Merging 20th Century Art Music and Pre-recorded Sound: 17 Pieces

by Geoff Geer

in part for a PhD in Music
Oxford Brookes University
School of Arts, Faculty of Technology, Design and Environment

Merging 20th Century Art Music and Pre-recorded Sound: 17 Pieces - Geoff Geer

link:
https://www.broadjam.com/albums/geoffgeer/tadvanalila-the-broken-oracle-a-desolate-market-through-the-six-worlds

Tadvanalila, Part I 8.25
Tadvanalila, Part II 7.31
Tadvanalila, Part III 8.04

total time 24.00

Tadvanalila, Part II (for string quartet) 7.42

Demon Sands, 4.33

A Desolate Market 5.09

The Broken Oracle, Part I 5.08
The Broken Oracle, Part II 4.31

total time 9.39

Like the Night 3.08

Through the Six Worlds, 1 Hungry ghost realm (Preta) 4:38
Through the Six Worlds, 2 Animal realm (Tiryagyoni) 4.34
Through the Six Worlds, 3 Human realm (Manuṣya) part 1 5.41
Through the Six Worlds, 4 Human realm (Manuṣya) part 2 4.36
Through the Six Worlds, 5 Hell realm (Naraka) 5.13
Through the Six Worlds, 6 Demi-god realm (Asura) 3.58
Through the Six Worlds, 7 God realm (Deva) part 1 5.05
Through the Six Worlds, 8 God realm (Deva) part 2 3.10

total time 37.00

all pieces 91.25

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Abstract

Aims of the investigation:

The research investigates the relationship between acousmatic music and instrumental music, using developments in 20th century western art music to define its context including the compositional practices of Arnold Schoenberg (d.1951), Claude Debussy (d.1918), Nikolai Roslavets (d.1944), Luigi Nono (d.1990), Iannis Xenakis (d.2001) and Natasha Barrett (1972-). This was a practice-based PhD resulting in the creation of a series of new compositions for a variety of forces that addressed the following research questions:

1. What have been the problematics of the development of compositions for acousmatic and acoustic instrumental forces and how are these present in the work of the key practitioners referenced above?
2. What are the cultural conditions that have precipitated the perpetuation of the problematisation of the relationship between acousmatic and acoustic compositional practices?
3. Is it possible to generate a series of original sound compositions that explore and provide potential solutions to the problematic at the core of the research?

The pieces that where investigated and referenced were:

Claude Debussy: *Nuages*, movement 1 from *Trois Nocturnes*
Arnold Schoenberg: *String Quartet No. 2, Op. 10*
Nikolai Roslavets: *5 Preludes*, *In the Hours of the New Moon*
Luigi Nono: *Intolleranza 1960*, *La Lontananza Nostalgica Utopica Futura*
Iannis Xenakis: *Pour la paix* (musique concrète/choral), *Diamorphoses* (musique concrète)
Natasha Barrett: *Submerged* (acousmatic), *Little Animals* (acousmatic)

The research determined which techniques work well together to create original and balanced art music, and explored different ways of creating dialogue between sound-objects and instruments. The techniques under investigation, to use with music for orchestra and tape, are Debussy's chromatic mediant relations, Schoenberg's 12-tone serial techniques, Roslavets's transpositional near symmetry by quints, extreme orthography and synthetic chords, Nono's narrow-banding of note groups and the idea of democratic lines, Xenakis's atonal architectural techniques like unions (intersections) and differences of sets, and Natasha Barrett's coarticulation of sound-objects.

Introduction

I began each piece with research into the techniques of the composers in question, I gathered live field recordings and composed melodies for a back-catalogue, as midi files. I would employ the melodies and begin to harmonise them, using the pre-recorded sounds as sound-objects to embellish, accompany or contrast. The pieces where usually written in block sections and I used reduced listening, stepping back to hold the image and continually rework and develop. I explored the compositional techniques in practice while continuing research that would give me ideas of how to combine and structure through processes. The writing was continual with the score being the last process. In some of my works I temporarily placed text in my Logic sessions while composing the music, much akin to making notes. This text was placed as comments in the arrange window with the sound-objects and instruments, and could directly affect the score notation. For example comments could talk about certain sound-objects becoming denser or containing other properties, like serialist properties. I found these textual notes helpful in gaining a clearer picture or sense of what is happening behind the scenes, and comments could even talk about comments. Where lengthy processes of ordering are concerned score text for the sound-objects really helped, especially when these sound-objects are in constant dialogue with instruments. I marked gaps and other processes that may need attending to.

The outcomes include unique works of musical art that explored the relation between instrumental and concrète layers within a large body of work. When combined with music for orchestra and tape, researched techniques created an original set of compositions. The first eight pieces investigated amounts and densities of sound-objects in relation to various forms of instrumental passages created with investigated techniques. Modern and post-modern ideas of narrative and form were explored: structural interaction regarding time, time cuts, palindromes, recapitulation, fragmented structuring and mediation, continuity and discontinuity, coherence and decoherence, complex and simple patterning, density and spareness, and many other contrasting features that derive form. I wanted the work to engage the listener thoughtfully or meditatively. I explored hypermodernism and liminality, the in-between areas of overlapping forms.[1] Contrasting techniques, like Roslavets's synthetic chords, Schoenberg's serialism, Debussy's mediant chromaticism and impressionistic techniques, Barrett's coarticulation of sound-objects, Nono's tonal banding and democratic lines and Xenakis's unions (intersections) and differences of sets, were used, acousmatically and instrumentally, in sustained fashion to create allusions and symbolism, which explored narrative. Non-standard musical syntax and narrative were used, for example abrupt contrasts between the concrète and instrumental layers, line swapping between instruments at unexpected times, slippage between phrases,[2] missing notes and mismatch negativity (MMN). Post-modern irony and temporal shuffling were to be combined with various styles of lyricism such as the modern, romantic and post-romantic. Gestures, textures, motifs, phrasings, timbral colourings and techniques that create motion would combine in novel ways within both layers to produce diegetic form, and a third subtextual entity would be created between the contrasting layers. Sonic events are perceptible on multiple levels with changing interconnected textures. Repeating cloned and variant sound-objects hint at hyperreality. The investigation was into sustained forms of narrative for orchestra and tape music with real instruments contrasting an acousmatic layer.

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[1] Use of devices will be liminal, or overlapping and syncretic.

[2] These slippages are similar to polyrhythms.

The work plan comprises research, transcription, composition, writing, reduced listening, arranging and production.

Phase 1. Preliminary research into the techniques, compositions, composers and answering the research questions.

Phase 2. Identifying key ideas from the composers' compositional notational structures and key acousmatic ideas. Composing the instrumental orchestrations with acousmatic text on top staff and incorporating them into the work creatively, in a novel way, through investigation of techniques used in the studio. Investigating modernist and post-modernist aesthetic thought and applying it compositionally and creatively. Research is carried out while composition is in process for the preliminary work, *Through the Six Worlds*.

Phase 3. The final pieces are written, going into more depth using the techniques in various ways. Conclusion and findings of what did and did not work. Finalising all work and re-examining the theory and ideas behind the music, including the philosophy and theory. Stripping back non-essentials and post-production to streamline the art and writing. Producing and publishing finalised scores and recordings, along with the commentary.

The research details comparisons in musical diegesis and dialogical structures between 20th century art music and acousmatic music, using bricoleur techniques through praxis to highlight the interrelations that the two musics may have when formed as a single music. The pieces highlight different aspects of interaction between the acousmatic and instrumental layers, through amounts, densities, timings, transformational amounts, coherences, decoherences, continuities and discontinuities, and determinacy and indeterminacy within and between the sound-object and instrumental lines. For example, dense acousmatic material with sparser notational material, vice versa, or similar amounts could be included in a single piece. Other pieces explored variations and mixtures within a piece and different angles would be explored. The work is a form of fixed-media composition for ensemble and would be 60-90 minutes in length, with the first eight works containing some musical references. I examined compositional techniques, intertext in composition, sound and aesthetics, with research in musicology and relevant fields. The sonic art, or acousmatic/concrète layer, utilised field recorded sounds. The main objective was to create dual-layer works, with one layer of treated pre-recorded sounds and one layer of instrumental composition, that investigate interactive structures, contexts, musical dialogues, diegeses and contrasts between two layers. Ontologically the idea was to create unique forms, distinctions and contrasts through oppositions in sustained fashion, and insights might be derived after developing each piece. I was interested in order and chaos, and complexity's bearing on aesthetics. I was interested in recomposition and the idea of living art.[3] 20th century composers had to reinvent in ways that their predecessors did not, more elaborate ways that were less functional and more transformational, for example Bach's reinvention of Vivaldi's work that intended to make it more functional for organ performance, or Schoenberg's reinvention of a Bach organ work for symphony intended as a new piece of similar integrity.[4] When used for orchestra and tape music these combined techniques would create original works.

The research looks at previous knowledge and practices in the areas of acousmatic music and 20th century classical music and their overlap and relations, with exploration of merging the genres practicably and noting the findings. The thesis is that combined and sustained dialogue between these genres in a single work can use many devices, some shared, that give rise to original compositions. Musique concrète and classical art music were created using aesthetic functions, devices and processes that can be determined, systematised or categorised and applied in practice. How does 20th century acousmatic music relate to 20th century classical art music? What structural and diegetic relations can exist and function between them? The goal is to generate an original body of compositions through research into compositional and aesthetic techniques and ideas, mainly from the five 20th century composers in question, but a few other important findings may be used if relevant. The secondary theme of the work is to explore direct referencing of material and processes in an original way within the first eight compositions. Since this direct cross-referencing of material, known as plunderphonics in contemporary musics, is done rarely in classical music due to plagiarism issues, there is an indicated gap in knowledge. In musical structuring passages arise through reduction, socio-cultural conditioning and experience.[5] Intertextuality that forms potentials, deriving form between notes and phrases, and between sound-objects and coarticulate groups, is also one of my interests. The research may also involve aesthetics and philosophy, music theory, linguistics, art and other relevant fields.[6] Along with exploration of compositional techniques the work will also explore frameworks and structure within the compositions, for example through syntaxes, linguistic analogies and scientific or mathematical relations (e.g. sieve theory). After the initial eight compositions, further works would be done that combine the insights and compositional techniques. The practicable aim is to report the processes, analyses and findings. This work would culminate in two live recordings merged with the pre-recorded sounds.

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[3] Joseph N. Straus, 'Recompositions by Schoenberg, Stravinsky, and Webern', *The Musical Quarterly*, 72/3 (1986), 301-328 (p. 301).

[4] Joseph N. Straus, 'Recompositions by Schoenberg, Stravinsky, and Webern', *The Musical Quarterly*, 72/3 (1986), 301-328 (p. 302).

[5] For example, a particular instrument or instrument group combined with certain tropes, phrases, modes, cadences, progressions and tonality may be instantly recognised as geopolitically ethnographic. Thus musical semiotics and specific tropes may invoke counterparts in linguistic semiotics through connotation.

[6] There was some preliminary research into linguistic structures and ideas, philosophical ideas on phenomenology, aesthetics and form and I briefly looked at the ideas of Jean Boudrillard, Gaston Bachelard, Merleau-Ponty, Edith Stein, Jacques Lacan and Thomas Aquinas.

I wanted to progress further into composition, to learn more about structure and form, and I was fascinated with modern art music and acousmatic music. I had used acousmatic techniques over the years in producing music and had composed some acousmatic music. This culminated in an idea to learn more about both genres by investigating the possibilities of fusing them into two layers in sustained dialogue. Early on I considered some of the main factors between the two layers in music for orchestra and tape to be dialogical amount, dialogical timing, dialogical transformation, and later on cohesion to non-cohesion amounts. I was fascinated by shared and contrasting contexts and mediations in and between the layers. Symbol is essential to create art and art is communicative by nature, and I felt that context would create symbols between the layers through processes and techniques. I used hypermodernist cloned objects and events and there is also some influence from world musics, for example I was trained in classical Indian music early on and travelled Indonesia many times having grown up in South East Asia. Modern cinema music has engaged somewhat with sound-objects though perhaps not at length. 20th century music radically departed from previous centuries and was ingrained in the socio-political philosophies of the time. The triadic played a strong role leading up to the modern period where everything was challenged, rules were broken and there was enquiry into the nature of structure and definitions of art and music that left an immense legacy. While there was Arnold Schoenberg's emancipation of dissonance with 12-tone technique shortly after Josef Hauer theorised it in the early 20s, Pierre Schaeffer's sonic art of musique concrète began in the late 40s. Not mentioned in my research is the German school that pioneered electronic synthesis in music, as I focus on acousmatic treatment of pre-recorded sounds contrasting instrumentation. I chose the piano to start with as the lead instrument and in the later pieces it fluctuates between providing texture, interacting with other instruments and sound-objects, and taking the lead. All of my sound fonts were free samples though I used a few commercial sample instruments at the very end.[7] The piano samples I had sounded realistic and I chose it as the lead instrument because it is able to produce counterpoint easily with a good range, able to produce sustained or non-sustained notes, and it is a good instrument to voice SATB. A harp or kanoon (zither) would have been another choice. The flute also became a main instrument because I loved the sound and the nature of the sample was good. I couldn't get a free violin sample that sounded like a solo violin or that could do fast runs realistically. I was fascinated with symbolism and narrative, the complex and simple, the concrete and abstract, coherence and decoherence, continuity and discontinuity, consonance and atonality or polytonality, the dense and spare, and many other contrasting features. I felt that having a poetic text to describe the sound-objects lent simplicity and a type of clarity overall. This is because nuances of volume and perceived volume can be complex, especially between the layers due to timbral differences, and I thought an intuitive, simpler, poetic approach best. Discretion and intuition is urged to level the concrète layer aesthetically as dynamics are few and contained within the score text. I was not as particular with the sound-object notation as timbre is hard to notate. I thought a poetic take would allow more imagination, though sacrifice on rhythmic precision. In this writing I would shorten alto flute and double bass to flute and bass. The research and practice would seek to uncover the differences, similarities and nature of relations between sustained, simultaneous concrète and instrumental art music in a rigorous, pragmatic, creative and methodical manner, and by comparing and contrasting referenced works and methods from the selected composers. A preliminary eight compositions would be written with short commentary to outline the processes, research and ideas explored, with further works after. The idea was to have contrast, harmony, gestalt and musical dialogue/diegesis and coherence/non-coherence by using the researched techniques and references. I transcribed some material by ear and altered the short references into allusions in *Through the Six* Worlds. For the instrumental part, notes may be altered with varying techniques, Schenkerian reductions applied, deeper forms uncovered, narrative devices used, variations created, rhythms and pitches expanded, contracted, reversed, palindromed, retrograded, inverse retrograded or randomly parsed. For the acousmatic part other techniques like transformations, transfigurations, reversals, palindromes, mimesis, narrative devices, cut-and-splicing, effect processes, time-stretching and recapitulation or foreshadowing may be applied.

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[7] Spitfire Studio Strings, Spitfire Studio Woodwinds, Spitfire Studio Brass and Pianoteq 6 Stage's Steinway and Bluethner.

There is a need to understand the simultaneous relationship between concrète music, also called fixed-medium or tape music, and instrumental art music compositions, which have predominantly been distinct genres, and this could shed light on general composition and aesthetics. By investigating the histories of practice and how they relate to each other, and through composing with the findings in mind and gaining feedback, more light may come to bear on their relationship and the possibilities of how the practices may be merged better. The central enquiry revolves around what syncretic techniques, devices and processes work well to form sustained dialogue between the concrète and instrumental layers.

Current practices for orchestra and tape music vary throughout academia and the professional fields, though little is written about developing or blending the two simultaneously at length. Few, if any, writings on tape musics that followed in the latter half of the 20th century investigate techniques used to create sustained dialogue between sound-objects and many instruments. Sound effects are used in modern musics, but not consistently across time with clear mediations and progression. This syncretic art form is characterised by its connection, cohesion and dialogical nature between instrumentation and sound-objects, discernible from live-electronics as the concrète layer is not manipulated live. There are a vast amount of electroacoustic and live-electronics works that have one or possibly two instruments combined with fixed media, though they are usually not fully scored for many instruments. There can be recorded snippets of orchestral and ensemble works in concrète music which would not generally be notated, and usually these sound-objects of instruments are not sustained throughout an entire instrumental composition. Live manipulation of sound-objects and synthesisers are recorded with instruments live in live electronics, even if material is prepared beforehand. Electroacoustic music does not often run orchestrations or larger instrumental arrangements alongside acousmatics in an obviously sustained way, and often can have just one instrumental solo line, while recorded sounds that are acousmatically treated, as in sonic art, concrète and acousmatic genres, are rarely heard as a whole work alongside a complex sustained instrumental score. The margin between live electronics and music for orchestra and tape is very slight, especially as it is far easier to manipulate material live in recent times. It is the live manipulation of the pre-recorded sounds that makes it more live electronics than fixed-medium (tape) music, and live electronics or tape music need not be acousmatic though there is usually a large acousmatic element to them—and these genres can have a purely synthesis-based, non-pre-recorded, layer interacting with instruments. Synthesis may also mean the algorithmic processing of effects on real-world sound sources, so synthesis has become increasingly part of acousmatic music.

Syncretic mixture of compositional techniques and different methodologies to investigate sustained relations between instrumental and concrète layers may create unique compositions. The techniques I used derived from research into 20th century instrumental and concrète compositions. Combining them in composition may elucidate how and which comparative techniques, heuristics, processes and ideas work well together. Old ideas and techniques would be blended originally. There was also some exploration into referencing works which yielded findings.

I first researched compositional techniques used by the composers, gathering notes on their ideas about creational processes and ideas on composition and aesthetics, then began selecting the bits of references that were striking to me which I would cut in an MP3 editor or in Logic, or copy directly if I could find the score. I would then transcribe the rough idea and place these references into different instrument tracks, shifting them about to get rough ideas and rewriting. I would also engage with texts regarding modern and post-modern aesthetics and thought, and there was further listening to relevant works and viewing scores, especially to get a sense of techniques, styles and genres. I felt I needed to know a lot of basic history and theory surrounding the music before beginning to compose. This would take around nine months and then I would begin the first eight compositions, honing each one to certain research while at times mixing the findings into syncretic techniques and ideas for composing, and this would take around another nine months. Then during the next nine months I would create a series of longer compositions based on the culmination of processes, ideas and combined techniques. The last nine months would be spent finishing the commentary and choosing a few of the strongest pieces to be performed live, culminating in a final exhibition and digital release.[8] During these last months I would edit the writing and also compose the last pieces. The materials used were Logic Pro (software), specific plug-ins,[9] mostly free instrument samples,[10] a Roland R-26 field recorder and Rode NTG-2 phantom powered condenser shotgun mic,[11] DT770 pro headphones which where rarely used, and lots of Nokia 105 earphones. I used scores with text along a top stave marked 'concrète layer'.[12] The pieces would be like symphonic poems, where listeners may imagine scenes, stories, ideas and moods, and sound-objects would lend strength to narrativity. References could be stripped of rhythm, instrumentation, and other features as an ursatz and altered contextually. My bucket of theory is a way of engaging musical narrative through creation and destruction, sometimes creating order to remove it. Early on I overlaid references, often with two piano parts until I got close to something I liked, and from there I would begin harmonic, voicing, diminutional and contrapuntal alterations and negations of notes, note-groups and bands of notes. I would adjust the surrounding material accordingly. Sometimes I would shift the material between instruments, though usually I would write specifically for an instrument. Many of the references were done by ear and not overly specific as I knew they would be altered, whilst others I copied from scores and altered, though there were not many of these references consisting of brief phrases.

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[8] The exhibition was a sound installation.

[9] I mainly used the Waves REQ 6, Metric Halo ChannelStrip, Klanghelm MJUC Compressors, Ina-GRM Tools[3], and Michael Norris's free filters, adding a few more at the very end. I rarely used the GRM's as they froze Logic, but near the end I updated the version and they worked. After finishing the works I added a PSP 2445 reverb, and sparingly used the GRM equalizer and tools, as well as the Waves doppler, Trueverb.and compressors. Besides Logic I have used ProTools extensively in the past.

[10] Sonatina Symphonic Orchestra samples. Later I added some Spitfire string and woodwind samples, and Pianoteq 6

The problematics of the development of compositions for acousmatic and acoustic instrumental forces and how these are present in the work of the key practitioners referenced

The core problematic of music for orchestra and tape revolves around narrative relations, syncing, timing and conducting, as the concrète layer may not be manipulated in real time as in live-electronics. Access to technology and knowledge of its use with paired ability to compose, produce, arrange and orchestrate plays a large role in merging the genres. While classical instrumental music has deep roots in published notational scores tape music has often been the score itself due to its high degree of complexity. Ontologically, instrumental music has been viewed as abstract and generic, with various particular concrete renderings of recordings, while neither performance or score are considered the work itself.[13] Tape music is thought by many to be more linked to the art itself than instrumental scores and performances, much like a painting or sculpture, however tape music can be duplicated and is not bought and sold like a sculpture.[14] Both concrète/tape and instrumental music can be notated with precision or openness, though the majority of instrumental works are orchestrated and arranged with less emphasis on improvisation, and improvisational elements can often be found in text scores. The problematic of narrative relations revolve around the issues and techniques involved in how the two musics relate to each other compositionally, which will be discussed

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Stage's Steinway or Bluethner on a few pieces.

[11] I got the mic, blimp and cover on loan. Later I got a Fostex FR-2LE field recorder and a Rode NTG-2 non-phantom powered condenser shotgun mic, though these were not used.

[12] An extra acousmatic graphic underlay, or spectromorphology, is also a possibility.

[13] Adam Stansbie, 'Through Thick and Thin: The Ontology of Tape Music', *The Journal of Music and Meaning*, vol. 9 (2010), 67-87 (p. 72).

