’t
normally happen. So I guess there was a very polarised reception both in the orchestra and particularly on the day. I mean I had people asking me to sign their programs. There was another guy that – whatever it was, after my bow, I went out to stand in the bar and there was a guy that came out, he was a Polish fellow who would have been 60. He said ‘it reminded me of the Germans during the war’. He said “he thought the piece was very very good’. We’re talking about people you’d maybe see standing in the corner before a concert and if you had to judge a book by its cover, you’d never pick him.

J.O. Is it part of the Sydney Symphony’s Orchestra’s repertoire now?

M.S. No.

J.O. Wasn’t it the case that Melbourne didn’t want to do it?

M.S. Oh well, the conductor was not well and they were going to do it twice on the Friday and Saturday night. And Monday they were going to Japan for a tour and they had to rehearse Mahler Five and didn’t want to rehearse my piece. The other thing too, there was some kind of mix up, and whoever wrote the saxophone parts either did not copy the lot. So when it got to the first rehearsal and they did read through the piece, the saxophonists that had been hired didn’t have a complete part. They called the copyist in immediately and someone came in and was copying the saxophone part out and at that stage they decided to pull the pin.

*When discussing Stockhausen’s Trans, Smetanin states:*

M.S. *Trans* is organised, but it’s not serial.

J.O. You also went on to say something about *Trans* - something about the beginning of *Trans*… ‘Stockhausen’s actually in on it as well…and sheets and waves of writing music like I write – of building up and up’.

M.S. That’s something’s that has always interested me – reworking and letting it evolve to get the new material - to get the notes.
J.O. Could you please outline your involvement with Stockhausen’s music, particularly *Trans*?

MS He came for a six-week (thing) when he came to Netherlands, he wasn’t giving compositional lessons. After the lecture, I introduced myself to him but have had no other contact with him.
Appendix B: List of Works by Michael Smetanin

Triskelion - Piano Trio Nr. 1 (1978) piano, violin, violoncello.

Eight (1980) 3 pianos and 3 loudspeakers

Three Songs (1980) three female voices & piano

Troika (1981) 2 flutes (piccolo), 3 clarinets (bass clarinet), 2 oboes, 2 bassoons (contrabassoon), 2 horns, 2 trumpets, 3 trombones, 2 percussion, piano, strings.


Zyerkala: Concerto for Amplified Piano (1981) solo amplified piano, 3 flutes (2nd doubling piccolo), 3 oboes (3rd doubling cor anglais), 3 clarinets (3rd doubling bass clarinet), 2 bassoons, contra-bassoon, 4 horns, 3 trumpets, 3 trombones, tuba, percussion (3 players), timpani, harp (amplified), bass guitar (amplified), strings (8.7.6.5.4).

After the First Circle (1982) 2 flutes, 2 oboes, clarinet in B flat, bass clarinet, bassoon, contra-bassoon, 2 horns, 2 trumpets, 3 trombones, percussion (1 player), celesta, piano, strings.

Afstand (1983) 2 pianos.

Lichtpunt (1983) flute/alto flute-piccolo, clarinet/bass clarinet, percussion (cimbalon/marimba/vibraphone), piano, 2 violins, violoncello.

The Speed of Sound (1983) 4 percussionists.


Per Canonem (1984) 2 piccolos, 2 alto saxophones, 2 percussionists, 4 pianos, 2 trombones.

Track (1985) 2 pan pipes, 2 alto saxophones, 2 percussionists, 4 electric pianos, 2 bass guitars.

Bellevue II (1986) tenor/bass trombone, tenor saxophone, percussion (1 player).


Sting (1987) solo mandolin

Fylgjir (1988) flute/piccolo, oboe, clarinet, bassoon, horn, piano, violin, viola, violoncello, double bass.


Something's Missing Here (Ik Mis Hier Iets) A Postcard From Holland Nr. 4 (1988) piano.


Blitz (1989) 2 flutes (doubling piccolos), 2 oboes, 2 clarinets, 2 bassoons (2nd doubling contra-bassoon), 2 horns, 2 trumpets, percussion (2 players), strings (6.5.4.3.2).

Exit (With Speed) (1989) 2 flutes, 2 alto saxophones, 2 tenor saxophones, 2 bass saxophones, 2 tablas, drum set, 3 double basses.