[14] Adam Stansbie, 'Through Thick and Thin: The Ontology of Tape Music', *The Journal of Music and Meaning*, vol. 9 (2010), 67-87 (pp. 75-76).

further within the research. Early attempts to fuse the two genres did take place, such as with Vladimir Ussachevsky's and Otto Leuning's orchestral tape works, but this was a novelty and required a state-of-the-art studio.[15] Electroacoustic music does not usually have large instrumental arrangements, and many serious instrumental and acousmatic composers seem not to incorporate the other genre as serious composition of each style requires effort, and because of the syncing issue. Rarely attempts at consistency between the two musics where made, into the post-digital age which encounters some of the same problematics such as the possible need for a click track. In the early French GRM-Ina tradition there was acousmatic music produced which contained snippets of passing orchestras and instrumental musics as sound-objects, but seldom at length with sustained dialogue between the sound-objects and instruments throughout a composition, while use of spectralist techniques may have less syncing issues as acousmatic masking is often done live.[16] Tape music, electroacoustic music, acousmatic music, electronic music, computer music, kinetic music, sonic art and plastic music are all taken as the same thing,[17] though there can be subtle differences. Debussy, Roslavets and Schoenberg did not combine the two art forms, and Barrett is the most up-to-date on sonic art though she did not combine concrète and orchestral music consistently. As far as I am aware Barrett never fused fixed-medium with instrumental arrangements, preferring live electronics with a single instrument. Barrett's dissertation, 'Structuring Processes in Electroacoustic Composition', focuses on acousmatics and the interplay between sound phenomena and external microphone-recorded references. Extramusical references function narratively and dramatically. In *Fetters* Barrett samples voice and the Smithfield Market from London's east end, and vocalisms by soprano Kristin Norderval. Barrett's *Prince Prospero's Party* consists of laughing men and clock-clang. *Submerged* has shimmering bell-like sounds, whale calls, high frequency sounds and metallic echoes.[18] In *Exploratio Invisibilis* musical texture is developed through concrète quotational references like walking on gravel, streams, rainstorms, amongst other sounds.[19] As an academic, like Xenakis and Schoenberg, Barrett would likely have been familiar with Xenakis' experimentation with form, his outlook on micro-domains and stochastical processes, and his architectural and mathematical approaches. In terms of the problem of performance, Barrett thinks it is normal to place speakers near to the performers or else there will be a detachment of sound sources—there must be spectromorphological unity.[20] Dr. Barrett told me that she uses anywhere from zero to a significant amount of non-recorded synthesised sounds as source objects, but also stated that she uses other synthesis techniques, 'for example I sometimes create sounds by physical modelling, or by controlling synthesis methods with data extracted from real-world objects in some way [. . .] solidly anchored in real-world sound-objects or real-world systems/processes'.[21] It is probable that Barrett's choices of sound-objects in some of her works are influenced by aspects of serialism and aleatory.[22] Xenakian outside-time pitch-sets can be employed acousmatically, as heard in Barrett's work.[23] Xenakis did fuse the two genres in rare instances, having recorded many purely acousmatic pieces.[24] Xenakis's philosophy, techniques and early use of computers for musical exploration and composition have influenced many composers.[25] Xenakis's *Pour la paix* (*For peace*) combines concrète tape (SATB choir and UPIC) with narration,[26] the narrators comprised of two male speakers and two female speakers. Semiotically and structurally it is intriguing to have mixed narrative with UPIC synthesis and chorus.[27][28][29] His work for orchestra and tape is the ballet *Kraanerg*. In *Analogique A Et B* sound-objects briefly engage with string instruments, almost never playing at the same time, with a few brief overlaps, and both seem to be in 12-tone serialist style. *Analogique A Et B*, recorded in 1958/59 at GRM Paris, is labelled musique concrète and uses string ensemble and tape music.[30] This could be considered music for orchestra and tape but there is not much narrative between the concrète and instrumental parts.[31] Xenakis's *Hibiki-Hana-Ma* has a virtual dialogue between the instruments and acousmatics but it is all done in post-production and is considered tape music, with cut-and-splicing and narrative dialogue between the concrète sounds and the string ensemble—the strings are treated with reverberation, splicing, and effects. Luigi Nono did fuse the genres, extending it to include orchestra with tape music and live-electronics in one instance, though he had switched from tape to predominantly live-electronics in his later works, which is a natural progression as technology improved. Nono combined tape music and instruments mainly in his earlier works, and works for tape and orchestra are voluminous.[32] There are also some works for fewer live instruments and vocals with tape,[33] and later works departed from tape with some exceptions. There are many later works for live electronics,[34] though some works are solely for tape.[35] Nono's concrète music was copious and often incorporated live treatment of instruments and post processing. In *Lontananza nostalgica utopica futura*, for solo violin and 8-channel electronics, the pre-recorded sounds are performed live and improvised by a sound-projectionist, while the violinist moves about the room and reads from the score on various stands, creating intimate dialogues to be interpreted by the audience.[36][37] Nono used thinning and thickening, or focusing and blurring, of the sound environments.[38] He also used live electronics like harmonizers to transpose in real-time, which would sometimes be inactive and sometimes blend with the performers.[39] Nono thought his contemporaries' quest for total serialization equated to total generalization of musical material,[40][41] though *Variazioni canoniche*, for example, is based on Schoenberg's Op. 41 twelve-tone series.

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[15] In the work I heard the concrète layer was subtle and far in the background.

[16] Spectralist techniques can be applied in post production as a concrète layer, where organized sound attributes subordinate other compositional characteristics. It is analogous to impressionism and proto-spectralists include Claude Debussy, Iannis Xenakis, Olivier Messiaen, Karlheinz Stockhausen, Giacinto Scelsi, György Ligeti, Edgard Varèse and LaMonte Young. Grisey and Murail shifted from more gradual and regular processes to more abrupt contrasting in the 1980s and 90s, and sound was often derived from the phi ratio/harmonic series and spectrographic information can inspire orchestration.

[17] Adam Stansbie, 'Through Thick and Thin: The Ontology of Tape Music', *JMM, The Journal of Music and Meaning*, 9 (2010), 68-89 (p. 68).

[18] Patricia L. Dirks, 'Reviewed Work(s): Trade Winds by Natasha Barrett', *Computer Music Journal*, 34/1 (2010), 114-115 (p. 115).

[19] Curtis Roads, 'Reviewed Work(s): Kraftfelt by Natasha Barrett', Computer Music Journal, 31/1 (2007), 104-105.

[20] Felipe Otondo and Natasha Barrett, 'Creating Sonic Spaces: An Interview with Natasha Barrett', *Computer Music Journal*, 31/2 (2007), 10-19 (p. 19).

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[21] There are many kinds of synthesis, for example subtractive synthesis is used in filters to remove harmonics which alter the timbre of a sound, and I would use these processes throughout the work.

[22] Her use of varied sound-objects may be like coarticulate Cagian-style sound-rows, though I have not analysed them, however the variation of timbres is quite immense in her work.

[23] Outside-time sets refer to abstract pitch-sets that exist in the musician's mind, not as a physical medium or phenomenon.

[24] These tape works include *Diamorphoses*, 2-track, *Concret PH*, 2-track, *Analogique B*, 2-track (to be performed with the chamber work *Analogique A*), *Orient-Occident*, 2-track, *The Thessaloniki World Fair*, 1-track, *Bohor*, 8-track, *Hibiki-Hana-Ma*, 12-track, *Persépolis*, 8-track, *Polytope de Cluny*, 8-track, Polytope II, *La légende d'Eer (Diatope)*, 4- or 8-track.

[25] Thomas DeLio, 'Xenakis's, *Perspectives of New Music*, 39/1 (2001), 231-243 (p. 233).

[26] Ariel González Losada, *Iannis Xenakis - Pour la paix - 1981/Narrator live + Tape (Choir and UPIC)*, online video recording, YouTube, 18 July 2014, <https://www.youtube.com/watch?v=AKflilo45tk> [accessed 03.04.18].

[27] Henning Lohner and Iannis Xenakis, ' Interview with Iannis Xenakis', Computer Music Journal, 10/4 (1986), 50-55 (p. 53).

[28] There was no way to constantly vary the waveform in UPIC, which happens in acoustic instruments, especially with register shifts. The ear only distinguishes different classes of waveforms, not graphisms or contours within waveforms.

[29] This gave me the idea to try to simulate the acousmatic gestures done in UPIC in the concrète layer of *Hell realm (Naraka)*.

[30] In Xenakis's *Analogique A Et b.*sound-objects are contrasted with string instrumentation, at times blockishly in sections whilst later becoming simultaneous.

[31] Polyphonie X, *Iannis Xenakis – Analogique A et B*, online video recording, YouTube, 2 December 2014, <https://www.youtube.com/watch?v=mXIJO-af_u8> [accessed 03.04.18].

Pieces for orchestra/ensemble and fixed-medium are quite rare. Some examples include Otto Luening's

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[32] *Como una ola fuerza y luz*, for large orchestra, tape and electronics, *Intolleranza 1960*, for soprano, tape and orchestra, *La lontananza nostalgica utopica futura. Madrigale per più "caminantes" con Gidon Kremer*, for violin and eight tapes, *Al gran sole carico d'amore, azione scenica* for soloists, small and large chorus, orchestra and tape, *Como una ola de fuerza y luz*, for soprano, piano, orchestra and tape, *Al gran sole carico d'amore (Fragments)*, for soloists, chorus, orchestra and tape and *... sofferte onde serene ...*, for piano and tape. There is also *Das atmende Klarsein*, for small chorus, bass flute, live electronics and tape.

[33] *A floresta é jovem e cheja de vida*, for soprano, three voices, clarinet, percussion and tape, La *fabbrica illuminata,* for female voice and tape, and *Musica-Manifesto n. 1: Un volto, del mare – Non consumiamo Marx*, for soprano, voice and tape.

[34] Nono's live electronics include *Con Luigi Dallapiccola*, for percussion and live electronics, *Io, frammento dal Prometeo*, for three sopranos, small chorus, bass flute, bass clarinet and live electronics, *Quando stanno morendo. Diario polacco No. 2*, for four female voices, bass flute, cello and live electronics, *Guai ai gelidi mostri*, for two altos, flute, clarinet, tuba, viola, cello, bass and live electronics, *Omaggio a György Kurtág*, for alto, flute, clarinet, bass tuba and live electronics, *1° Caminantes.....Ayacucho*, for alto, flute, small and large chorus, organ, orchestra and live electronics, *Prometeo. Tragedia dell'ascolto*, for vocal and instrumental soloists, mixed chorus, four instrumental ensembles and live electronics, *A Pierre. Dell'azzurro silenzio, inquietum*, for bass flute, bass clarinet and live electronics, *Risonanze erranti. Liederzyklus a Massimo Cacciari*, for mezzo-soprano, flute, tuba, six percussionists and live electronics, *Découvrir la subversion. Hommage à Edmond Jabès*, for alto, narrator, flute, tuba, French horn and live electronics, *"BAAB-ARR"*, for piccolo and live electronics and *Post-prae-ludium No. 1 per Donau*, for tuba and live electronics.

[35] Nono's pieces for tape include *Omaggio a Emilio Vedova*, for tape, *Die Ermittlung*, for tape, *Ricorda cosa ti hanno fatto in Auschwitz*, for tape, *Contrappunto dialettico alla mente*, for tape, *Musiche per Manzù*, for tape, *Für Paul Dessau*, for tape.

[36] Alexander Sigman, 'Luigi Nono: La lontananza nostalgica utopica futura Yerba Buena Center for the Arts, San Francisco, March 1st, 2010', 1-3.

[37] The work is derived from extant scores like Verdi's *Ave Maria* and Nono's own earlier compositions *Varianti Musica per violino solo, archi e legni (1957) and Fragmente-Stille, an Diotima*, fragments of experimental sounds produced by the violin and environmental noises with discussions on the search for new sound possibilities.

[38] This is similar to my amounts of sound-object density and seems almost analogous to coherence and decoherence.

[39] Peter Ivan Edwards, 'Object, Space, and Fragility in Luigi Nono's "Das atmende Klarsein"', *Perspectives of New Music*, 46/1 (2008), 225-243 (pp. 231-232).

[40] Bill Hopkins, 'Luigi Nono: The Individuation of Power and Light', *The Musical Times*, 119/1623 (1978), 406-409 (p. 406).

[41] I agree, and this is why I contrasted so much consonance with dissonance in my works.

Concerted Piece for Tape Recorder and Orchestra,[42] Krzysztof Penderecki's *Kanon,*[43] Milton Babbitt's *Correspondences*, for string orchestra & synthesized tape,[44] Karlheinz Stockhausen's *Trans,*[45] Brett Dean's *Carlo*, for strings, sampler and tape,[46] Paul Wilson's *Prometheus*, for orchestra and tape*,*[47] Ulf Grahn's *The wind of dawn*, for orchestra and tape*,*[48] Kaija Saariaho's *Io,*[49] Mary Finsterer's *Pascal's Sphere*, for chamber orchestra & tape*,* though there is no synthesis or acousmatics,[50] Askold Murov's *Symphony No.4*, for orchestra and tape*,*[51] Arvo Pärt's *Te Deum,* for 3 choirs, prepared piano, string orchestra & tape,[52] Giacinto Scelsi's *Pranam I*,[53] and Hans Werner Henze's *Tristan*, for piano, tape and orchestra.[54] Others include Friedrich Cerha's *Spiegel*, for large orchestra and tape,[55] Phil Rappaport and Floyd O'Neil's *Composition for Orchestra and Tape Recorder,* with the Flushing High School Orchestra,[56] İlhan Usmanbaş's *Nutuk-Gençliğe Hitabe*, for tape recorder, narrator and orchestra,[57] and Aliaksandr Yasinski's *Journey Into Space*, for accordion, orchestra, drum kit and music for tape.[58][59] Babbitt's *Correspondences* uses an orchestra and synthesized tape sounds with atonality in the notation. Both the synthesised and notated parts are sustained for just over ten minutes, but there is little, if any, development in the notation or synthesised tape sounds. It is also worth mentioning Tristan Murail, who used spectral analysis and AM/FM synthesis to form polyphony. Murail's piece *Désintégrations* is orchestral with a part for tape, and the spectral treatment of instruments may be considered acousmatic. There is consistent blending and fusing of taped and instrumental sounds in *Désintégrations*.[60] The drawing style of dark lines onto a staff or staves for the concrète layer is similar to *Pranam*, another rare example of tape and ensemble work by Giacinto Scelsi.[61] Also, Benjamin Britten used sound-objects with instruments in the 1935 film *Coal Face*. This list of composers that blend tape music with instrumental music only scratches the surface.

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[42] ARCHIVOS BOESMI - ARTE Y CULTURA, CONCERTED PIECE FOR TAPE RECORDER & ORCHESTRA - LEONARD BERNSTEIN & NEW YORK PHILARMONIC – 1960, YouTube, 25 April 2017, <https://www.youtube.com/watch?v=WiJzC9Jnn-4> [accessed 29.10.17].

[43] TheWelleszCompany, *Krzysztof Penderecki: Kanon (1962)*, online video recording, YouTube, 9 August 2011, <https://www.youtube.com/watch?v=tzNPj5YA4YI> [accessed 29.10.17].

[44] Sbor2020, *Milton Babbitt – Correspondences for string orchestra & synthesized tape*, online video recording, YouTube, 17 November 2014, <https://www.youtube.com/watch?v=VF-l2OFHs5I> [accessed 29.10.17].

[45] Pelodelperro, *Karlheinz Stockhausen - Trans (1/2)*, online video recording, YouTube, 3 December 2013, <https://www.youtube.com/watch?v=s9lUZR6_N1w> [accessed 30.10.17].

[46] G. H. Hubert, Brett Dean - Carlo for string orchestra, sampler and tape (part 1/2), online video recording, YouTube, 23 December 2012, <https://www.youtube.com/watch?v=nxhGhqmu0Oc> [accessed 29.10.17].

[47] Paul Wilson, *Prometheus for orchestra and Tape*, online video recording, YouTube, 14 February 2015, <https://www.youtube.com/watch?v=wm7n8PWf7-I> [accessed 29.10.17].

[48] Nglani32, *The wind of dawn for Orchestra and Tape by Ulf Grahn*, online video recording, YouTube, 8 May 2015, <https://www.youtube.com/watch?v=twGxlbZQ26c> [accessed 29.10.17].

[49] Wellesz Theatre, *Kaija Saariaho: Io (1986/1987)*, online video recording, YouTube, 13 August 2012, <https://www.youtube.com/watch?v=_d5vAMzuobo> [accessed 30.10.17].

[50] Tim Poulus, *Mary Finsterer (1962): Pascal's Sphere, for chamber orchestra & tape (2000)*, online video recording, YouTube, 9 October 2013, <https://www.youtube.com/watch?v=tzNPj5YA4YI> [accessed 29.10.17].

[51] Nini Hampo, *Askold Murov "Symphony No.4 ~ Stereophony" for orchestra and tape*, online video recording, YouTube, 4 November 2016, <https://www.youtube.com/watch?v=gr5bxpBTwIc> [accessed 30.10.17].

[52] Tim Poulus, *Arvo Pärt: Te Deum, for 3 choirs, prepared piano, string orchestra & tape (1984-'85, rev. 2007),* online video recording, YouTube, 15 January 2017, <https://www.youtube.com/watch?v=umMp6p38-B8> [accessed 30.10.17].

[53] Belanna999, *Giacinto Scelsi - Pranam I (w/ score) (for soprano, tape and ensemble) (1972)*, online video recording, YouTube, 14 Auguest, 2016, <https://www.youtube.com/watch?v=NryO8ok2Yac> [accessed 23.06.].

[54] Donprudenzio, *Henze: Tristan (1973) - Preludes for piano, tape and orchestra*, online video recording, YouTube, 10 Febuary 2014, <https://www.youtube.com/watch?v=bgjm9H5u0Q0> [accessed 29.10.17].

[55] Vienna Radio Symphony Orchestra – Topic, *Spiegel for large Orchestra and Tape, Pt. 7 (Live), online video recording*, YouTube, 17 September, 2016, <https://www.youtube.com/watch?v=n1YwL0MAsRQ> [accessed 23.06.19].

[56] Phil Mango, Rappaport & O'Neil's Composition for Orchestra and Tape Recorder 6/9/72, online video recording, YouTube, 17 March 2014, <https://www.youtube.com/watch?v=94M8hlpCKjc> [accessed 23.06.19].

[57] fahrettin arda, *İlhan Usmanbaş - Nutuk,Gençliğe Hitabe for tape recorder,narrator and orchestra*, online video recording, YouTube, 20 October 2012, <https://www.youtube.com/watch?v=6riSGuxuRTs> [accessed 23.06.19].

[58] Aliaksandr Yasinski, *Aliaksandr Yasinski - Journey Into Space - for accordion, orchestra, drumkit and music for tape*, online video recording, YouTube, <https://www.youtube.com/watch?v=6LX1I8-c4Os> [accessed 23.06.19].

[59] Many of these composers where academics. Brett Dean was Artistic Director of the Australian National Academy of Music in Melbourne, artist-in-residence with the Melbourne Symphony Orchestra and composer-in-residence at the Cheltenham Festival and is artist-in-residence with the Radio-Sinfonieorchester Stuttgart des SWR. 'Paul Wilson is a

The cultural conditions that have precipitated the perpetuation of the problematisation of the relationship between acousmatic and acoustic compositional practices

The problem of the two art forms merging has hinged around technology, learning and culture, and stems from the years following the first 20 years of acousmatic art of the late 1940s. There is a tendency to bring forward the most successful popular music of each generation, and music and art on the cutting edge is subject to the most scrutiny and criticism. There is also the effort and finance of public dissemination involved in the success of music which usually supports what is liked and well known.[62] Avant-garde and experimental musics are a smaller genre than the mainstreams and often contain challenging aspects like complexity or expanded tonality, and this innovation is often perceived as destructive to the cultural pattern

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lecturer in music at Queen's University, Belfast. His works have been commissioned and performed by the Ulster Orchestra, Barrie Webb, Steve Halfyard, Pedro Carneiro, the RTÉ National Symphony Orchestra, the Smith Quartet and Psappha, amongst others . . .' Grahn and his wife, the pianist Barbro Dahlman, founded the Contemporary Music Forum, has operated the music publisher Edition NGLANI, and was artistic and managing director of the Lake Siljan Music Festival in Sweden. He taught at music schools in Stockholm and Lidingö and in the US. Otto Luening was a German-American composer and conductor, and an early pioneer of tape music and electronic music, and co-founder, along with Ussachevsky, of the Columbia-Princeton Electronic Music Center. Kaija Anneli Saariaho is a Finnish composer based in Paris, France. Saariaho studied composition in Helsinki, Freiburg and Paris, and her research at the Institute for Research and Coordination Acoustic (IRCAM) marked a turning point in her music away from strict serialism towards spectralism. Her characteristically rich, polyphonic textures are often created by combining live music and electronics. She was awarded the Kranichsteiner Preis at the Darmstadt International Summer Courses for New Music, won the Prix Italia for her work *Stilleben*, was awarded the Prix Ars Electronica for both *Stilleben* and *Io* and was awarded the Polar Music Prize.

[60] Julian Anderson, 'Désintégrations', <http://www.tristanmurail.com/en/oeuvre-fiche.php?cotage=28227> [accessed 03.04.18].

[61] Belanna999, *Giacinto Scelsi - Pranam I (w/ score) (for soprano, tape and ensemble) (1972)*, online video recording, YouTube, 14 August 2016, <https://www.youtube.com/watch?v=NryO8ok2Yac> [accessed 26.05.18].

[62] Whether this is cultural or more individual is difficult to say as trends are difficult and lengthy to analyse, yet certainly individuals have had a major impact. A large body of great work always lies beneath the surface of popular traditions and this is usually up-kept by libraries, collectors and institutions for reference and study. Music that becomes a social phenomenon, retained in social memory or canon, hinges around art, technology and culture, for example oral traditions, printed scores, instruments, music videos and storage devices.

and rejected culturally.[63] Many see works like Messiaen's *Quatuor pour la fin du temps* as still sounding fresh and many tape works as out-dated, and by the turn of the century 'speaker concerts' of the 1950s that had gained so much attention in the music world had faded, with very few attending performances of even well known electroacoustic artists.[64] Acousmatic music is complex with the score often being the recording itself, which would not exist in canon before recordings existed. The tradition of the instrumental score was suddenly pitted against new technologies and experimentalism, which meant pushing the bounds more than recapitulating the past. Traditional folk and classical musics are perpetuated as they are deeply ingrained in culture and education, many having melodies that are memorable. Readily available scores which have worked for so long go hand-in hand with the technology of instruments and there is an established language of notation and instrumental practice. Serialist modernism is complex and challenging to become familiar with, and complex tape musics are not easily reproducible from scratch. In concrète recordings, sound-objects are brought into signification, marking a divide with notational musics. Film music often incorporates characteristics of the old and new, often delving deeper into arrangements, orchestrations and use of technology in more novel ways than popular and traditional musics, and can contain sound-objects, though usually without sustained dialogue with the instruments. The development of acousmatic music, which became a large part of electroacoustic music, spans the latter half of the 20th century and is deeply linked to technology and academia. The *Répertoire International des Musiques Électroacoustiques/International Electronic Music Catalog* contained 5000 electroacoustic compositions from 1948-67, and 2500 more were thought to exist. Electronics in instrumental composition exemplify a confrontation due to sensory awareness of contrasting technologies. Merging of instruments and electronically generated sounds, in theory and practice, occurred during the first half of the 20th century, and figures like Schoenberg, Busoni, Varèse, Stokowski, Schillinger and Chávez predicted before WWII that new compositional procedures would derive from science.[65] A cycle exists of culture → art → technology, and while technology drives forward the arts, art is also firmly rooted in the past, and perception is central as we often cling to the familiar. Music for orchestra and tape will likely be instantly categorized as 'other' or 'modern', just as serialism and atonality is. Yet reduced listening is part of all music, as musical engagement and composition brackets out extra-musical material, and Pierre Schaeffer's reduced listening is in line with the poetics of Varèse, Scelci, Freud, Barthes, Heidegger, Lacan and Calvino.[66] Schaeffer's concrète musical ideas greatly impacted key figures in electroacoustic music, such as New Zealand electro-acoustic composer Denis Smalley, who studied at the Group de Recherche Musicales.[67] The merging of French concrète and the synthesis practised in Cologne as elektronische musik was a natural progression, and in 1970s Britain Stockhausen's Cologne-style elektronische musik was dominant in the electro-acoustic field, while Smalley brought another way of hearing and thinking to the genre.[68] Further, much criticality between the elektronische musik and musique concrète lies at the level of least difference and in the resulting art, not in the technical means of building it. The two genres are very close now as acousmatic treatment of recorded material has become a sophisticated type of synthesis. German Elektronische musik was more deterministic and score-based while French musique concrète was criticized by some for being overly intellectual, investigating reasons, means and techniques that predicted musical results.[69] Historically musique concrète was not concerned with notation, and in many ways it exceeded notational limitations, and once on tape could be further transformed without the need for notation.[70] Notation plays a large part in the schism between instrumental and acousmatic musics. Acousmatic scores may use text or graphics, while text is also used by the Fluxus genre with its pairing of text directions to improvisation. Fluxus was inspired by earlier Dada that sought to ban intellectualism, bourgeois sickness and dead illusionistic abstract art,[71] and is more oriented towards experimental music which focused on process over a finalised set work. Fluxus, like Dada, the counter-culture, minimalism, pop-art and happenings, focused on anti-art, the uncontrived, breakdown of media, culture and politics, and it inspired the avant-garde which was associated with innovation, unacceptability and empowering the performer. These characteristics embody post-modernism, while Dada anticipates them and is argued by some to be a possible crossover point.[72] George Brecht, whose art revolved around the unpredictable and unnoticed, created the event score during the time he attended John Cage’s class in 1958-59, a significant contribution to Fluxus.[73] Pierre Schaeffer's book seven of *Traité Des Objets Musicaux* concludes, after systematic analysis, that no sonic objects give rise to a universal polymorphous musicality.[74] The sonic object is comprised of four operations and a beginning and end stage. The beginning stage is putting a sounding body into a vibrational state by various processes which are recorded. The first operation is typology: sound-objects are singled out from sound-continua for musical characteristics. The second operation is morphology: sound-objects are compared and labelled. The third operation is characterology: identification of interactions within the sound-objects are identified with reference to sound-producing events. The fourth operation is analysis: sound-objects with certain criteria are measured for

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[63] Joyce Brodsky, 'Continuity and Discontinuity in Style: A Problem in Art Historical Methodology', *The Journal of Aesthetics and Art Criticism*, 39/1 (1980), 27-37 (pp. 34-35).

[64] Ludger Brümmer, Guenther Rabl, Konrad Boehmer, Jean-Claude Risset, Jonty Harrison, François Bayle, Johannes Goebel, Francis Dhomont and Karlheinz Stockhausen, 'Is Tape Music Obsolete? Is Spatialization Superficial?', *Computer Music Journal*, 25.4 (2001), 5-11 (p. 5).

[65] Lowell Cross, 'Electronic Music, 1948-1953', *Perspectives of New Music*, 7/1 (1968), 32-65 (p. 32).

[66] Larry Sitsky, *Music of the Twentieth-Century Avant-Garde, Biocritical Sourcebook* (Santa Barbara, California: ABC-CLIO, 2002), p. 441.

[67] Jonty Harrison, 'Denis Smalley, EMAS and (Electro-Acoustic) Music', *The Musical Times*, 130/1759 (1989), 528-

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531 (p. 528).

[68] Jonty Harrison, 'Denis Smalley, EMAS and (Electro-Acoustic) Music', *The Musical Times*, 130/1759 (1989), 528-531 (p. 528).

[69] Jonty Harrison, 'Denis Smalley, EMAS and (Electro-Acoustic) Music', *The Musical Times*, 130/1759 (1989), 528-531 (p. 528).

[70] Jonty Harrison, 'Denis Smalley, EMAS and (Electro-Acoustic) Music', *The Musical Times*, 130/1759 (1989), 528-531 (p. 529).

[71] Luiza Sadowska, 'Fluxus and experimental music', <http://www.meakultura.pl/edukatornia/fluxus-and-experimental-music-1995> [accessed 17.01.19].

[72] Factors of postmodernism may be bricolage, resetting of old ideas in new ways, centrality of text, video, intermedia, multimedia, appropriation, plunderphonics, minimalism, simplification, and appear possibly as early as Manet.

[73] Luiza Sadowska, 'Fluxus and experimental music', <http://www.meakultura.pl/edukatornia/fluxus-and-experimental-music-1995> [accessed 17.01.19].

[74] This means the sound must be edited to find musicality within it, through reduced listening.

cardinal (absolute) or ordinal (relative) values against pitch, duration and intensity fields. The end stage, or synthesis, is the creation of new musics from these processes and structural referencing based on the seven morphological criteria, a process analogous to tonal and modal relations.[75] Music in its general sense may be viewed as balance between the predictable and the variable.[76] Experimental music is far off the popular music radar, while the nuances of colloquial musical flavours can be rendered less authentic through slick production, homogenisation and commercialisation—it takes trust and conviction to believe what you like is good enough.[77] Individual particulate notes, as vectors for cohesion and gestalt, are described as content, separate from form or the container, which is made up of the constituent contents. With dodecaphonic music the tonal connotations become increasingly abstract, veering away from tonal centricity, with reliance on motifs.[78] Instrumental music that never repeats motifs and endlessly meanders still repeats the twelve notes in varying orders, while non-repeating concrète motifs may include some linking of information, patterning or mediations. Extreme non-repetition and repetition may challenge the notion of music, which are the two opposite extremes of mediation, centrality and the neutral. Schaeffer argues that twelve-tone music and concrète music are similar in that no note exists for itself, that a composer finds something in an unrefined state.[79] Some, like Konrad Boehmer, mourn the loss of content in 'electric' music, while Jean-claude Risset felt that tape music was 'an important and promising art form' and that most contemporary popular music is tape music, as it is assembled on a recording medium. Risset also felt that the sophistication of tape music far outstripped live electronics composition at its best.[80] Due to the western notational system of pitch, duration and intensity, the composer sings, plays and sight reads in silence with the score prefiguring the work, and symbol and work are taken as one entity.[81] This is at odds with concrète and fixed-medium musics which are not manipulated live but could be viewed as the score itself. Music for orchestra and tape can be a score, recording or live performance, just as it may have various qualities of extemporised or set attributes. Therefore, tape music may be less easily identifiable than orchestral works. As notational écriture denotes the self-same sounding notes, musique concrète is the antithet of notational forms,[82] although graphic and text scores may be used in some instrumental musics. Plutarch expostulated that to listen extempore is not advised.[83] Heidegger's idea of the noumenon, that the thingness of a thing is particularly difficult to express or describe, with explanation differing from actually, is documented by the history of interpretations. For Schaeffer, with each sound-object there was impetus for breaking and becoming,[84] similar perhaps to Xenakis's stochastic potentials of intertextual notes. Both acousmatic and instrumental musics have potentiality and must be reduced to musical forms, and both share many qualities. It is these imagined and locked-away essentialities within and between intertextual symbols or objects that give rise to structuralist form, the potential of being, becoming, demarcation, anticipating, reflecting, hinging and interlinking, where the natural, chaotic, objectless, unquantified, unimagined, indefinite, potentiality of non-perspectival ambiguousness is kept at bay through editing out into form, and it is a potential of defining by syntactic semiotic actions. Music, literature, art and mathematics all share this trait, and are communicative by nature—they are deciphered or encrypted through forming and ordering.[85] Schaeffer wanted new classifications that described a new perspective on living sound, manipulating and structuring it, composing with it and interacting with it, a new way of hearing music outside the notational pitch, velocity and duration classes.[86] Limitations inherent in instrumental musics may be overcome in concrète and electronic musics, yet many instrumental nuances are hard to duplicate technologically. Nono pioneered reconciliation between the acousmatic and instrumental. While pieces like *Ricorda cosa ti hanno fatto in Auschwitz* are completely acousmatic, much of Nono's early work fused tape with instrumentation. The idea of a work as something intangible, ongoing, mobile and unfixed was essential to Nono. After his 50s serialism, with work consisting of anti-fascist themes, Nono turned to immediacy of relations between means of construction and resulting audibility.[87] *La victoire de Guernica* is based on 'The International', and source material is radically altered through complex serialist procedures, yet he thought that the source material's significance would directly influence meaning in his works as well as having bearing on working methodology in composition.[88][89] Thus Nono creates musical allegory influenced and colligated through political thought. Often these historical-political allegories are binary, such as individual vs. community, order vs. chaos, cooperation vs. conflict.[90] Nono, much like Xenakis with stochastical processes, rejected the idea of pointallistic individual isolated notes, comparing it to the fact a person cannot exist outside of society.[91] Webern's evolution of all forms single-source theory suggests a merging of dialectics of art and nature, or a removing of the artists hand at some point, as all things merge into an identical phenomenon. This was a profound idea for Webern that he used in his music, with the motive as the smallest functioning part,[92] and is similar to Schoenberg's and Nono's ideas of aesthetic creation, and Xenakis's, Schaeffer's and Nono's ideas of potentiality. The idea of gestalt is crucial to the acousmatic and notational, and urline as a protoline or source line that captures the essence of a work can be important, and is highly implicated in musical ideas of potentiality. As Schoenberg expresses his feelings on the matter, interpreting Schenker's urline: '. . . the Urlinie is the uniform reduction of all appearances to their simplest base and shows not only the characteristics of the ideas brought to their common unity, but also that it is in its entirety only a development of the basic idea. It is the real inspiration of a composer, that totality, seen all at once and yet containing everything of substance, through which a piece is conceived as a whole by the author. More could be said, but that would then be more by me than by Schenker.'[93] Unity could be viewed as the container, or gestalt. In production this gestalt is heard through levelling the parts to unity.

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[75] Larry Sitsky, *Music of the Twentieth-Century Avant-Garde, Biocritical Sourcebook* (Santa Barbara, California: ABC-CLIO, 2002), p. 436.

[76] TEDx Talks, *Transforming Noise Into Music | Jackson Jhin | TEDxUND*, online video recording, YouTube, 18 March 2015, <https://www.youtube.com/watch?v=LadUft_ly50> [accessed 22.10.17].

[77] Winter Band, *The Noise- Mini Documentary on the Boston Noise Scene*, online video recording, YouTube, 18 March 2015, <https://www.youtube.com/watch?v=LadUft_ly50> [accessed 22.10.17].

[78] Motivic relation and development is also important in jazz and other musics. I believe that serialist procedures may also be applied to sound-objects which result in sound-motifs.

[79] Frank J. Malina and Pierre Schaeffer, 'A Conversation on concrète Music and Kinetic Art', *Leonardo*, 5/3 (1972), 255-260 (p. 259).

[80] Ludger Brümmer, Guenther Rabl, Konrad Boehmer, Jean-Claude Risset, Jonty Harrison, François Bayle, Johannes Goebel, Francis Dhomont and Karlheinz Stockhausen, 'Is Tape Music Obsolete? Is Spatialization Superficial?', *Computer Music Journal*, 25/4 (2001), 5-11 (p. 6).

[81] Larry Sitsky, *Music of the Twentieth-Century Avant-Garde, Biocritical Sourcebook* (Santa Barbara, California: ABC-CLIO, 2002), p. 438.

[82] Larry Sitsky, *Music of the Twentieth-Century Avant-Garde, Biocritical Sourcebook* (Santa Barbara, California: ABC-CLIO, 2002), p. 439.

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[83] Larry Sitsky, *Music of the Twentieth-Century Avant-Garde, Biocritical Sourcebook* (Santa Barbara, California: ABC-CLIO, 2002), p. 438.

[84] Larry Sitsky, *Music of the Twentieth-Century Avant-Garde, Biocritical Sourcebook* (Santa Barbara, California: ABC-CLIO, 2002), p. 439.

[85] They can describe or be realities, and these communicative forms contain perceived meaning on various levels.

[86] For example, many processes that can be used in digital audio workstation to create patterning and symmetry in music may one day be more vigorously explored with regard to their relations.

[87] Bruce Durazzi, 'Luigi Nono's Canti di vita e d'amore: Musical Dialectics and the Opposition of Present and Future', T*he Journal of Musicology*, 26/4 (2009), 451-480 (p. 452).

[88] Bruce Durazzi, 'Luigi Nono's Canti di vita e d'amore: Musical Dialectics and the Opposition of Present and Future', T*he Journal of Musicology*, 26/4 (2009), 451-480 (pp. 452-453).

[89] One example of this is in *Canti per 13*, where a societal-like parable is created between two musical structures, signifying different social structures that interact, and in *Inconti* two entities exist but never merge.

[90] Bruce Durazzi, 'Luigi Nono's Canti di vita e d'amore: Musical Dialectics and the Opposition of Present and Future', T*he Journal of Musicology*, 26/4 (2009), 451-480 (p. 454).

[91] Bruce Durazzi, 'Luigi Nono's Canti di vita e d'amore: Musical Dialectics and the Opposition of Present and Future',

Sheet music is the most reproducible physical medium and has worked well for so long, where more abstract notations like the text scores produced by the Fluxus movement are very much on the periphery, and 12-tone equal tempered music still occupies the majority of published scores due to ease of reproducibility. New practices in acousmatic musics include new technologies, software and cultural hybridisation. Other practices include new perceptions of authorship, ownership, meaning and value, modern and postmodern perceptions, new representations through coding, language and interpretation, and new environments, economics and funding of electroacoustic musics.[94] From another perspective Lewis Hyde said 'where there is no gift there is no art.' Whatever the real reasons for the perpetuation of human art, bird-song, whale-song and other cultural trappings, it seems that disparate forms to the status-quo may possibly not propagate as well as their counterparts, for they would be open to an array of differing interpretations. For theoretician Ortega y Gasset, form and content were easily separable in traditional painting, less so in dehumanised painting, and most illusively of all in music.

Is it possible to generate a series of original sound compositions that explore and provide potential solutions to the problematic at the core of the research?

Solutions can be provided for the problematic of disparity of genre, and it is highly possible to create

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T*he Journal of Musicology*, 26/4 (2009), 451-480 (pp. 452-453).

[92] Gundaris Poné, 'Webern and Luigi Nono: The Genesis of a New Compositional Morphology and Syntax', *Perspectives of New Music*, 10/2 (1972), 111-119 (p. 112).

[93] Kristof Boucquet, 'Schenker and Schoenberg Revisited', *Revue belge de Musicologie / Belgisch Tijdschrift voor Muziekwetenschap*, 59 (2005), 193-203 (p. 199).

[94] Simon Waters, 'Beyond the acousmatic hybrid tendencies in electoacoustic music', in *Music, Electronic Media and Culture*, ed. by Simon Emmerson, (Aldershot, Burlington USA, Singapore, Sydney: Ashgate, 2000), 1-263 (p. 57).

compositions that explore the similarities and disparities between the genres, with rhythm being a quintessential relational quality. As form is created through contrast and similarity there can be reconciliation and originality. In my work I would explore many devices and ways of creating contrast and similarity, and dialogue between concrète and instrumental layers, including by amounts and density of sound-objects, density of instrumental lines, mimesis between layers rhythmically, foreshadowing and recapitulation of both layers, amounts of sound-object transformation, amounts of motivic transformation, development and resetting, continuity and discontinuity within and between the layers, reversals and palindromes within and between the layers, recapitulation of identical or similar material in both layers, recapitulation of identical or similar material in one layer contrasting new material in the other layer (resetting), tonal banding of instrumental lines and sound-objects, techniques to create gaps, patterning techniques through palindromes, MMN and aleatory, instrumental consonance and dissonance contrasted with sound-rows or sound-row palindromes or coarticulate sound-object phrases, sectional cuts where potential material between phrases and sections seems to be skipped over and negated, and panning, volume and spatial issues. The third and fifth harmonic progression in western traditional music, the triadic, is unique compared to other traditional world musics according to most musicologists, and is worth investigation along with other traditional world musics. In some of my pieces, for example, I tried to break from this form by using altered endings that transpose to other scale degrees than the tonic, or through use of fourths.

In terms of syncing, one solution is that all performers have a microphone and wear headphones to hear their level against the concrète layer. They can play to a click or guide track along with the concrète layer, or a conductor can guide the performers as the only one hearing the click track. Another option is to record the acoustic instruments first with no click and then fill in the acousmatic parts around that.[95] A further option, in a fully live setting, is to have a bank of prepared sound-objects, or sound-object phrases, ready to play back live, which would be similar to live electronics without much live manipulation. The last option is to record the instruments individually with a click—the performers will hear the instruments and concrète layer and have a one bar count in.

I stumbled across an interesting idea of Adorno's about a middle element outside the moments it connects, like Hegel's grosser mediations, which is eliminated and inessential, occurring often in the late style of Beethoven, that added an anticlassicist quality to Hölderlin's poetry—some paratactical examples include inversions of words and altered logic behind the use of periods.[96] The use of disjunct and abrupt cuts throughout my work is just such an elimination of inessential mediation of syntactic musical narrative, analogous perhaps to poetically leaving words out, and I also used abrupt switching of instrumental lines at odd moments to anticipate larger sectional cut negations. In dissonant intervention sections I tried to use the idea of Nono's non-virtuosic democratic instrumental lines, with emphasis on collective unity to varying degrees. I believe that highly ordered processes can potentially create extreme imbalance, decoherence and

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95 This could be called a remix, even if the concrète pre-composition is added afterwards and adjusted.

96 Carola Nielinger-Vakil, 'Quiet Revolutions: Hölderlin Fragments by Luigi Nono and Wolfgang Rihm', *Music & Letters*, 81/2 (2000), 245-274 (p. 249).

dissonance and disparate sound-objects may appear randomly placed in my work. Varying degrees of order and messiness are contrasted within the concrète and instrumental layers. Similar to Nono's thoughts on habit, intelligibility and understanding, Jonathan Kramer identified a 'non-teleological' transhistorical body of work that challenges conventional listening through non-linear time—classical music conventionally used linear time models.[97] This was a strong post-modern idea that I implemented, through cuts for example, sometimes of high contrast, where linear time seems shuffled, broken up or logically non-contiguous, and the sound-objects lend an added dimension. Homogenisation can be useful in breaking down forms into similarities, though varying contrasting processes are also essential. Narrative dialogue can vary in amount between the layers, especially through densities. Any device that can form bonding or disparity between the layers is a successful dialogical tool for composing music for orchestra and tape. Essential to creative practice is use of links between different aesthetics and practices.[98] The two genres are antithetical in many ways, notational music is abstractly prefigured and concrète music is made up of pre-existing sound material and composed by direct montage.[99] And yet there is abstraction in listening reductively on any level and in any genre, a major link in all composition that should give rise to original compositions. Post-modern devices like parataxis are used in the work. This is like parataxis in literature which juxtaposes two fragment images, often of stark difference, with no clear connection, very similar to my sectional cuts. An example of parataxis is 'Veni, vidi, vici'. There is coordination, but no subordination between the clauses, thus it is a coordinate system.[100][101] Hypotaxis is conversely modernist, with its syntactic subordination of constructions or clauses which I believe has parallels in music. An example of hypotaxis in William Blake's poetry is 'So sang a little Clod of Clay/Trodden with the cattle's feet'.[102] For parataxis unrelated motifs may be placed side by side in a phrase or in sections, while for hypotaxis any musical lines may be subordinate to others. In my work these devices are used to varying degrees in different ways, for example when motifs and phrases in the layers come to the foreground subordinating the other layer, or in a secondary violin harmony in sixths or thirds where one line is subordinate by mediant or other relations. I wanted to create pieces that alternated between degrees of consonance based on pitch-sets and atonality, contrasting harsher and softer sound-objects and varying densities, continuities and coherences. For *Through the Six Worlds* I originally based my experimentation on dialogical amount, dialogical timing, transformational amounts and dialogical cohesion between the layers, illustrated in the appendix. While cohesion may be taken as coherence and implies an overall togetherness, continuity is different with a more narrative connotation of linearity, like contiguity. Later, for *Tadvanalila*, *A Desolate Market* and *The Broken Oracle*, I kept these syncretic principles in mind and also investigated other techniques, whilst dropping direct instrumental referencing. I then stumbled upon and implemented other techniques like sound-object dynamics in the text, low pitches in the instrumental layer and higher frequencies in the concrète layer to bring the sound-objects forward, higher density of sound-objects contrasting longer instrumental notes, especially low static notes, and palindrome patterning and techniques to create textural gaps across instruments, for example through aleatory or MMN. Most music is syncretic and synthetic, tethered to intertextuality and genre. Through mixing and applying ideas and functions, new shapes may emerge through recombining older ideas and materiel. Analysis and understanding may inspire and uncover 'ingredients' and deeper level workings. Original music may be created through musical syncretism that uses researched techniques and ideas of various composers.

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[97] Jeannie Ma. Guerrero, 'Non-Conventional Planar Designs in the Works of Nono and Tintoretto', *Music Theory Spectrum*, 32/1 (2010), 26-43 (p. 29).

[98] Geoffrey Cox, ‘There must be a poetry of sound that none of us knows … Early British documentary film and the prefiguring of musique concrète', 1-20 (p. 1).

[99] Geoffrey Cox, ‘There must be a poetry of sound that none of us knows … Early British documentary film and the prefiguring of musique concrète', 1-20 (p. 17).

[100] Richard Nordquist, 'Parataxis (grammar and prose style)', (2016), <https://www.thoughtco.com/parataxis-grammar-and-prose-style-1691574> [accessed 27.04.17].