Spray (1990) alto flute, bass clarinet, piano.

Strange Attractions (1990) flute, bass clarinet, piano, violin, viola, violoncello.

Minimalism Isn't Dead - It Just Smells Funny (1991) 4 percussion.


Adjacent Rooms (1992) soprano, mezzo soprano, alto, tenor, 2 baritones, piano, marimba, vibraphone.

Nontiscordardime II (1992) piccolo.


Cossack Song (1992) 4 voices.
Poem C (1992) 2 sopranos, alto, tenor, bass, baritone.

Sharp (1992) bass clarinet, piano, viola, violoncello.

The Skinless Kiss of Angels (1992) mezzo soprano voice, baritone voice, flute/piccolo, oboe/cor anglais, clarinet/E♭ clarinet, bass clarinet, trumpet, trombone, harp, piano, percussion, mandolin, guitar, violin, viola, violoncello, 2 double basses.

The Burrow - libretto, Alison Croggon (1993) baritone, SMSATBB chorus, tenor, soprano and bass soloists from the chorus, flute/bass flute/piccolo, trumpet, alto/soprano saxophones/clarinet, bass/baritone saxophone, piano/sampler keyboard, violoncello, 2 double basses, 2 percussionists.

Women and Birds in Front of the Moon (1994) flute/piccolo, 2 flutes, 2 oboes, oboe/cor anglais, 3 clarinets in B flat, 2 bassoons, bassoon/contra bassoon, 4 horns, 3 trumpets, 3 trombones, 1 tuba, harp (amplified), piano (amplified), percussion (4 players), timpani, strings (16.14.12.10.8).


Shakhmat / Supremat (1995) solo flute, 10 violins, 3 violas, 3 violoncellos, double bass.

Tube Makers (in Three Bits) (1995) bass clarinet, percussion (2 bongo drums, 2 conga drums, 4 tom toms, marimba (5 octave).

Chromium Yellow (1996) oboe d'amore, harp and tape.


Roar (1998) flute, oboe, clarinet, bassoon, solo bass clarinet, 2 horns, trumpet, trombone, tuba, harp, piano, percussion (2 players), strings.

Kartenspiel (1999) 2 pianos, percussion (2 players: Player 1: 3 timpani, 5 octave marimba, rota tom, floor tom; Player 2: Chinese belltree, crotales, vibraphone).

Kuzanagi (1999) 2 flutes (2nd doubling piccolo), 2 oboes, clarinet in B flat, bass clarinet, bassoon, contra-bassoon, 4 horns in F, 2 trumpets in C, 2 trombones, tuba, percussion (3 players), harp (amplified), strings.

The Shape of Things to Pass (1999) for small orchestra - flute, oboe, clarinet/bass clarinet, bassoon/contra-bassoon, 2 horns, trumpet in C, trombone, tuba, harp, percussion (3 players), strings.
Eternal (2000) flute, 2 clarinets in B flat, 3 saxophones, horn, 3 trumpets, 3 trombones, piano.

Seas of Steel - Drumming from Portugal (2001) steel drums, 5-octave marimba.

The Power of Everyday Things (2002) flute, 2 clarinets, 2 alto sax, horn, trumpet, 2 trombones, tuba, electric guitar, bass guitar, percussion and piano.
Appendix C: Instrumentation for *Black Snow* and *Trans*.

Both orchestras operate with distinct groups of instruments, Stockhausen with four and Smetanin with five. In *Trans*, Stockhausen organised the combinations of the groups and when they played, so that the greatest possible number of combinations should occur with the equal occurrence of all 4 groups.

The list of instrumentation for each of the works is shown below:

<table>
<thead>
<tr>
<th>Black Snow</th>
<th>Trans</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Woodwind</strong></td>
<td><strong>Group I</strong></td>
</tr>
<tr>
<td>4 flutes (piccolo 1 &amp; 2 and flute)</td>
<td>4 flutes</td>
</tr>
<tr>
<td>(alto flute 3 &amp; 4 and flute)</td>
<td>1 B, bass clarinet</td>
</tr>
<tr>
<td>4 oboes (oboe 1 &amp; 2) (3 &amp; 4 cor anglais and oboe)</td>
<td>1 celesta</td>
</tr>
<tr>
<td>2 saxophones (1 alto and soprano) (2 alto &amp; tenor)</td>
<td>1 percussionist (for 1 cymbal)</td>
</tr>
<tr>
<td>2 B♭ bass clarinets (3 &amp; 4 also B♭ clarinets) (4 also contra bass clarinet)</td>
<td><strong>Group II</strong></td>
</tr>
<tr>
<td>4 bassoons (4 is also contrabassoon);</td>
<td>4 oboes</td>
</tr>
<tr>
<td><strong>Brass</strong></td>
<td>1 trombone with F valve attachment</td>
</tr>
<tr>
<td>6 horns in F</td>
<td>1 percussionist (vibraphone, cow bell, 1 “sizzle” cymbal 3”, 1 cymbal 4”)</td>
</tr>
<tr>
<td>4 trumpets</td>
<td><strong>Group III</strong></td>
</tr>
<tr>
<td>4 trombones (4 bass trombone)</td>
<td>4 B♭ clarinets</td>
</tr>
<tr>
<td>1 tuba;</td>
<td>1 bassoon</td>
</tr>
<tr>
<td><strong>Percussion</strong></td>
<td>1 contrabassoon</td>
</tr>
<tr>
<td># 1 - marimba, roto tom, guire, 2 temple blocks, 1 tam-tam (with plastic tube)</td>
<td>1 percussionist (tubular bells, 2 gongs with raised centres)</td>
</tr>
<tr>
<td># 2 – 2 whip, 5 small gongs (any pitches), 1 tam-tam (with plastic tube);</td>
<td><strong>Group IV</strong></td>
</tr>
<tr>
<td># 3 – woodblock, 2 log drums, (smaller, larger), 5 octatoms (boobams);</td>
<td>4 B♭ clarinets</td>
</tr>
<tr>
<td># 4 – 1 large bass drum (gong drum), 1 regular bass drum;</td>
<td>1 tuba</td>
</tr>
<tr>
<td># 5 – 5 tom-toms, 1 large crash symbol (player 5 may be the timpanist);</td>
<td>1 percussionist (3 tom toms, 1 bass drum, 1 tam tam. 1” infantry drum”)</td>
</tr>
<tr>
<td>2 amplified harps</td>
<td></td>
</tr>
</tbody>
</table>
DISCOGRAPHY

SOUND RECORDINGS


Stockhausen, Karlheinz. *Trans for Orchester*, 1971. The recording of the world premiere in Donaueschingen on October 16th 1971 with the symphony orchestra of the Southwest German Radio conducted by Ernest Bour and with the sound-projection of K. Stockhausen documents.


SCORES

Smetanin, Michael. *Black Snow* (1987) for orchestra. Handwritten score supplied by the composer. It was commissioned by the Australian Broadcasting Corporation with assistance from the Music Board.
of the Australia Council in 1987. It was written in that year and premiered in May 1988 by the Sydney Symphony Orchestra.

Smetanin, Michael. *Stroke* for Piano (1988). It was commissioned by Lisa Moore with assistance from the Performing Arts Board of the Australia Council. The score is available at the Australian Music Centre, Sydney.

Stockhausen, Karlheinz. *Trans* für Orchester Werk Nr. 35. Published by Karlheinz Stockhausen Publishing company. The recording of the world premiere in Donaueschingen on October 16th 1971 with the symphony orchestra of the Southwest German Radio conducted by Ernest Bour and with the sound-projection of K. Stockhausen documents. The score is available at the Music Library, University of Western Australia.

Xenakis, Iannis. *Ais* for Solo Percussion, Amplified Barytone and Orchestra, (1980). Commissioned by the Bayerischen Rundfunk of Munich and premiered February 13, 1981 at the Herkulessaal der Residenz at the Musica Viva concerts by Symphonieorchester des Bayerischen Rundfunks. The score is available at the Music Library, University of Western Australia.
ORIGINAL COMPOSITIONS

Tree of Glass for Flute, B♭ Clarinet and String Quartet
Dimensions for String Quartet
Night Shift for Orchestra
Bunch of Fives for Wind, Strings, Piano and Percussion
Night Dances for B♭ Clarinet and Violoncello
The Original Compositions section of this thesis could not be included in this digital thesis for technical reasons. See the physical copy, which is held in the University Library, for the musical scores for these Compositions. A disk containing sound recordings of the Compositions is held with the physical copy of the thesis.