[101] Another example by Charles Dickens: '"Dogs, undistinguishable in mire. Horses, scarcely better—splashed to their very blinkers. Foot passengers, jostling one another's umbrellas, in a general infection of ill-temper, and losing their foothold at street corners.' Another example of parataxis by Enest Hemingway, '"In the bed of the river there were pebbles and boulders, dry and white in the sun, and the water was clear and swiftly moving and blue in the channels.'

[102] 'Literary Devices, Definition and Examples of Literary Terms', <https://literarydevices.net/hypotaxis/> [accessed 27.04.17].

Hungry ghost realm (Preta)

This piece has an overarching sense of breathing, never rising above itself. There is narrative splicing of sections to produce two dissonant interventions, or narrative shifts, and balance of consonant melodic and harmonic content with some serialism. I used a 9/4 format and tritone and third relations inspired by Ravel's *Si morne!* and a chromatic mediant progression in the bass with violins harmonized in 3rds, inspired by chromatic mediants used in Debussy's work.[103] At first I used discordant sonic interventions synced with augmented chords, inspired by Debussy's Le *sommeil de Lear*. The piano ostinato is grounding against wisps of transforming and disconnected sound-objects. Ravel's techniques were similar to Debussy's—Ravel used symmetrical chromaticism through major and minor third relations in his work, like major third tonal centres, dominant sevenths, octatonics related by major third, triadic octatonicism and relations by third and tritone invertibility,[104] or substitution. Whole-tone themes did not blend in well with atonality. Repeated sound-objects were used to convey hyperreality, contrasted with less repetition. Sounds used are from mass-transit highways, construction sites and birds. The calm repetitious aspect is juxtaposed by quiet flowing sound-objects. The sound-objects remain subordinate and flowing even during the interventions. There was a stretched, slowed down reference to Parmegiani's *Jazzex.*[105] The idea was to use few sound-objects, and I also used some long sustained airy static sounds with little transformation. Some sound-objects are more prominent, though short, while the instruments swap to add timbral shifting. I tried to let go of analysis, as Debussy emphasised, though I feel analysis is part of perception. For Debussy, music should be unencumbered by the strain of intellect and rhetoric and communicate the emotive as simply as possible,[106] much like Keats' negative capability.[107] Like Debussy's coherent but radical chromaticism, I tried to use unorthodox tensions and colourings, keeping to Debussy's style of tonal centricity and classical harmonic analysis.[108] There may be a tinge of impressionism, as clarity of structure and theme are subordinate at times to harmonic effects, though slight, for example by third doubling in the piano theme. In addition to tonic, dominant and subdominants, minor and major chromatic mediant triads are used often by Debussy, which I employed, and like Debussy's writing there are shared notes by chromatic half step, mainly as the repeating C#, D#, and D#, E# in the piano. I used Parmegiani's idea of shaped attention zones between harmony, melody, rhythm and timbre, moving the listener towards developing timbre or other sonic dimensions. Nicolus Huber suggests that Nono created an 'enclosed sound' that affects time conception in the work—this approach to time results in freedom of constructive dispersal of musical parameters.[109] This 'enclosed sound' that affects time conception, analogous to reduced listening, inspired me to develop types of block-sectional cuts to imbue a skipping effect demarcated by distinct enclosed sections. In my earlier pieces these cuts happen mostly at the dissonant interventions, while later on I experimented more. From bars 42-54 the sound-objects are dense and varied, but soft, standing out as the instruments play cyclically in *p*, and from bars 56 till the end only the violins and sound-objects remain as two parallel entities. In *Trois Nocturnes* there are lines that contain thirds by jump and approach notes shown in Fig. 1.1. This can be contrasted to *Hungry ghost realm (Preta)*, for example in the flute at bars 38-39**,** with F → G# → D# → D (Fig. 1.2).

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[103] Shifting thirds between violin 1 and 2 create timbral change at bars 9-10.

[104] Steven Baur, 'Ravel's "Russian" Period: Octatonicism in His Early Works, 1893-1908', *Journal of the American Musicological Society*, 52/3 (1999), 531-592 (pp. 544-545).

[105] *Jazzex reference 3*, a Parmegiani reference slowed down by 8.04 times, was used in to create a dense textural backdrop to compose onto. It is from the beginning passage with very fast jazz runs and has a peculiar cacophony and atonal suspension effect slowed down. I was inspired by Parmegiani's work where order and timbre are effected.

[106] M. D. Calvocoressi, 'Claude Debussy', *The Musical Time*s, 49/80 (1908), pp. 81-82 (p. 81).

[107] Also analogous to Barthes' neutral, eastern centrality or gestalt.

[108] Avo Somer 'Chromatic Third-Relations and Tonal Structure in the Songs of Debussy', *Music Theory Spectrum*, 17/2 (1995), pp. 215-241 (p. 215).

Fig. 1.1

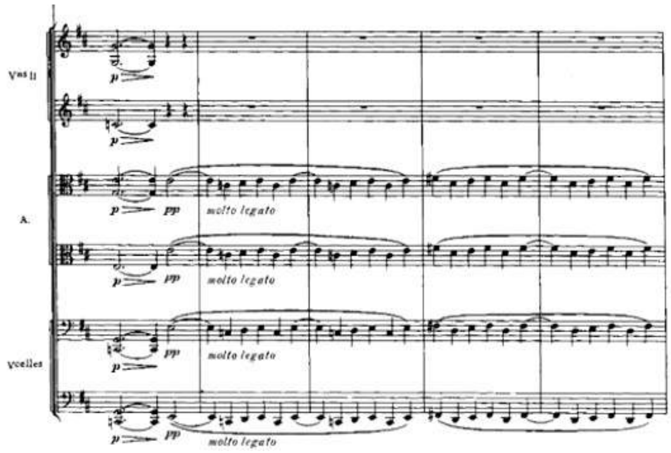
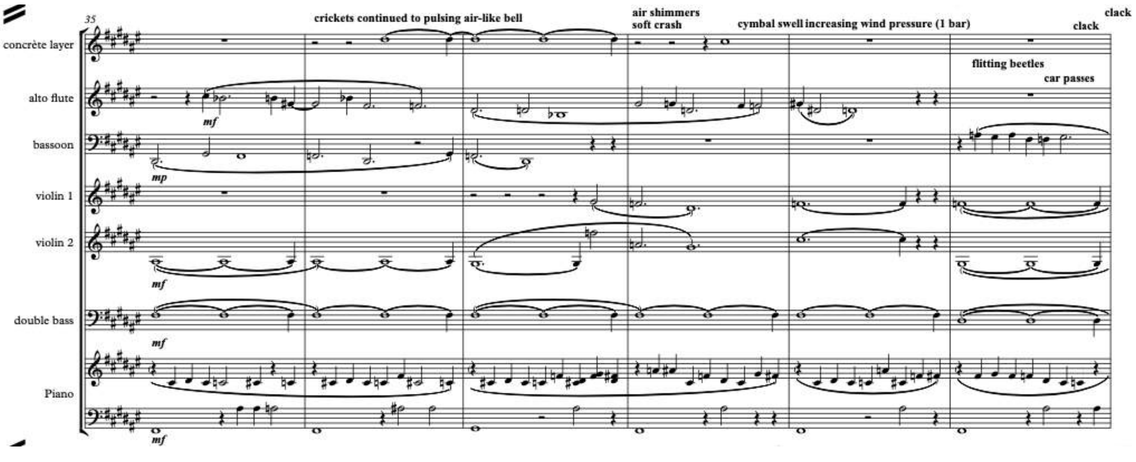

Vns II
A.
Vcelles
p
pp
molto legato

Fig. 1.2


35
crickets continued to pulsing air-like bell
air shimmers
soft crash
cymbal swell increasing wind pressure (1 bar)
clack
clack
flitting beetles
car passes
concrète layer
alto flute
bassoon
violin 1
violin 2
double bass
Piano
mf
mp

Another example of 3rd relations is in the flute part at bars 15-16 with F → C and C♯ (Fig. 1.3).

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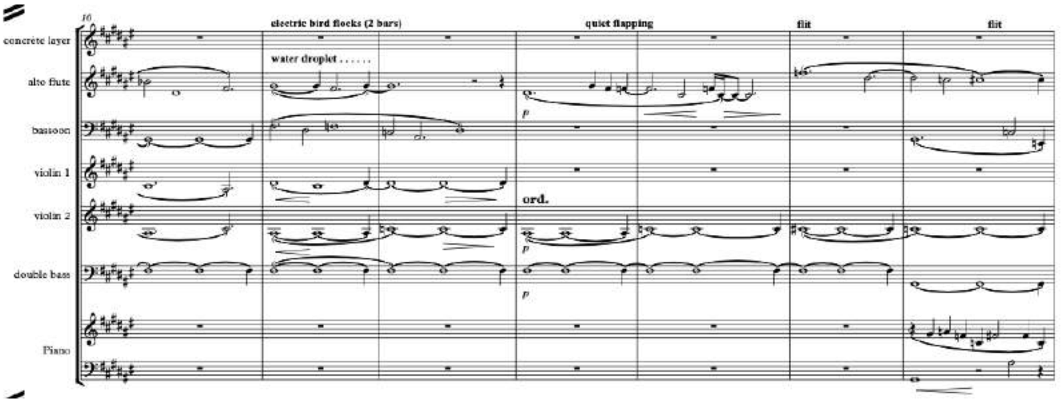
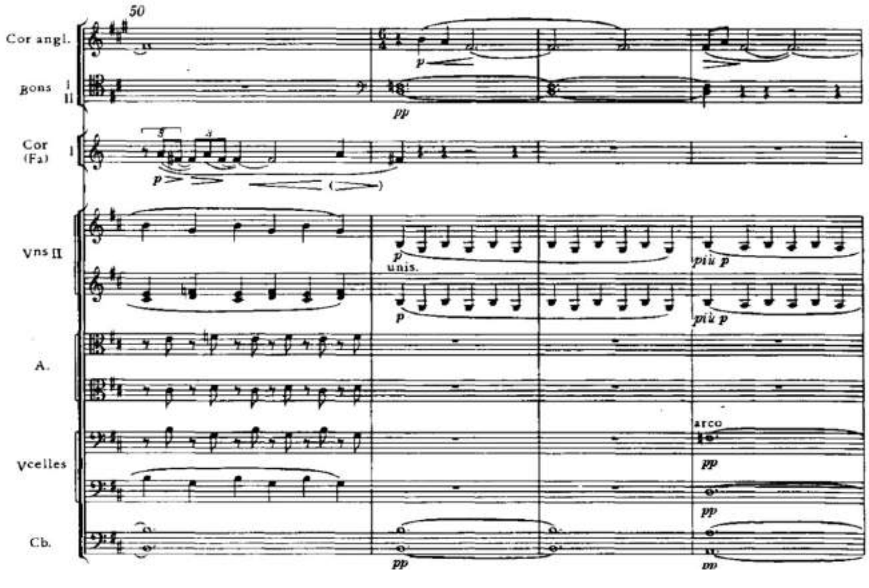
[109] Peter Ivan Edwards, 'Object, Space, and Fragility in Luigi Nono's "Das atmende Klarsein"', *Perspectives of New Music*, 46/1 (2008), 225-243 (p. 242).

Fig. 1.3


10
concrète layer
alto flute
bassoon
violin 1
violin 2
double bass
Piano
electric bird flocks (2 bars)
water droplet......
quiet flapping
flit
flit
ord.
p

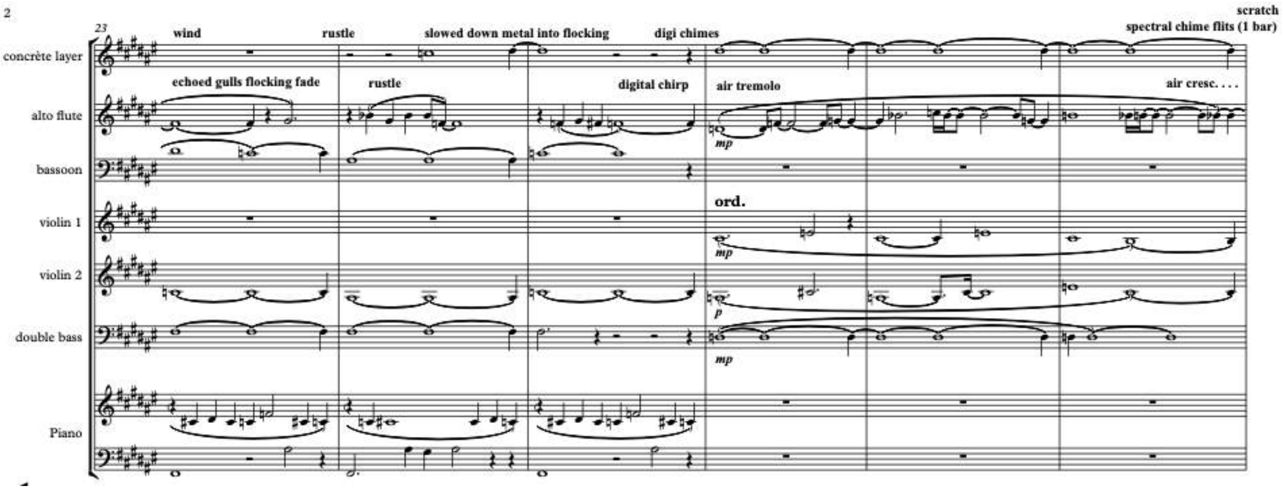
In *Trois Nocturnes* there are lines that contribute timbral nuance through shifting of thirds (Fig. 1.4), such as the violins after b.50.

Fig. 1.4


50
Cor angl.
Bons I II
Cor (Fa) 1
Vns II
A.
Vcelles
Cb.
p
pp
unis.
più p
arco

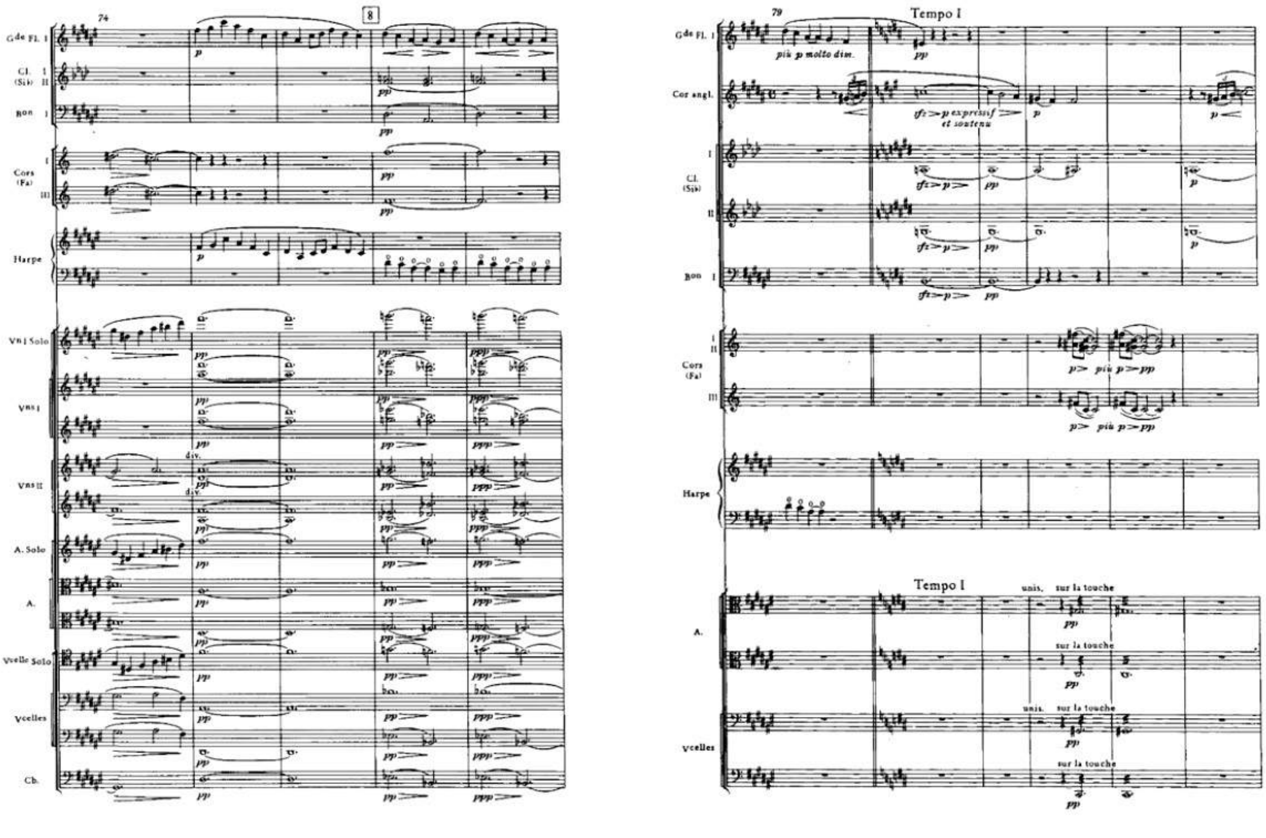
This can be contrasted to shifting of thirds in *Hungry ghost realm (Preta)* at bars 26-27 (violins) (Fig. 1.5).

Fig. 1.5


2
23
wind
rustle
slowed down metal into flocking
digi chimes
scratch
spectral chime flits (1 bar)
concrète layer
echoed gulls flocking fade
rustle
digital chirp
air tremolo
air cresc. . . .
alto flute
mp
bassoon
ord.
violin 1
mp
violin 2
p
double bass
mp
Piano

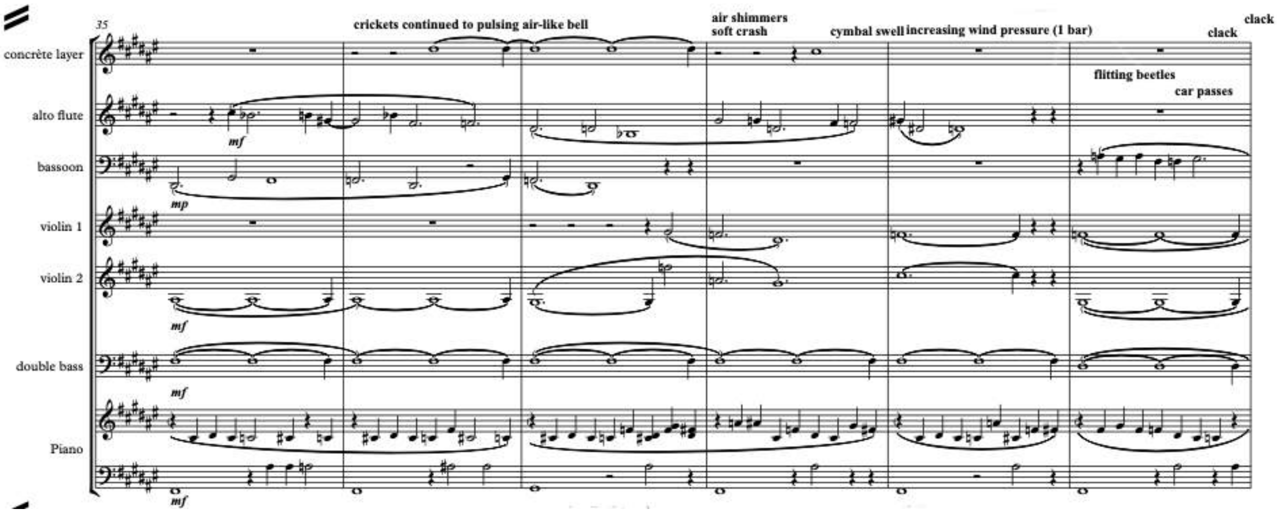
The following example from *Trois Nocturnes* illustrates a chord change of a flat third at b.78-79 (Fig. 1.6).

Fig. 1.6


74
8
Gde Fl. I
Cl. I (Sib) II
Bon I
Cors (Fa) I III
Harpe
Vn I Solo
Vns I
Vns II
A. Solo
A.
Vcelle Solo
Vcelles
Cb.
div.
pp
ppp
79
Tempo I
più p molto dim.
Cor angl.
expressif et soutenu
più p
Tempo I
unis.
sur la touche

Chord changes by third can be likewise found in *Hungry ghost realm (Preta)* at bars 39-40 (a b3rd as I-vi) shown in Fig. 1.7.

Fig. 1.7


35
concrète layer
alto flute
bassoon
violin 1
violin 2
double bass
Piano
crickets continued to pulsing air-like bell
air shimmers
soft crash
cymbal swell
increasing wind pressure (1 bar)
clack
clack
flitting beetles
car passes
mf
mp
mf
mf
mf

An example of chord cycles by third (Fig. 1.8) in *Hungry ghost realm (Preta)* occurs at bars 29-30 (a b3 as bvii-v) and bars 30-31 (a b3 as v-iii), a complex passage of changes. Also in *Trois Nocturnes* (Fig. 1.9) are chord changes by 5th, at b. 85-86.

Fig. 1.8

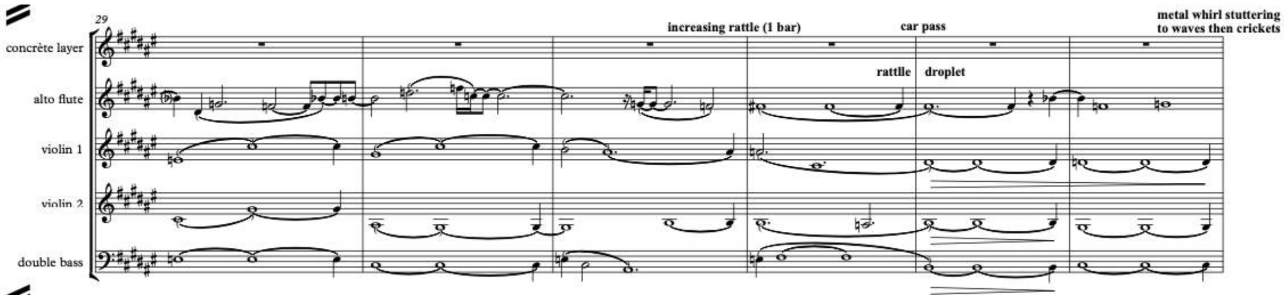

29
concrète layer
alto flute
violin 1
violin 2
double bass
increasing rattle (1 bar)
car pass
rattle
droplet
metal whirl stuttering to waves then crickets

Fig. 1.9

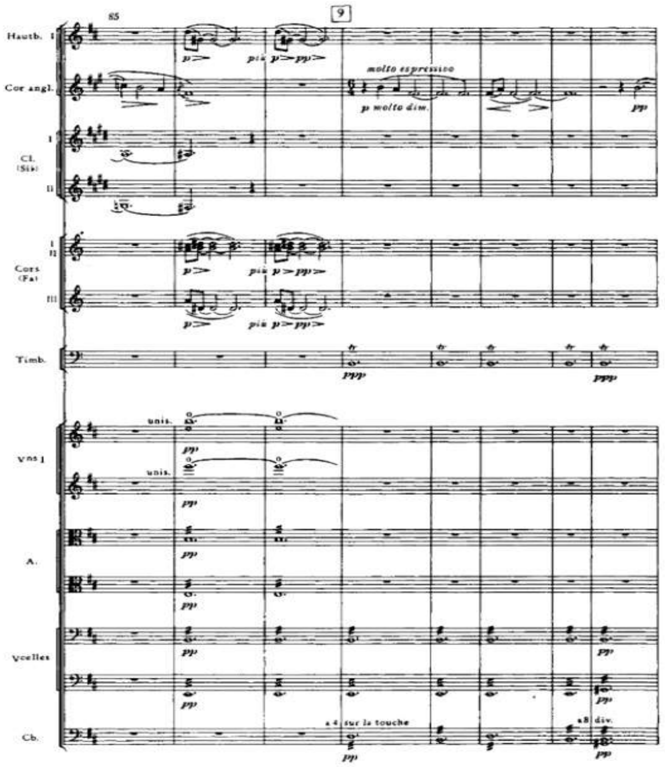
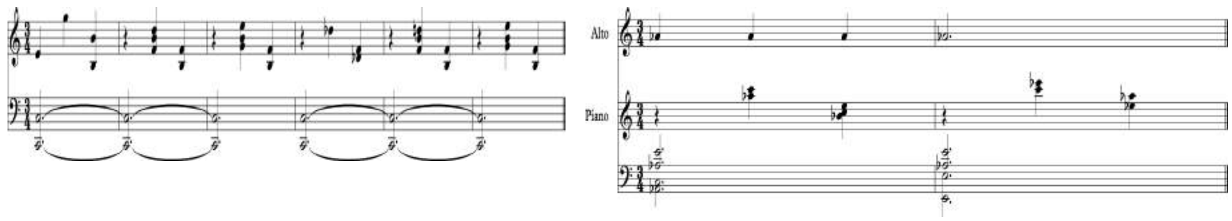

85
9
Hautb. I
Cor angl.
Cl. (Sib) I
II
Cors (Fa) I II
III
Timb.
Vns I
A.
Vcelles
Cb.
molto espressivo
p molto dim.
unis.
à 4 sur la touche
à 8 div.

Fig. 1.10 shows a reworked piano pattern reminiscent of Ravel's *Si morne!*, including frequent use of 2nds.[110]

Fig. 1.10



I added the seventh count as I've always been interested in what has made folk tunes and classical works using odd and compound time signatures affective. The use of seventh structures is relevant as it is in line with Debussy's works and with the end of the Romantic period. Fig 1.11 is an example of a whole tone scale over an augmented chord. The intervention at bars 26-34 is quite atonal but hints at tonality (Fig 1.12).

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[110] A repeating C in the bass and B in the treble.

Fig. 1.11

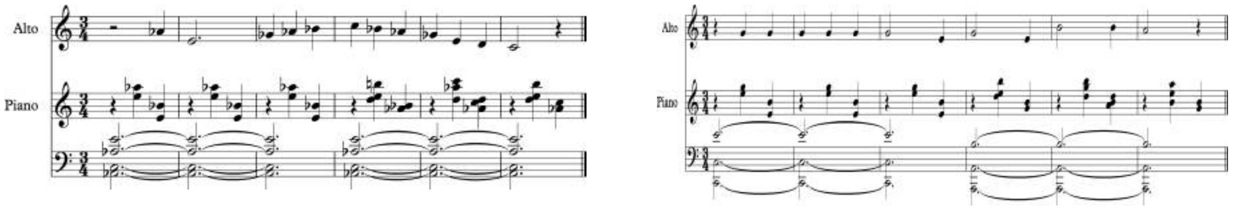

Alto
Piano
Alto
Piano

Fig. 1.12

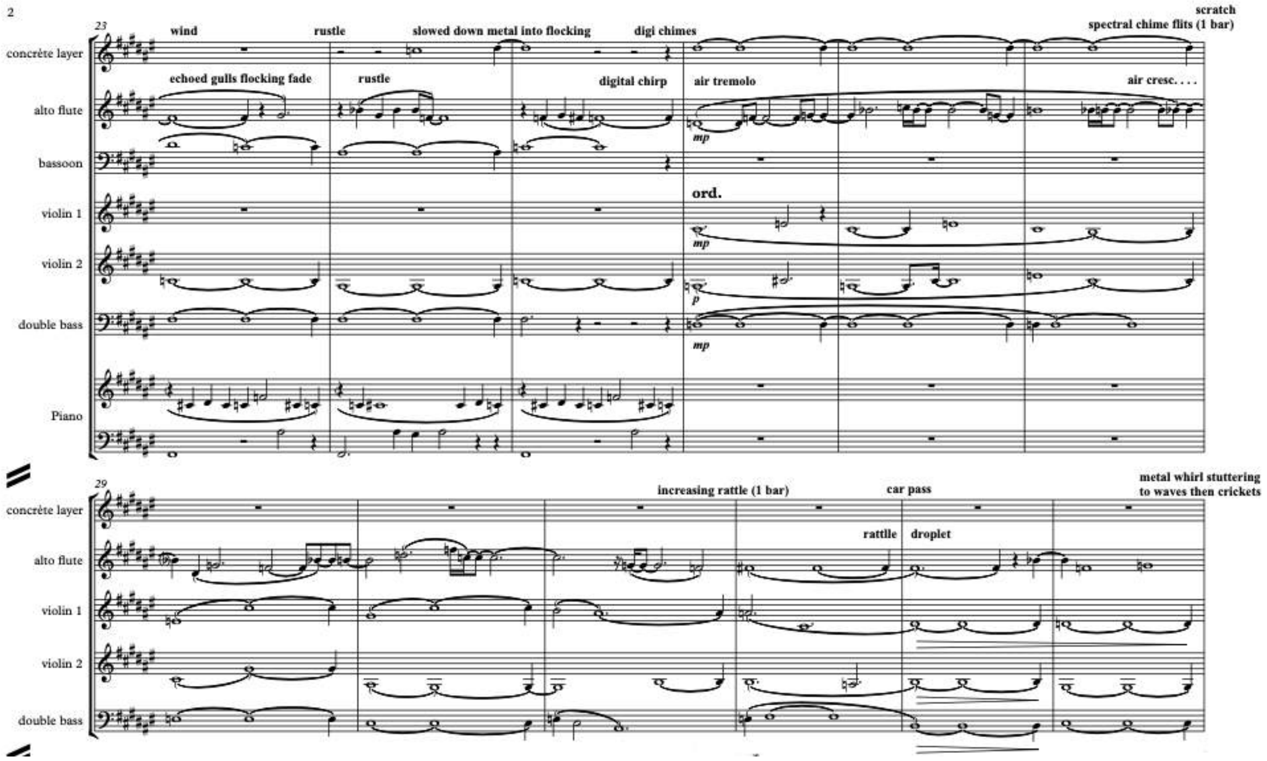

2
23
wind
rustle
slowed down metal into flocking
digi chimes
scratch
spectral chime flits (1 bar)
concrète layer
echoed gulls flocking fade
rustle
digital chirp
air tremolo
air cresc. . . .
alto flute
mp
bassoon
ord.
violin 1
mp
violin 2
p
double bass
mp
Piano
29
increasing rattle (1 bar)
car pass
metal whirl stuttering
to waves then crickets
concrète layer
rattlle
droplet
alto flute
violin 1
violin 2
double bass

Fig. 1.13a shows Parmegiani's *Jazzex* reference 3 slowed down by 8.04 times, and Fig. 1.13b shows the original speed.

Fig. 1.13a

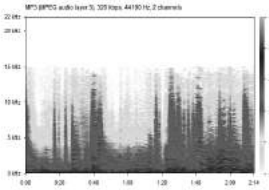
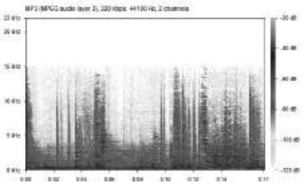


Fig. 1.13b



Animal realm (Tiryagyoni)

The idea was to create a surreal alienating effect through use of dense, abrupt sound-objects and a simple, repetitive melody in the piano. Atonality would obscure the artist's hand during the atonal passages, to portray 'otherness',[111][112] and the abrupt off-beat sound-objects would be used densely to create a tempestuous feel. Sound-objects cohere and decohere abruptly.[113] I kept in mind some secondary dominants in the grundgestalt before applying aleotoric 12-tone diminutions with 12-sided dice, with variations culled and expanded upon in call and response form. Though there is a little motivic development, the idea was to give an uncanny effect of suddenly repeating at random. Diminution and augmentation were used to vary lines and direct references were placed into the work and altered syntactically. I decided to have scattered and abrupt cycling clusters of sound-objects that shifted in variations to give the piece an abrupt mechanistic quality that would contrast the lurching instrumental ostinatos, while sometimes syncing. I then applied a little sieve theory to the instrumental and concrète layers. The 15/4 pulse rarely breaks except at bars 27-30. The main cycling piano ostinato variations are centred on a dorian scale that appears slightly atonal.[114] The abrupt piano rhythms and pitch-jumping complement the abrupt acousmatic rhythms and harsh mechanistic timbres, with less dense sound-objects during interventions. I tried to use low to medium amounts of sound-objects. These notational sentences contain jagged and precise rhythms with minor variations contrasting sharp sound-object timbres with syncopated rhythmic patterns that offset coherence. In these pieces my intention was for the forms created by the devices to convey and carry material forward more than melody. Aleatoric chance procedure was created with dice, in line with serialist techniques. For the sieve theory, I decided on an ambitus of 18, or #4 in the upper structure of the scale, which would be matched by a similar amount of sound-objects. For the modulo I decided to try a periodicity of 6 and 8 (Fig 2.1), or #4 and b6. I chose the following 18-note ambitus scale below and formed the sieve function from that. I experimented a little with unions and intersections of contrasting modes which took me in directions I was aiming at, and it was as interesting as rolling dice. Fig. 2.1 shows a similar graph and function to those used in Xenakis's *Pour la paix*. Bars 10-11 has parallel 4ths and 5ths in the violin part and b. 10 has parallel 6ths and 4ths in the flute, the idea taken from parallel 4ths, 5ths and 6ths used in Debussy's *Nuages*. The flute voicing at b. 11 is very dissonant, with 3rds, 4ths and 5ths between the flute and violin and 7 → b6 → b3 → b 6 between the bass and flute. Bars 2-15 (Fig. 2.2) foreshadows the sweeping phrasings of *Hell realm (Naraka)* and bars 49-64 foreshadows *God realm (Deva) part 2* in the instrumental layer (Fig. 2.3). The piece is rhythmic, except at the interventions, and predominantly locked with little slippage of lines. There is also very slight use of anticipation, for example the flute at the end of b. 21 and the piano at the end of b. 4 and 22. I used Nono's technique of note-banding on the piano line at bars 14-15, which also displays traits of compound melody and synthetic chords (Fig. 2.2) and is also a Roslavets reference in the last lines of *God realm (Deva) part 2* (Fig. 2.4).

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[111] While these techniques may initially give a sense of 'otherness' and 'alienation', after being highly accustomed to them this may no longer be the case. In my own experience I do not view high levels of dissonance as that dissonant.

[112] Luigi Nono's tape piece *Omaggio a Emilio Vedova* is similar to *Animal realm (Tiryagyoni)* in its dense use of abrupt acousmatic sound-row-like passages.

[113] Michael Hicks, 'John Cage's Studies with Schoenberg', *American Music*, 8/2 (1990), 125-140 (p. 130).

[114] An ostinato theme cycles through changes that appear somewhat atonal but repeats notes enough to be modal, and could be viewed as motion by quints more than serialism due to the chordal-like form.

Fig. 2.1

semitone points	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**
scale members	●	○		○		○	●		○		○		●		○		○		●
sieve 6_0	|						|						|						|
sieve 6_1		|						|						|					
sieve 6_2			|						|						|				
sieve 6_3				|						|						|			
sieve 6_4					|						|						|		
sieve 6_5						|						|						|	
sieve 8_0	|								|								|		
sieve 8_1		|								|								|	
sieve 8_2			|							|								|
sieve 8_3				|								|							
sieve 8_4					|								|						
sieve 8_5						|								|					
sieve 8_6							|								|				
sieve 8_7								|								|			

The logic of the graph yields the following scale representation function:
$6_0 \cup (6_1 \cap 8_1) \cup (6_3 \cap 8_3) \cup (6_5 \cap 8_5) \cup (6_2 \cap 8_0) \cup (6_4 \cap 8_2) \cup (6_2 \cap 8_6) \cup (6_4 \cap 8_0)$

Fig. 2.2

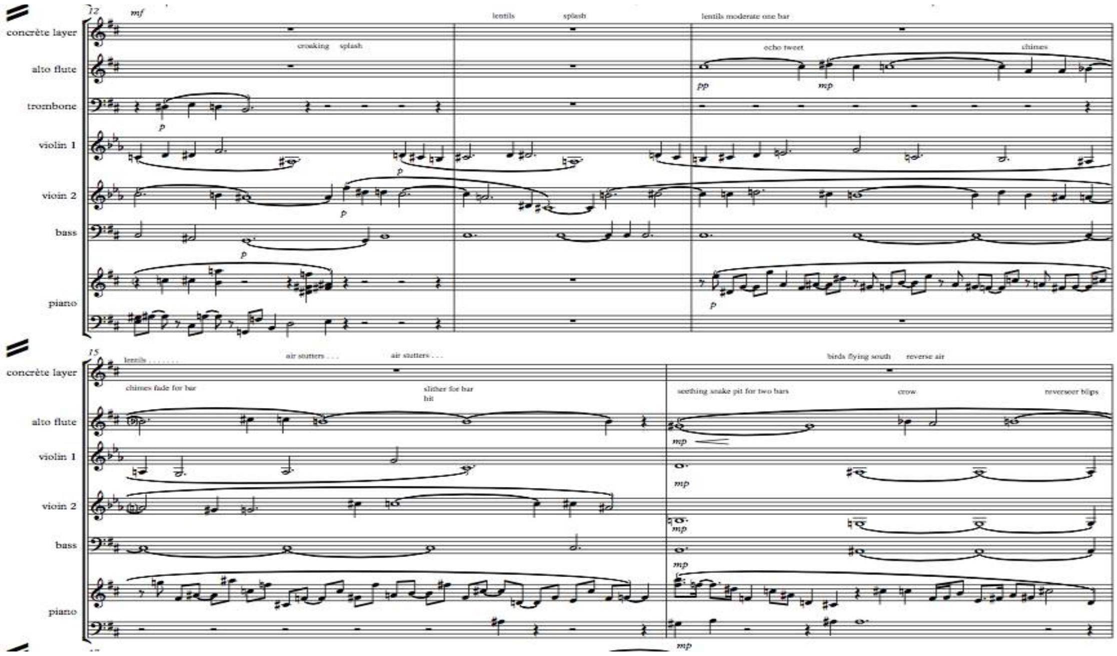

12
mf
lentils
splash
lentils moderate one bar
concrète layer
croaking
splash
echo tweet
chimes
alto flute
pp
mp
trombone
p
violin 1
p
vioin 2
p
bass
p
piano
p
15
lentils . . . .
air stutters . . .
air stutters . . .
birds flying south
reverse air
concrète layer
chimes fade for bar
slither for bar
hit
seething snake pit for two bars
crow
reverseer blips
alto flute
mp
violin 1
mp
vioin 2
mp
bass
mp
piano
mp

Fig. 2.3

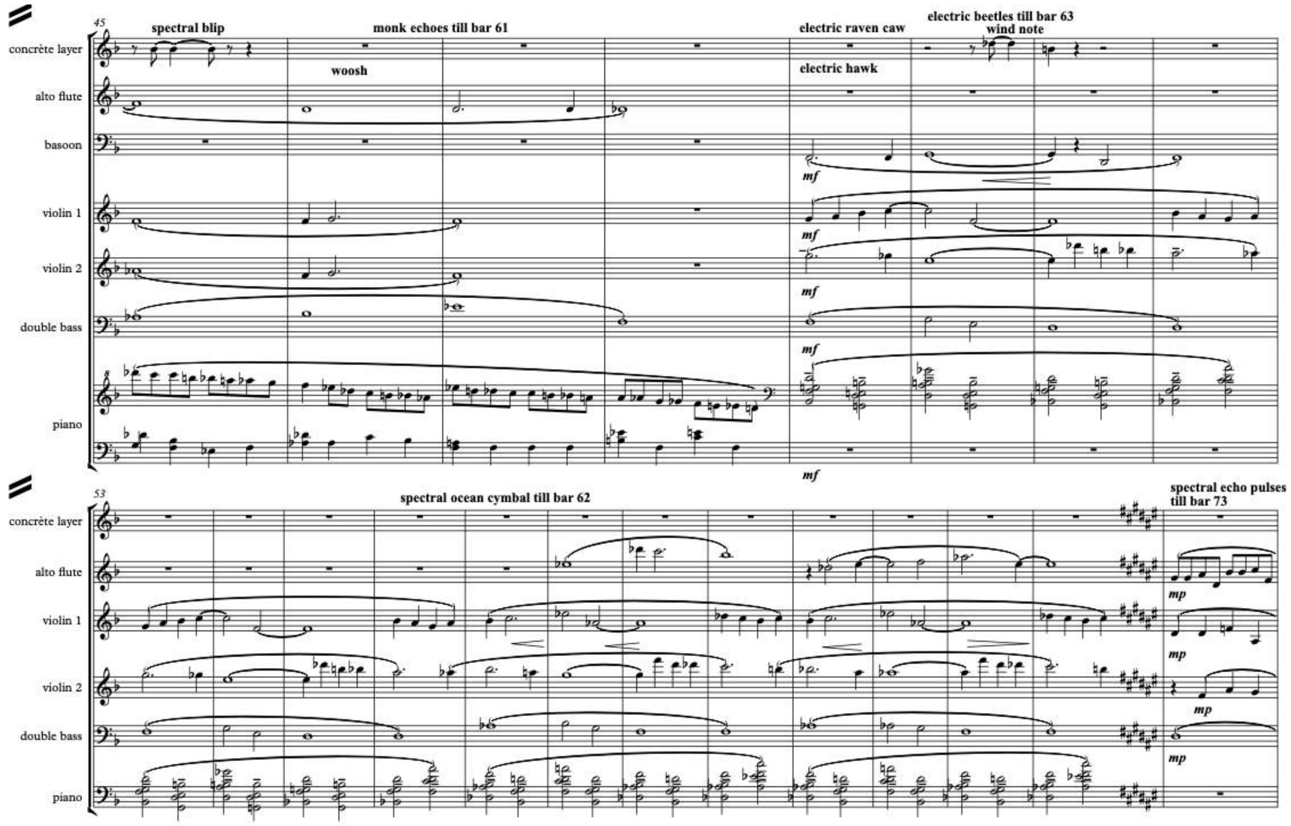

45
spectral blip
monk echoes till bar 61
electric raven caw
electric beetles till bar 63
wind note
concrète layer
woosh
electric hawk
alto flute
bassoon
mf
violin 1
mf
violin 2
mf
double bass
mf
piano
mf
53
spectral ocean cymbal till bar 62
spectral echo pulses till bar 73
concrète layer
alto flute
mp
violin 1
mp
violin 2
mp
double bass
mp
piano

Fig. 2.4

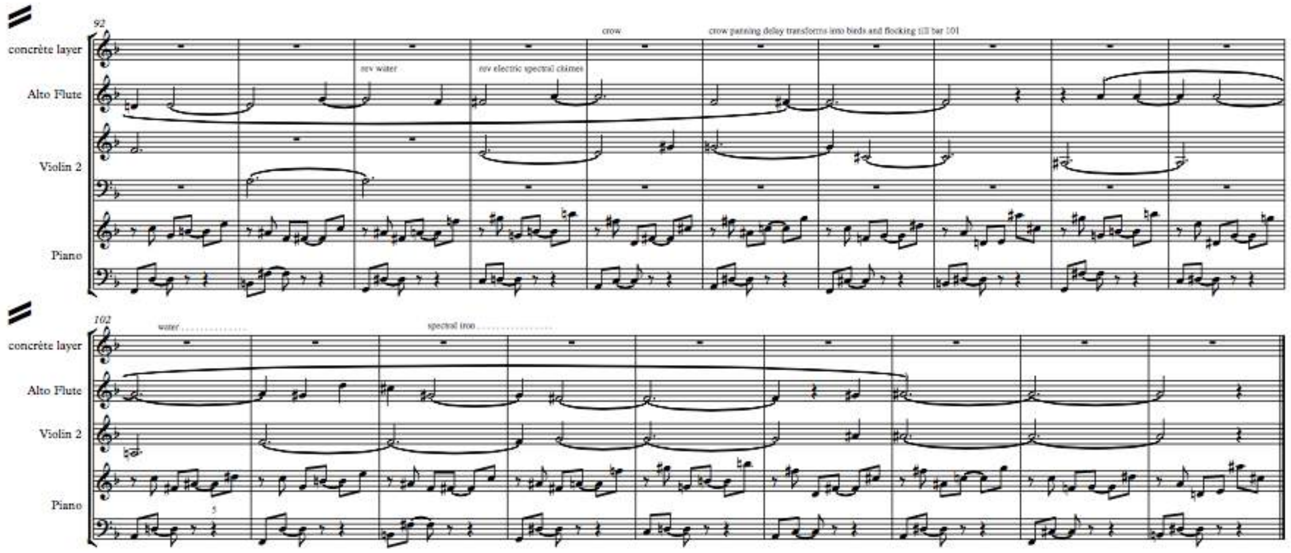
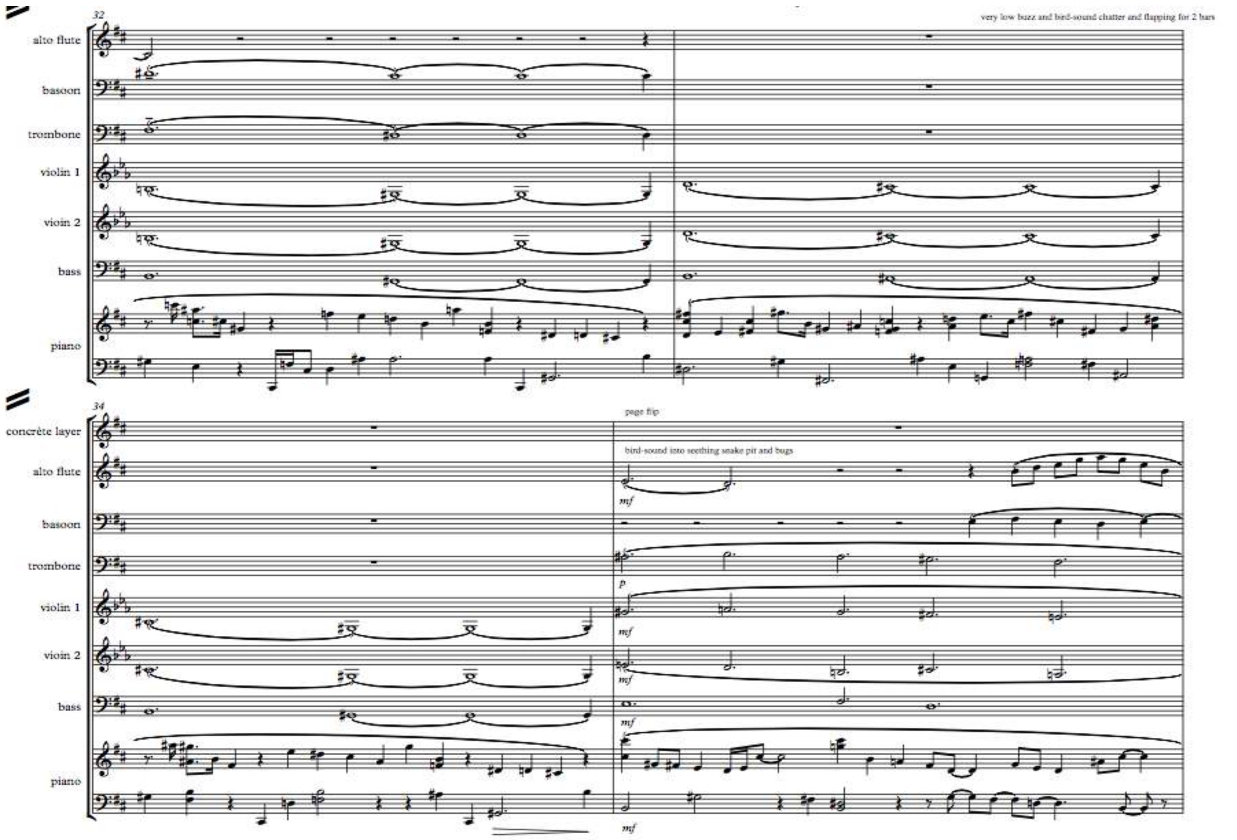

92
concrète layer
Alto Flute
Violin 2
Piano
crow
crow panning delay transforms into birds and flocking till bar 101
rev water
rev electric spectral chimes
102
water ……………
spectral iron ……………
5

Fig. 2.5


32
alto flute
basoon
trombone
violin 1
vioin 2
bass
piano
very low buzz and bird-sound chatter and flapping for 2 bars
34
concrète layer
page flip
bird-sound into seething snake pit and bugs
mf
p

I used Schoenberg's 'Lyceum' principles: for example, reserving tones for the start and finish of lines to enhance these points, and only having one high point and low point per line.[115][116] Development of phrase and line variation was important, influenced by Cage's idea of variations, as extended from Schoenberg's original views.[117][118] In these pieces I wanted degrees of serialist sound-object timbres and lengths and serialist instrumental lines, phrases, note clusters, upper structures and tone rows.[119] The strings at bars 12-15 (Fig. 2.2) foreshadow *God realm (Deva) part 2's* bars 49-64 theme (Fig. 2.3). I incorporated whole-tones in brief passing into the polytonal piano part at bars 33-34 (Fig. 2.5) but found it difficult to incorporate at length over atonal-like structures. The idea was for the scatter-like and frenetic acousmatic layer to linger, non-coherently detached, often dipping down to intertwine coherently into the eddies of the instrumental part. There is still primacy of the tonic triad with less use of traditional rules, and I tried for homogenous equilibrium of the twelve semitones during the more atonal passages.[120] There are motivic associations, like secondary structural functions which have tonal functions,[121] but this depends on the way one performs analysis.[122] I wanted atonality to pull at the motivic paths with tonal suggestion, where tonality becomes more entrenched within atonality, for example by ostinatos and fleeting melodic lines, sometimes in call and response. Sound-objects were often repeating clones or variants and I tried to hint at polytonality with ostinato rhythms providing a narrative ground. I used variegated sound-object sentences or phrases, and was investigating the fixed-form pedal-type ostinatos of sound-objects extensively used by Parmegiani, that extend typical musical definitions,[123] though I began using sound-clusters. After rough transcriptions of some lines of Schoenberg's *String Quartet No. 2, Op. 10* I started with 12-tone piano lines, and from there

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115 Cage studied first with Schoenberg's most important American exponent, Adolph Weiss, before studying with Schoenberg, and Cage learned from Schoenberg's 'Lyceum' principles. Cage did not like or use the harmony instruction Weiss provided. I have seen teacher's notes that question the one high / low point, and some may feel compelled to break it in some circumstances.

116 Michael Hicks, 'John Cage's Studies with Schoenberg', *American Music*, 8/2 (1990), 125-140 (p. 126).

117 Morton Feldman suggested that John Cage's music logically extended from Schoenberg's music: a life's expression of 'developing variation.' Schoenberg said that the only reward of teaching was a pupils' success, although he never took credit for Cage's success.

118 Michael Hicks, 'John Cage's Studies with Schoenberg', *American Music*, 8/2 (1990), 125-140 (p. 125).

119 Upper structures were mainly in the piano in these works.

120 Later I would find that the idea was similar to Nono's idea of omission of a distinct surface melody line, where all lines are equal in prominence and lines may come to the fore and just as easily recede. I found also that the idea was similar to Xenakis's ideas of western music evolving less rules over time—from Debussy's whole-tones and mediant chromatic relations and Messiaen's modes of limited transposition to Schoenberg's serialist 12-tone theory with equal emphasis of the 12 semitones and emancipation of dissonance, all within the sphere of modernism and spilling into post-modernism. Traditional tonal relations were contained in boundary conditions, which gradually weakened in the late 19th century, and musical structure depended increasingly on motivic function and less on traditional harmonic relations and primacy of the tonic triad.

121 Joseph N. Straus, 'Recompositions by Schoenberg, Stravinsky, and Webern', *The Musical Quarterly*, 72/3 (1986), 301-328 (p. 303).

122 For example, the seventh count of b. 1, a b.and D#, could be a V7/ii or a vi in D. Though there is little pull toward a ii there is an E second inversion on the seventh count of bar four, serving as a variant 'shade'. The F# and A# on the third count of b. 6 could be a V7/vi or a iii, and there is constant pull towards the vi cycling in the bass.

123 Thom Blum, 'Reviewed Work(s): Parmegiani: De Natura Sonorum by Bernard Parmegiani', *Computer Music Journal,* 5/2 (1981), 68-70 (p. 68).

constructed lead phrases and complex chords,[124][125] though the lines ended up falling short of 12-tone sound rows and had repeating notes. This piece is slightly atonal, gravitating towards D lydian or B dorian, and I used a serialist technique of consonance at the first and last notes of bars and phrases. Just before b. 13 the atonal passage starts, through till b. 21. Bars 25-26 are static in the violins and bass, with descending flute and bassoon lines, allowing the concrète layer to come forward more. This segues into another atonal passage from bars 27-34, which hints at tonal centres but are atonal and serial as well. At b. 12 (Fig. 2.6) there are only two violins and bass in a non-standard connection of phrases, and the sound-objects become prominent briefly. Fig. 2.7 shows atonal lead lines with less dense accompaniment and syncopated sound-objects.

Fig. 2.6

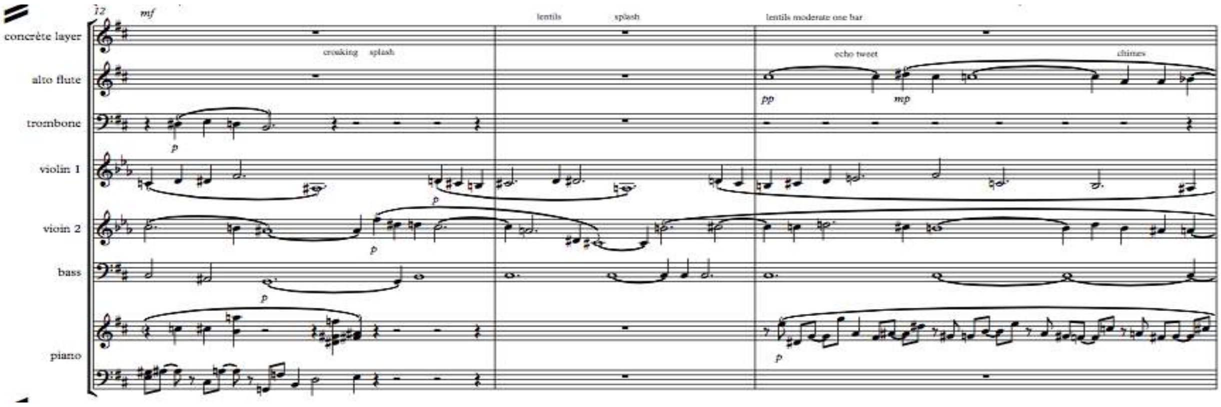
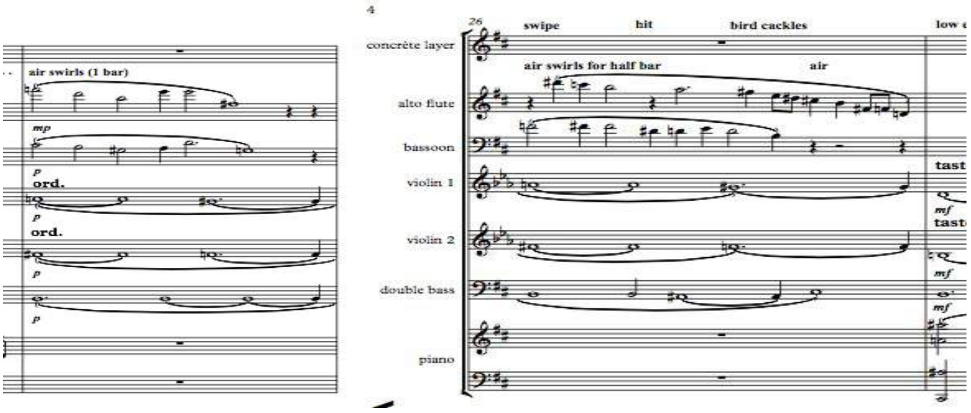

12
mf
concrète layer
alto flute
trombone
violin 1
vioin 2
bass
piano
croaking splash
lentils
splash
lentils moderate one bar
echo tweet
chimes
pp
mp
p

Fig. 2.7


air swirls (1 bar)
mp
p
ord.
4
26
swipe
hit
bird cackles
low
concrète layer
air swirls for half bar
air
alto flute
bassoon
violin 1
violin 2
double bass
piano
tast
mf

The idea was to build disjunct interwoven acousmatic spaces with consonant instrumental themes over atonal ostinatos and dissonant interventions to produce an estranged effect, as Parmegiani did in *La Creation du monde*, which contains a sense of the familiar and unknown,[126] and where a sense of entropic anarchy may be achieved through use of various lengths of the sound-objects.[127] American scholar William Austin found that after Schoenberg's contact with Debussy, roughly at the time of his second quartet, he abandoned the idea of whole-tone scale use.[128] I found the two hard to reconcile, and the result is more polytonal and takes effort to sound intentional and well-worked. Schoenberg thought that harmonic progression was essential, but that no varying instrumentation was necessary in *Klangfarbenmelody*,[129][130] though I feel that contrast between instrumental swapping and stability is interesting practice. Xenakis's idea of abandoning traditional western harmonic function is also apt, as many other devices exist to form structure. In his 1951 essay 'Anton Webern: *Klangfarbenmelody'*, Schoenberg never mentions that the idea of 'melodie' is related to single instrumental melodic lines of shifting timbre, but alludes to a structured quality because the passages are similar to melody in that they must be given form.[131] This idea is similar to Nono's treatment of equal instrumentation without a lead instrument which creates a unified force, fabric or texture between instruments. There is strong serial and tonal linking, and synthesis that cross-informs the serial language, in all Schoenberg's final works. *Piano Concerto, op. 42* and *Ode to Napoleon Buonaparte, op. 41* incorporate triadic tonality, and *Kol Nidre, op. 39* is 'tonal'.[132][133] Citing the Viennese essayist Karl Kraus, Webern saw the shapes of words as analogous to the musical idea,[134] and William James thought phonetic suggestion was a strong emotional trigger,[135] which lends fidelity to pairing the acousmatic with the instrumental. I had been listening to Schnittke, who emotes power by strings,[136] and this influenced me to pay particular attention to writing melodic and thematic content into them, which I did throughout all my works to varying degrees.

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[124] Joseph N. Straus, 'Recompositions by Schoenberg, Stravinsky, and Webern', *The Musical Quarterly*, 72/3 (1986), 301-328 (p. 304).

[125] Schoenberg's motivic language contains polyphonic, harmonic and contrapuntal overflowing nuance not seen since Bach.

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[126] Tomas Wendt, 'Reviewed Work(s): La Création du Monde by Bernard Parmegiani', *Computer Music Journal*, 13/1 (1989), 63-64 (p. 63).

[127] Tomas Wendt, 'Reviewed Work(s): La Création du Monde by Bernard Parmegiani', *Computer Music Journal*, 13/1 (1989), 63-64 (p. 64).

[128] Robert Henderson, 'Portrait of Debussy. 3: Debussy and Schoenberg', *The Musical Times*, 108/1489 (1967), pp. 222-226 (p. 224).

[129] Alfred Cramer, 'Schoenberg's Klangfarbenmelodie: A Principle of Early Atonal Harmony', *Music Theory Spectrum*, 24/1 (2002), 1-34 (p. 3).

[130] Carl Dahlhaus thought that music containing *Klangfarbenmelodien*, where timbre changes occur, usually is achieved through balance of instrumentation and melody.

[131] Alfred Cramer, 'Schoenberg's Klangfarbenmelodie: A Principle of Early Atonal Harmony', *Music Theory Spectrum*, 24/1 (2002), 1-34 (p. 3).

[132] Catherine Dale, 'The Skeleton in Schoenberg's Musical Closet': The Chequered Compositional History of Schoenberg's Second Chamber Symphony', *Journal of the Royal Musical Association*, 123/1 (1998), 68-104 (pp. 100-101).

[133] The First Chamber Symphony could be considered an emancipation of dissonance as much as the Second Chamber Symphony could be an emancipation of consonance. Schoenberg compared his tonal return to classic composers' use of interpolated counterpoint.

[134] Alfred Cramer, 'Schoenberg's Klangfarbenmelodie: A Principle of Early Atonal Harmony', *Music Theory Spectrum*, 24/1 (2002), 1-34 (p. 17).

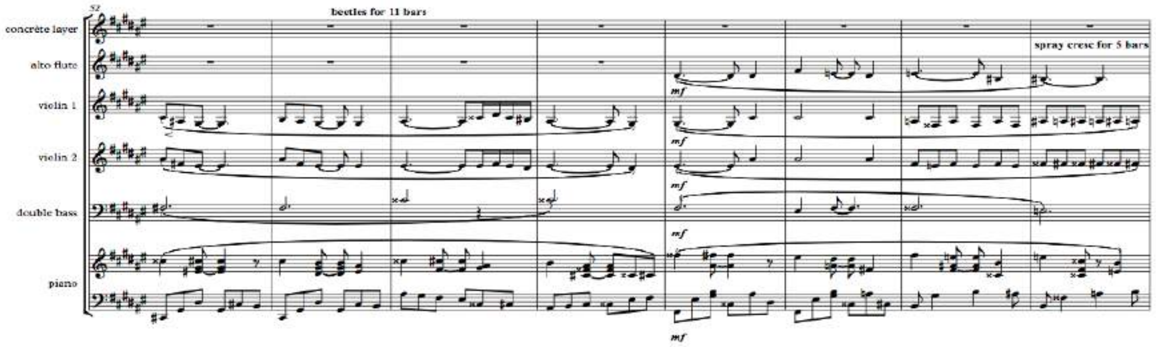
[135] Alfred Cramer, 'Schoenberg's Klangfarbenmelodie: A Principle of Early Atonal Harmony', *Music Theory Spectrum*, 24/1 (2002), 1-34 (p. 19).

[136] Ivan Moody, 'The Music of Alfred Schnittke', *Tempo*, New Series, 168 (1989), 4-11 (p. 4).

Human realm (Manuşya) part 1

The original idea was to have meandering instrumental phrases develop into obscurity, into aleatoric-like note clusters, while the sound-objects gain clarity and complex definition, tending towards solidification and coming forward, and then have this cycle repeat with layer interaction. This only happens at the end, though it happens in the interventions of other pieces, especially dissonant interventions with long drawn-out low notes and stasis in the instrumental layer, and perhaps slightly where there is slippage and fusion of dissonant and consonant instrumental phrases, where gaps are created for the sound-objects to surface. The sound-objects tend to be short, as if to solidify slightly and embellish. Long silences in the concrète layer were initially explored and later filled in with long sound-objects, and low to high diegesis between the layers was explored. High diegesis occurs only towards the end, at bars 64, 67-69 and 72-74, while very low diegesis occurs elsewhere. Some sound-objects sparsely interact with the instruments while others are more articulately complex and interactive through pitch relations, gestures, timbre and rhythms. Creation of harmonic distance was through transposed synthetic chords creating extreme orthography, with use of extreme spellings like triple sharps, in the style of Roslavets, though the final score is simplified. I used Roslavets's style of convincing chromatic texture in the piano with lyrical melodic overlay and thematic clarity through contrasting gestures which fixed theme identities. I also used the idea where these theme identities, generated by modes or sets, interact with and sustain the background content to create shapes in a state of flux, controlled by ostinato patterns that create primacy of pitches. I was also inspired by Roslavets's use of spare linear textures and high degrees of chromaticism.[137] B. 52 sets the scene for the electric beetles' theme (Fig. 3.1). I used a 3/4 rhythm inspired by the first movement of Roslavets's *Trois Danses* (transcribed by ear in Fig. 3.2). The piano line is also inspired by Roslavets's *5 Preludes*, a serialist piece in 3/4, and some elements of Roslavets's *3 Etudes* was kept in mind, which is in 5/8 (3/8 + 2/8). The first 23 bars have no distinct pulse and create a disjointed atmosphere of hanging and suspense.

Fig. 3.1



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[137] David Wright, 'Russian Spring', *Tempo*, New Series, 177 (1991), 45-46 (p. 45).

Fig. 3.2 *Trois Danses*

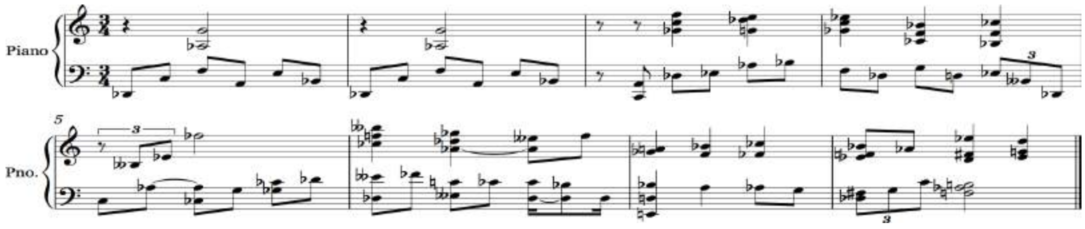
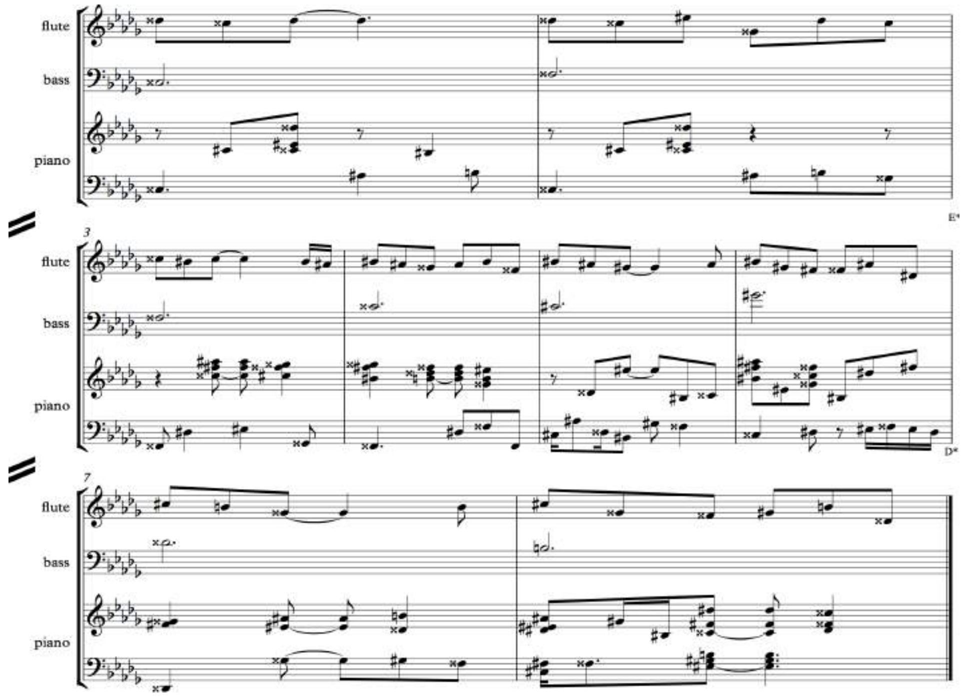


Fig. 3.3 An initial draft of an interventional theme



Roslavets's synthetic chords, or sets of six to eight notes, contain transpositions by twelve degrees that create and govern structural outcome in horizontal and vertical dimensions. Extreme orthography is cumbersome but clarifies notational relations and chordal structure, and traditional chordal roots are used in positional contexts.[138][139] Roslavets was very fond of T5 and T7, transpositions reminiscent of traditional fourths and fifths, and symmetrical chord-paths are used in his formal segmented section.[140] A synthetic chord is usually arranged successively in a scale-like sequence of tones and semitones, and Roslavets's transpositions by perfect fifths resulted in extreme spellings. The transpositional symmetry results from motivic synthetic chord use of ordered transposed sets.[141] Distance may be measured in quints and the set, or synthetic chord, replaces the triad, while transpositions up or down by fifth are reminiscent of traditional classical tonality of root, fourth and fifth. Tension and resolution is created through distance away from the initial synthetic chord. Iterative cycle schemas consist of opposites: up and down, tension and release, departure and return, in and out.[142][143] Roslavets uses three types of symmetry for synthetic chords that create chord paths: 1) crisp symmetry, repetitive motif gestures along perfect fifths, rotating by one amount of quints, as a product of the gestures and not through inversion or mirror, 2) transpositional near-symmetry suggesting 'skewed' transpositional symmetry of quints, and 3) transpositional-nested near-symmetry which cycles between different midpoints along an axis of fifths, or quints.[144]

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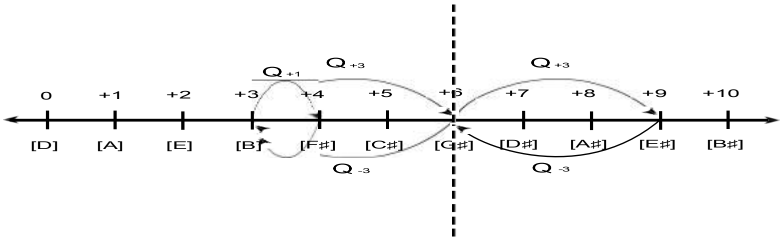
[138] Anna Ferenc, 'Reviewed Work(s): Tanez belych dew (Dance of White Maidens) für Violoncello und Klavier (1912) by Nikolai Roslavets; 1. Sonate für Violoncello und Klavier (1921) by Nikolai Roslavets; 2. Sonate für Violoncello und Klavier (1922) by Nikolai Roslavets', *Notes*, Second Series, 52/2 (1995), 639-641 (p. 640).

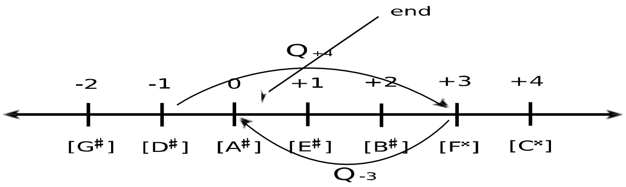
[139] Roslavets's sketches and manuscripts indicated his view of the synthetic chords as sets with unique harmonic voice leading potentialities, with particular emphasis on a basic hexachord that could form a major triad, minor seventh, minor ninth and minor thirteenth above a fundamental.

[140] Inessa Bazayev, 'Triple Sharps, Q nt Relations, and Symmetries Orthography in the Music of Nicolai Roslavets', *Music Theory Spectrum,* 35/1 (2013), 111-131 (p. 111).

Transpositional-nested near-symmetry measured in quints, with two midpoints: Q +3/+4 , offset (0) and Q +6, offset (3) from *Trois Compositions* No. 1, mm. 10–13 (end).[145]



Near-symmetry with midpoint at Q+1.[146]



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[141] Inessa Bazayev, 'Triple Sharps, Q nt Relations, and Symmetries Orthography in the Music of Nicolai Roslavets', *Music Theory Spectrum,* 35/1 (2013), 111-131 (p. 112).

[142] Inessa Bazayev, 'Triple Sharps, Q nt Relations, and Symmetries Orthography in the Music of Nicolai Roslavets', *Music Theory Spectrum,* 35/1 (2013), 111-131 (p. 113).

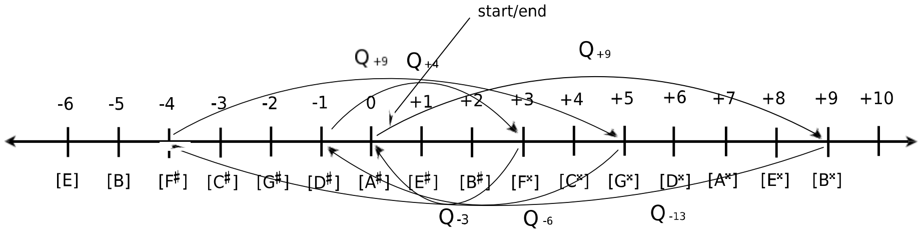
[143] In future works I will try to use more of the scale-like up and down phrases that Roslavets used.

[144] Inessa Bazayev, 'Triple Sharps, Q nt Relations, and Symmetries Orthography in the Music of Nicolai Roslavets', Music Theory Spectrum, 35/1 (2013), 111-131 (pp. 113-117).

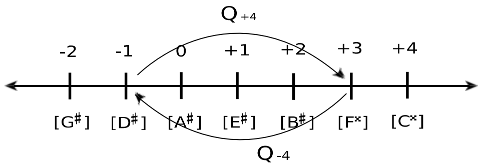
[145] Inessa Bazayev, 'Triple Sharps, Q nt Relations, and Symmetries Orthography in the Music of Nicolai Roslavets', *Music Theory Spectrum,* 35/1 (2013), 111-131 (p. 124).

[146] Inessa Bazayev, 'Triple Sharps, Q nt Relations, and Symmetries Orthography in the Music of Nicolai Roslavets', *Music Theory Spectrum,* 35/1 (2013), 111-131 (p. 122).

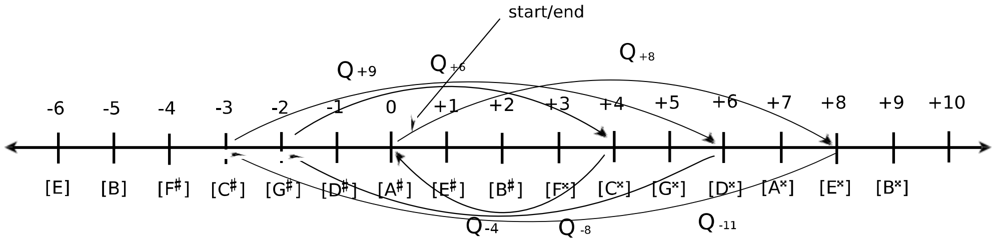
Near-symmetry.[147]


start/end
Q +9
Q +4
Q +9
-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10
[E] [B] [F♯] [C♯] [G♯] [D♯] [A♯] [E♯] [B♯] [F×] [C×] [G×] [D×] [A×] [E×] [B×]
Q -3
Q -6
Q -13

Crisp symmetry.[148]


Q +4
-2 -1 0 +1 +2 +3 +4
[G♯] [D♯] [A♯] [E♯] [B♯] [F×] [C×]
Q -4

Near-symmetry in *Human realm (Manuṣya) part 1* with midpoint at Q+2/+3


start/end
Q +9
Q +6
Q +8
-6 -5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5 +6 +7 +8 +9 +10
[E] [B] [F♯] [C♯] [G♯] [D♯] [A♯] [E♯] [B♯] [F×] [C×] [G×] [D×] [A×] [E×] [B×]
Q -4
Q -8
Q -11

Example of sets used in Roslavets's *Trois Compositions*.[149]

Mm.	Set $Q_{nt}(x)$	Q_{nt} (distance)
10.1	Set $Q_{+9}(x)$ {E♯, F♯, G♯, A, B, C♯, D}	
10.2	Set $Q_{+6}(x)$ {G♯, A, B, C, D, E, G}	↓ Q_{-3}
11.1	Set $Q_{+9}(x)$ {E♯, F♯, G♯, A, B, C♯, D}	↑ Q_{+3}
11.2	Set $Q_{+6}(x)$ {G♯, A, B, C, D, E, G}	↓ Q_{-3}
12.1	Set $Q_{+3}(x)$ {B, C, D, Eb, F, G, Ab}	↓ Q_{-3}
12.2	Set $Q_{+4}(x)$ {F♯, G, A, Bb, C, D, Eb}	↑ Q_{+1}
12.3	Set $Q_{+3}(x)$ {B, C, D, Eb, F, G, Ab}	↓ Q_{-1}
13	Set $Q_{+4}(x)$ {F♯, G, A, Bb, C, D, Eb}	↑ Q_{+1}

Sets used in Roslavets's *Pianissimo,* mm. 1-14.[150]

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[147] Inessa Bazayev, 'Triple Sharps, Q nt Relations, and Symmetries Orthography in the Music of Nicolai Roslavets', *Music Theory Spectrum,* 35/1 (2013), 111-131 (p. 122).

[148] Inessa Bazayev, 'Triple Sharps, Q nt Relations, and Symmetries Orthography in the Music of Nicolai Roslavets', *Music Theory Spectrum,* 35/1 (2013), 111-131 (p. 122).

[149] Inessa Bazayev, 'Triple Sharps, Q nt Relations, and Symmetries Orthography in the Music of Nicolai Roslavets', *Music Theory Spectrum,* 35/1 (2013), 111-131 (p. 124).

[150] Inessa Bazayev, 'Triple Sharps, Q nt Relations, and Symmetries Orthography in the Music of Nicolai Roslavets',

Mm.	Q_{nt}	Synthetic chord or set
1	Q_0	{A♯, B, C♯, D, Eb, E♯, F♯}
2		
3		
4		
5	Q_{-3}	{C♯, D, E, F, Gb, G♯, A}
6	Q_{-6}	{E, F, G, Ab, Bbb, B, C}
7	Q_{-2}	{G♯, A, B, C, Db, E, E♯}
8	Q_{-5}	{B, C, D, Eb, Fb, F♯, G}
9		
10		
11		
12	Q_{-1}	{D♯, E, F♯, G, Ab, A♯, B}
13	Q_{-4}	{F♯, G, A, Bb, Cb, C♯, D}
14	Q_0	{A♯, B, C♯, D, Eb, E♯, F♯}

These sets, or synthetic chords, occur in any permutation within compositions. Roslavets's 'New System of Tone Organization' in which sets define harmonic plans effect structures, orthography and expression,[151] and I view this as analogous to Xenakian outside-time structures. In my piece, the main theme starts at b. 24, and most of the bass motion is in semitones, tones and fourths. I endeavour to mimic and engage with Roslavets's symmetry for synthetic chords through non-use of inversion or mirror that creates linear up/down flow and by repetitive motif gestures along perfect fifth axes. I used techniques of the Russian school, like pattern-making, ostinato principle, neighbour-tone techniques, compression for harmonic rhythmic effect and expansion of phrases through insertion.[152][153] The motivic paths of fifths, or quintal relations, either recede from or approach nearer the root, like secondary dominants. I was also inspired by Stravinsky's *Pulcinella* which used motivic transformations of source ideas out of context, where non-tonal transformations of these elements would be overlaid onto the source structures, resulting in radical transformation,[154] which I kept in mind during further writing. I employed a tactic of contrasting dissonance with sound-objects that sometimes

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Music Theory Spectrum, 35/1 (2013), 111-131 (p. 124).

[151] Inessa Bazayev, 'Triple Sharps, Q nt Relations, and Symmetries Orthography in the Music of Nicolai Roslavets', *Music Theory Spectrum,* 35/1 (2013), 111-131 (p. 127).

[152] Patricia Stowell, 'Reviewed Work(s): Modernism in Russian Piano Music; Skriabin, Prokofiev, and Their Russian Contemporaries by Peter Deane Roberts', *Notes*, Second Series, 51/1 (1994), 155-157 (p. 156).

[153] The rambling style of twists and turns in Roslavets' *Chamber Symphony No.1* was interesting and also the rhythms in *Piano Sonata no.2*. *Prelude IV Lento* is particularly inspiring. I was also intrigued by Roslavets' use of choir in Komsomoliya, a later work where the choir vocals stab.abruptly in syncopated rhythms to the drums along a single tone, amidst chaotic frenetic passages. I wanted to make use of vocals in *Through the Six Worlds* but could not think of a theme or language to present them in.

[154] Joseph N. Straus, ' Recompositions by Schoenberg, Stravinsky, and Webern', *The Musical Quarterly*, 72/3 (1986), 301-328 (pp. 315-16).

appear out of context, as an abrupt change or cut section.[155][156][157] Ussachevsky's acousmatic sound-objects in the introduction of *Suite from "No exit"* inspired me to use only an acousmatic introduction.[158][159] I was inspired by research into human and ornithological perception on cut up language and bird-song to experiment with cuts, palindromes, and forward-reverse sound-objects in sound rows with repeating sound-objects.[160][161][162] I developed the instrumental part to reflect unfolding, unpacking, architectural-like structure, inspired by the idea of potential, image breaking and unfolding in aniconic Islamic art, which is textural and unfolds information and experience.[163][164][165] The delicate piano theme that starts at bars 24-31 is an example of Roslavets's style of cycling through symmetry of quintal relations, and has a I-IV-V-iii root structure, with a second inversion in the bass line at the IV chord--and it possesses a pulling quality that gently stresses deviation from diatonicism.[166]

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155 *Pulcinella* leaves much of Pergolesi's functional harmony intact with overlay of 'wrong notes' that create nontriadic harmonies throughout the suite. This was inspirational in terms of direct reference processing. These altered or deformed triads are a signature of Stravinsky's work, occurring throughout his oeuvre in rich and varied contexts.

156 Joseph N. Straus, ' Recompositions by Schoenberg, Stravinsky, and Webern', *The Musical Quarterly*, 72/3 (1986), 301-328 (pp. 319-20).

157 Stravinsky, Schoenberg and Webern used the following recomposition procedures: (1) selection of well-crafted source material (2) identification of motivic sonorities that would lend well to transformation, (3) recompose to produce the sonorities, transpositions or inversions throughout. Two layers are derived thus: a tonal relations layer, often traditional, and a motivic pitch-class sets layer of recurrence. The motivic layer then reinterprets the tonal layer. Contrapuntal devices were not generally used by Stravinsky, with exception to his last serial period and the recomposition of the Canonic Variations where his interest in Bach's counterpoint related to serialism. Babbitt supposed that Stravinsky saw previous traditional musics as manifestations of serialism, and Stravinsky's later works include both the traditional revered contrapuntal techniques and twelve-tone techniques.

158 TheWelleszCompany, Vladimir Ussachevsky: Suite from "No exit" (1962), online video recording, YouTube, 3 June 2012, <https://www.youtube.com/watch?v=kSdLffy6TqE> [01.11.17].

159 I was also inspired by Otto Luening's *Synthesis*, for orchestra and electronic sound, with space-age clicks and beeps coming to the fore as a contrasting layer, seemingly independent in time. A sense of space is created from a plaza sound-object in the opening two bars, inspired by Luening's and Ussachevsky's *Rhapsodic Variations for Tape Recorder and Orchestra,*.

160 Bruce Falls of Toronto University added spliced gaps into recorded songs of white-throated sparrow and varied the timing, then played it back in the field. Only heavy modification went unrecognised by the birds. This is similar to research findings on human auditory perception by Saberi and Perrott in 1999 that 100 and 200 ms time reversal cuts, contiguously in forward-reverse order flips, renders speech incomprehensible, whilst 50 ms and below becomes decodable.

161 Anna Maria Gillis, 'What Are Birds Hearing?', *BioScience*, Vol. 40/11 (1990), 810-816 (p. 811).

162 <https://auditoryneuroscience.com/vocalization/local_time_reversal> [accessed 8 January 2017].

163 Laura U. Marks, 'Infinity and Accident: Strategies of Enfoldment in Islamic Art and Computer Art', *Leonardo*, Vol. 39/1 (2006), 36-42 (p. 37).

164 The symbol forms are selective, such as the language behind a program, and actualisation occurs after the unfolding, while the virtual remains folded within potential. Computer art and Islamic art share enfoldment and unfoldment, aniconism and tendency away from privileging representation, tendency for obscured underlying structure teased out by observers, algorithmic structure of informational instructions that create image, and emphasis on performativity over representation.

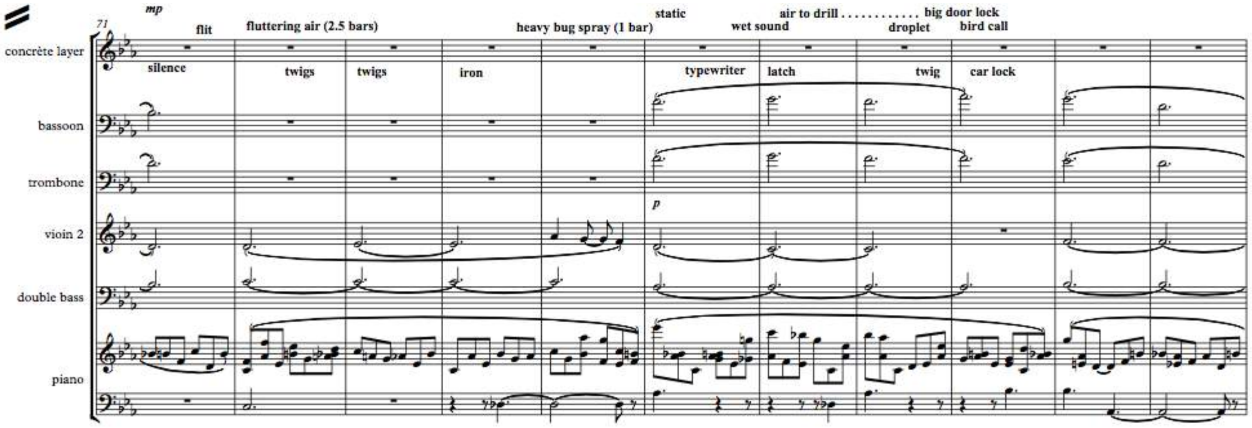
165 Many aniconic images have interior logical symbolism that may be transcribed or subordinated to other non-visual mediums like information, sound, performativity and communication.

166 I had Schoenberg's ideas of higher dissonance toward the middle of the phrases in mind, yet often found I would break this in certain situations.

Human realm (Manuşya) part 2

I explored collision of forms, or dualisms which take on sonic life, inspired by binary oppositional characteristics, dreamlike unpredictability, silences and sharp edges in Luigi Nono's early work. I used sounding bands built around collections of limited notes used in place of a complete series, inspired by Nono's preliminary verbal note to *Canti di vita e d'amore*.[167][168] Like *Canti* there are breaks from strict 12-tone serialism. My idea was to replace abrupt spates of notes and drums, like those found in *Canti di vita e d'amore*, with sound-objects to create a serious allegorical tone.[169] The piece slowly builds up density of sound-objects that contrasts the gravity of a soft, cyclical piano line. At b. 32 for example, there is speech-like air and rotating air which lasts many bars, and from bars 38-49 there are long sound-objects like rustling air (incr. speed 4 bars) and electric ocean spray (7 bars). Nono's enclosed sound affects time conception, resulting in freedom of constructive dispersal of musical parameters, and seems reminiscent of open form which got me thinking about abrupt switches of sections and phrases, or negational cuts.[170] Nono extensively used an irrational combination of fermata,[171] from two to seventeen seconds, combined with rhythms, and the abrupt cuts are analogous to a negation of this sponteneity, though without live interpretation. The beetles' theme begins again at b. 61 just after the five bar break from 50-59, with the languid piano and consonant harmony contrasting fast-changing rapid sound-objects that add narrative intensity at bars 72-79 (Fig. 4.1).

Fig. 4.1



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[167] Bruce Durazzi, 'Luigi Nono's Canti di vita e d'amore: Musical Dialectics and the Opposition of Present and Future', T*he Journal of Musicology*, 26/4 (2009), 451-480 (p. 454).

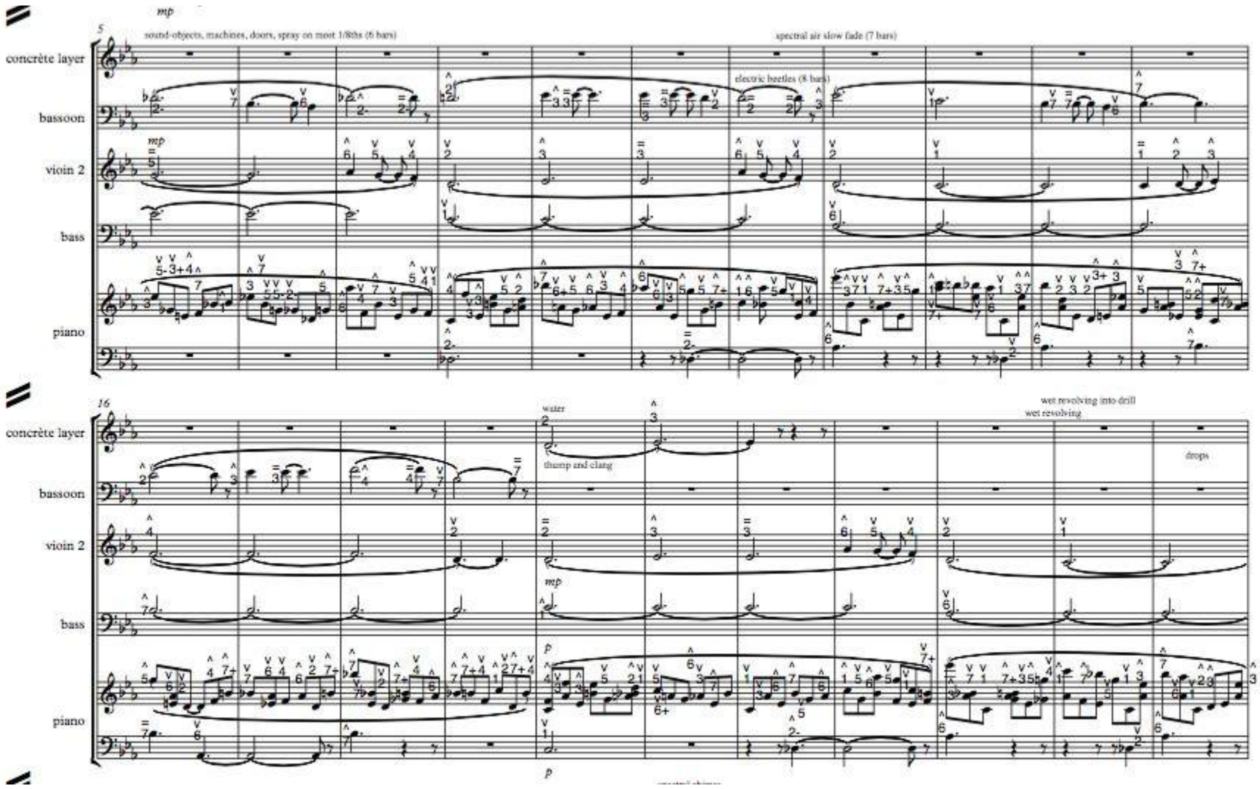
[168] Sounding fields is campi sonori in Italian, and sounding bands is fascie sonori.

[169] *Intolleranza 1960*, though originally created from Italian politics of injustices and intolerance, exploitation and oppression, had sharp relations to the tragedy of the Algerian liberation felt keenly in Italy, and Nono describes his works as being able to reinvent themselves concurrently to present socio-politics.

[170] Peter Ivan Edwards, 'Object, Space, and Fragility in Luigi Nono's "Das atmende Klarsein"', *Perspectives of New Music*, 46/1 (2008), 225-243 (p. 242).

[171] Peter Ivan Edwards, 'Object, Space, and Fragility in Luigi Nono's "Das atmende Klarsein"', *Perspectives of New Music*, 46/1 (2008), 225-243 (p. 240).

Fig. 4.2


mp
sound-objects, machines, doors, spray on most 1/8ths (6 bars)
spectral air slow fade (7 bars)
electric beetles (8 bars)
concrète layer
bassoon
vioin 2
bass
piano
water
thump and clang
wet revolving into drill
wet revolving
drops

The beetles' theme is first heard at bars 5-19 and 20-31 (Fig. 4.2) with a 3-1-6-7 progression. It is slow and melancholy, and the sparse sound-objects contrast the more frenetic theme of Fig. 4.1. At b. 87 the violin's end phrase suddenly diminishes in volume (Fig. 4.4), then after b. 106 there are no sound-objects (Fig. 4.5). The theme that anticipates *God realm (Deva) part 2* at b. 50 has a i-VII-III-vi progression, and the VII and III emphasise its major quality while five bar phrasing contrasts with the four bar fragile piano theme at bars 8-19 and 20-31.

Fig. 4.4

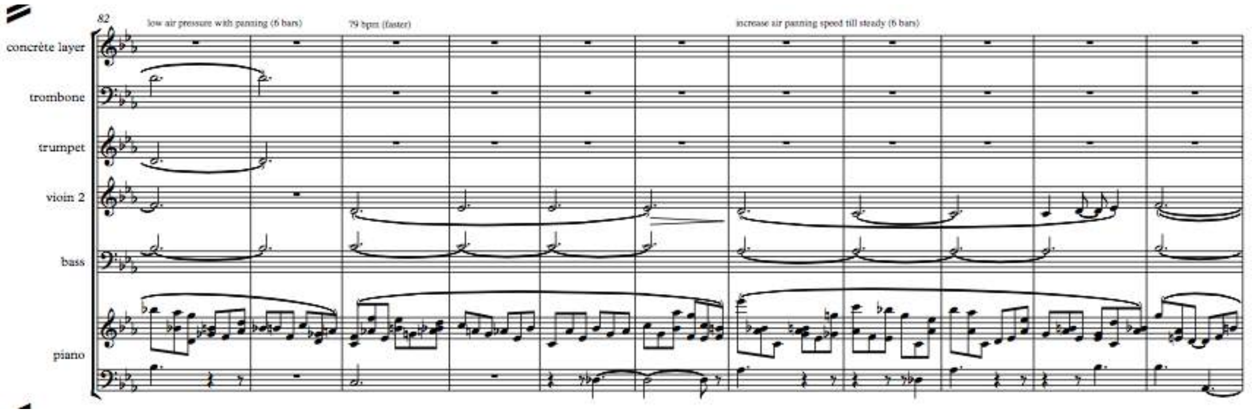
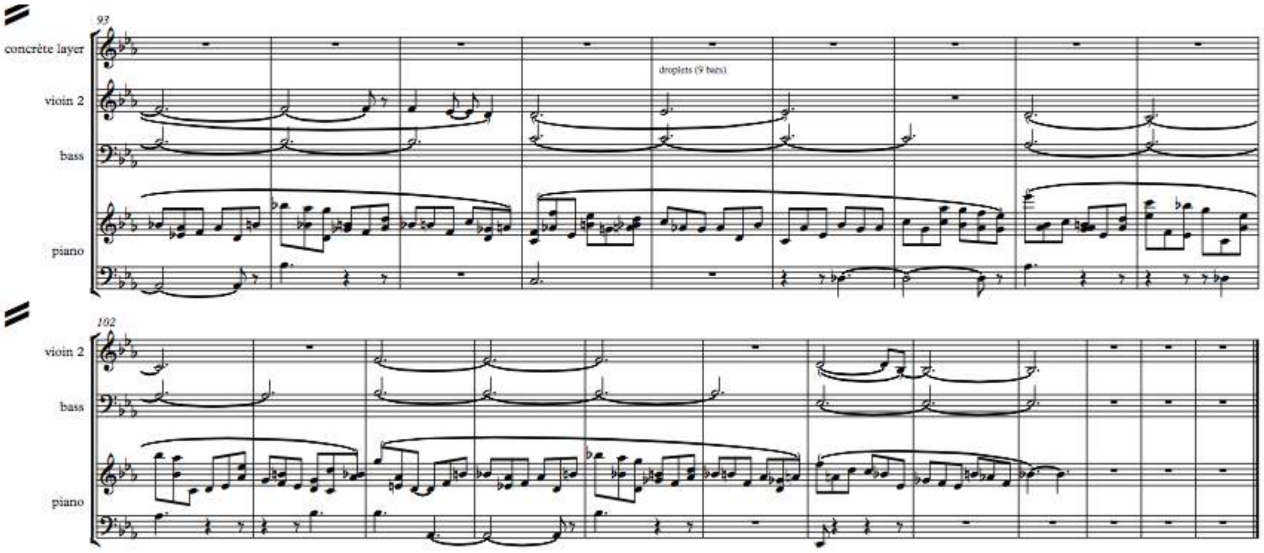

low air pressure with panning (6 bars)
79 bpm (faster)
increase air panning speed till steady (6 bars)
concrète layer
trombone
trumpet
vioin 2
bass
piano

Fig. 4.5



The three main references I used were *La Lontananza Nostalgica Utopica Futura* reference 4 and 5 and *Intolleranza 1960* reference 1, which consist of soft building dissonances in waves. In *Canti di vita e d'amore*, the pitch sets, informed by principals, share the generality of completion or saturation, usually within aggregates or tone clusters,[172] while in *Human realm (Manuṣya) part 2* each phrase would complete through exhaustion.[173] There is one anticipation at b. 35, a G, but overall there is little discontinuity or sliding. At b. 32 a shift in continuity occurs as a six bar phrase, yet all the phrases have almost no overlapping lines. Even the concrète layer appears to be contained in sections of rigid pulses which lend to a serious tone. The setting is immediate, yet not confrontationally or frighteningly so, reminiscent of a weaker Barthes' metaphysical neutral as scandal, the insanity is sanity paradox,[174] where the neutral suffers weight on a razor's edge.[175] In this case the ordered piano is sanity, and the non-coherent sound-objects of violent spraying, drilling, and banging may represent insanity. The concrète layer is slightly frenetic and the instrumental layer calm, with a 6/8 time signature like *Human realm (Manuṣya) part 1.*

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[172] Bruce Durazzi, 'Luigi Nono's Canti di vita e d'amore: Musical Dialectics and the Opposition of Present and Future', T*he Journal of Musicology*, 26/4 (2009), 451-480 (p. 458).

[173] Though I first encountered this post-modern idea of exhaustion by studying Nono's work, I really began to focus on it during the writing of *Tadvanalila, Part II*.

[174] To a human reality would be insanity, yet reality is sanity.

[175] Roland Barthes, *The neutral: lecture course at the College de France (1977-1978)* (New York: Columbia University Press, 2005), p. 73.

Hell realm (Naraka)

For *Hell realm (Naraka)* I wanted high dissonance within the instrumental sections, little repetition with some cyclic consistency, and high contrast of continuity and discontinuity. There is breaking of coherence through variegated phrasings, patterning and cuts. There are cyclical aspects within the strings and bass, and broken and interrupting lines in the main flute part and concrète layer. I used unions and intersections of sets, block-like segmentation of contrasting timbres, dissonance and volume, and mediant chromatic relations in the violins. I used some 12-tone serialist technique with higher dissonance towards the middle of bars, phrases and motifs. Bass movement is varied and stepwise. The continuity and discontinuity resulted in the concrète layer affectively disrupting the instrumental layer at times. The cyclical instrumental lines of organised rhythms and mediant relations appear shattered and often discontinuous, contrasting the non-cyclical instrumental lines and variable pulse sound-object, resulting in a subtext. This contrasts with a broken, staggered, atonal flute line and off-kilter or synced sound-objects. Nono's *Fragmente-Stille, an Diotima* uses undulating and interweaving layers of different speeds that repel and assimilate one another,[176][177] which is similar to the changing rate of the pulse sound and sound-object phrases that interfere with and solidify the instruments in *Hell realm*. The beetles and droplets return at bars 32-34 and then turn to static at b. 35, and this is contrasted with more intense instrumental phrasing before resolution at b. 35. Bars 57-75 portray terror through large chaotic serialist leaps in the flute set against shifting lengths of paired violins, a bassoon counter line and a disjunct, serialist and fleeting vocal-type line, all sweeping and fluctuating unpredictably. Though unpredictable, there are ordered fragments of broken melodies and harmonies, like at bars 57-75 (Fig. 5.1) that illustrates a coexistence of discontinuity and continuity and dissonance and harmony. The phrasings are sporadic and fleeting and not quite interlocked, which creates a sense of shifting perspective, and the whole effect is one of terrifying balance.[178] Bars 75-76 shows the use of semitones to create a breaking and shifting effect by the flute. Coherence and decoherence between the concrète and instrumental layer balances on a knife edge, with potential to cohere or decohere, and the pulsing flange object is always increasing or decreasing its tremolo speed. A static Bb sounds from bars 32-39 and note-length densities are variable. Other sound-objects are often rhythmically locked, and anticipate, embellish or follow on from instrumental lines.[179]

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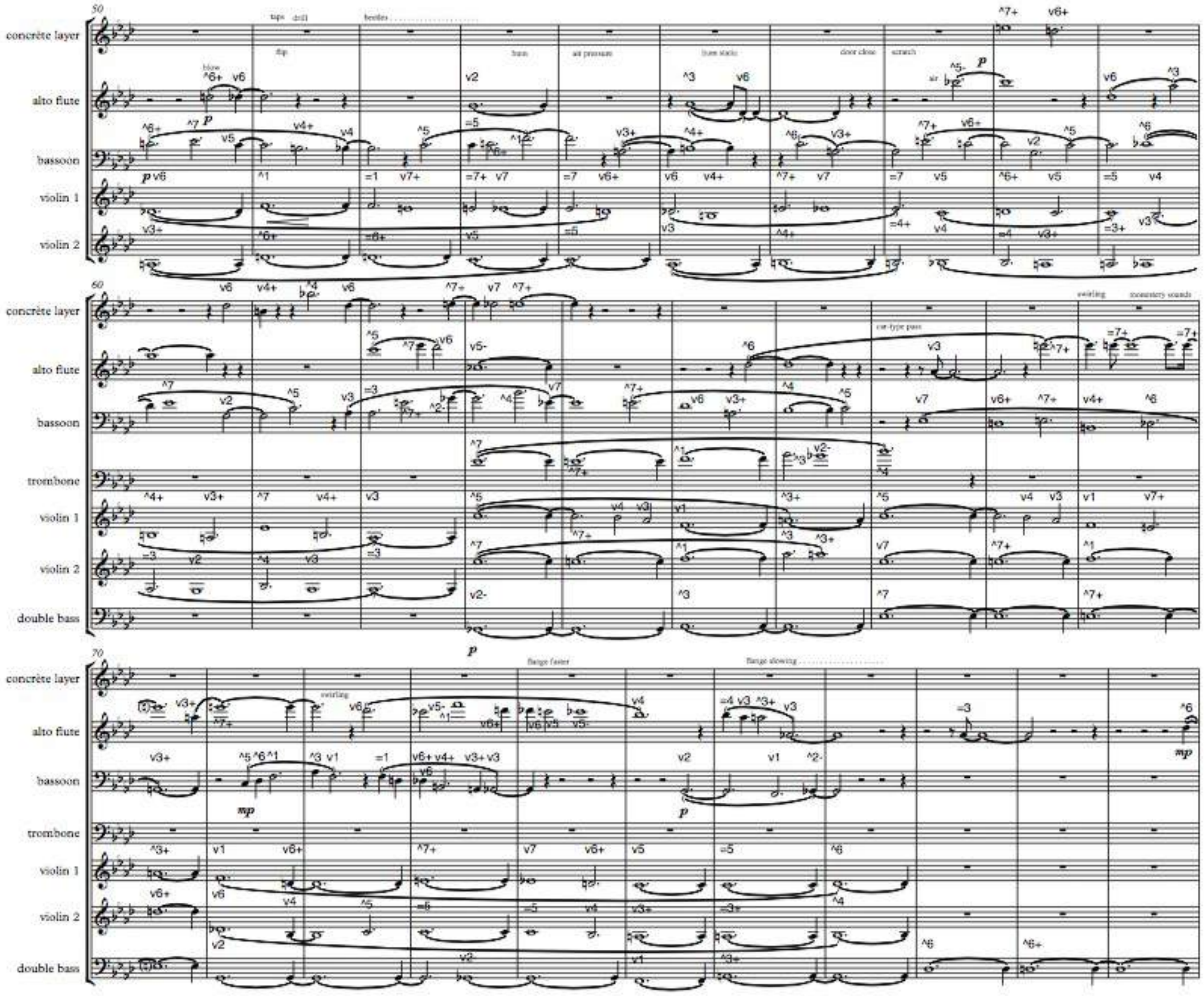
[176] Carola Nielinger-Vakil, 'Fragmente-Stille, an Diotima: World of Greater Compositional Secrets', *Acta Musicologica*, 82/1 (2010), 105-147 (p. 105).

[177] Almost all my pieces use the similar idea of layers that cross, interlock and pull apart to created effect.

[178] For example, bars 58-60 could be an A lydian flat 7, bars 63-64 could be a C dorian, bars 65-66 could be a 1, 2, b3, 4, #4, 6, b7, bars 67-68 could be a 1, b2, b3, 4, #4, b6, 6, 7 like a diminished chord, bars 69-70 is like an E diminished triad with a b9, 5, 6, bars 71-72 has a G root while the bassoon plays a 4, b5, b7, b9 and bars 73-74 could be viewed as another diminished chord.

[179] I found a similarity to the pulse I used with the first six minutes of Xenakis's *La Légende D'Eer*, where two note pulses are in seemingly random rhythms against each other.

Fig. 5.1



Sounds like the pulsing flange are not locked. Because the flute line is so rhythmically and tonally sporadic from bars 13-27, where there is no bass, the concrète layer acts as a background to frame it. The layers appear separate, but then at bars 28-31 the bass and strings come in unified and at bars 30-31 there is sporadic knocking, closing and scraping that imitates the previous sporadic flute lines. One moment there are high amounts of sound-objects with few instruments, the next moment there are low amounts of sound-objects and medium amounts of instruments, or few sound-objects and few instruments—I tried to convey a sense of shifting.[180] The flute and bassoon share the melody at times, for example from bars 32-35 (Fig 5.2).

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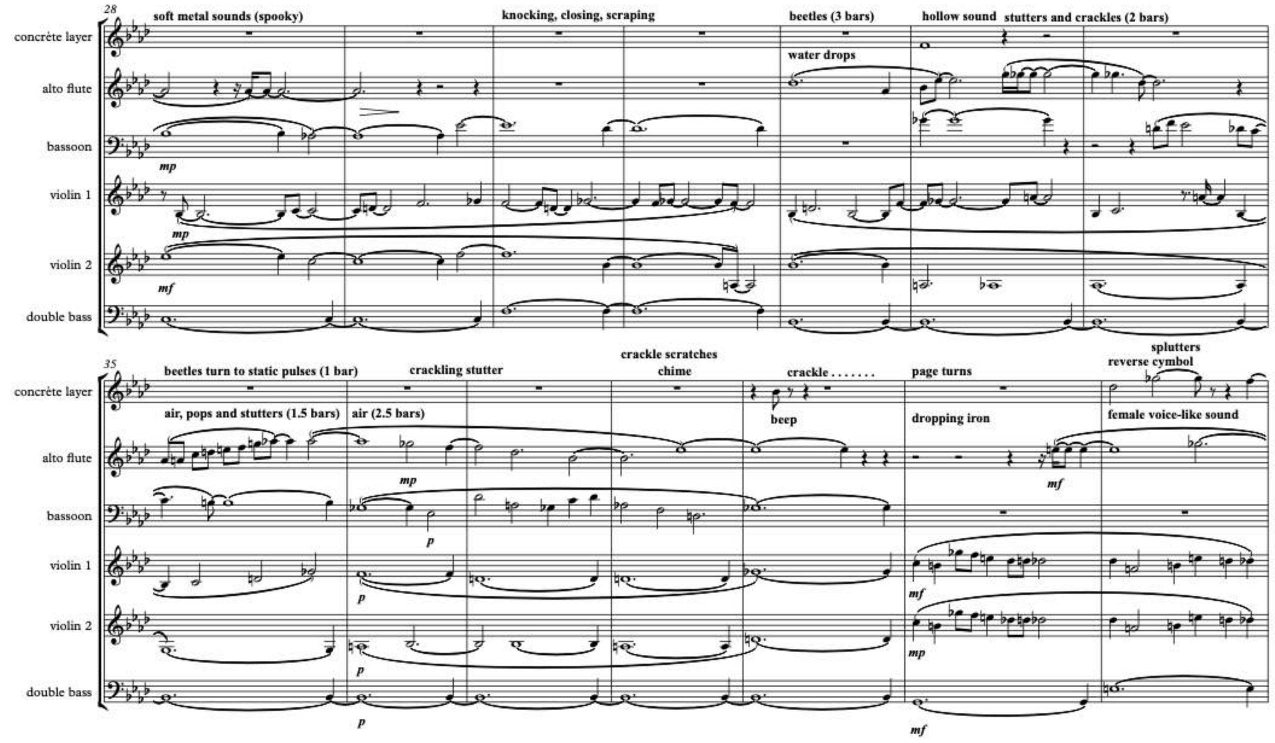
[180] I wanted to have shifting amounts of narrative between acousmatic and instrumental layers, that would create a sense of instability between the two layers yet create overall cohesion, with an instrumental section that would be vigorous and chaotic while the sonic layer seemed more stable and predictable, but it was not that predictable after writing it.

Fig. 5.2


28
soft metal sounds (spooky)
knocking, closing, scraping
beetles (3 bars)
hollow sound
stutters and crackles (2 bars)
water drops
concrète layer
alto flute
bassoon
violin 1
violin 2
double bass
mp
mp
mf
35
beetles turn to static pulses (1 bar)
crackling stutter
crackle scratches
chime
crackle . . . .
page turns
splutters
reverse cymbol
air, pops and stutters (1.5 bars)
air (2.5 bars)
beep
dropping iron
female voice-like sound
mp
p
p
p
p
mf
mf
mf
mp
mf

The cuts can be seen clearly at bars 32, 36 and 40, with a drop of a third at b. 40. While b. 32 has no dynamic change, bars 36 and 40 change to *p* and then to *mf* (Fig. 5.2), and yet there are not any clear cuts until b. 32—even though some of the instruments are in unison there is a high degree of disjunct discontinuity and phrase overlapping. Much of the time every instrumental line is different rhythmically with varying lengths of phrases, although they share similarities with other phrases through rhythm and tonality as mediations, while the violins can be closely locked. At times the flute appears to fluctuate into a descant line that homogenises with the instruments while sound-objects may briefly come forward. This can be seen at b. 10 where the flute plays atonal scale degrees in extreme leaps (Fig. 5.3) to form harmonic texture away from standard melodic lines. The flute plays with equal serialist style to the bassoon and trombone at bars 21-29, until the flute's A at b. 27, supported at b. 29 by the bass's C (fifth) and violin's G, while the trombone's D illustrates the suspended sixth and the bassoon's fourth (B). The violins from b. 55 display a highly atonal characteristic (Fig. 5.4), the flute intermittently plays one or two notes by leaps quite atonally and the bassoon is almost serialist with a repeating C, or fifth of the key, which gives the V-I tension. There is distinct order after b. 42 yet the phrasings are varied. Violin phrases vary in length from 2, 2.5, 4, 5 and 5.5 bars. The unison violins at bars 40-43 are much faster and more frenetic, set against sound-object stutters, in contrast to material after b. 44 where they form into harmony of unisons and thirds (Fig. 5.5) and are played as pont. and tasto.

Fig. 5.3

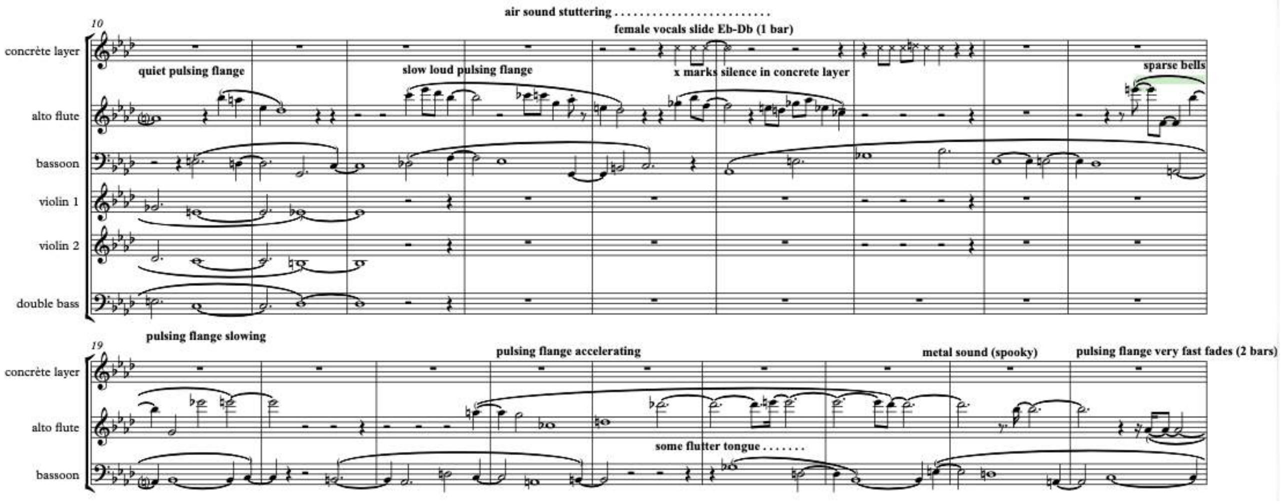
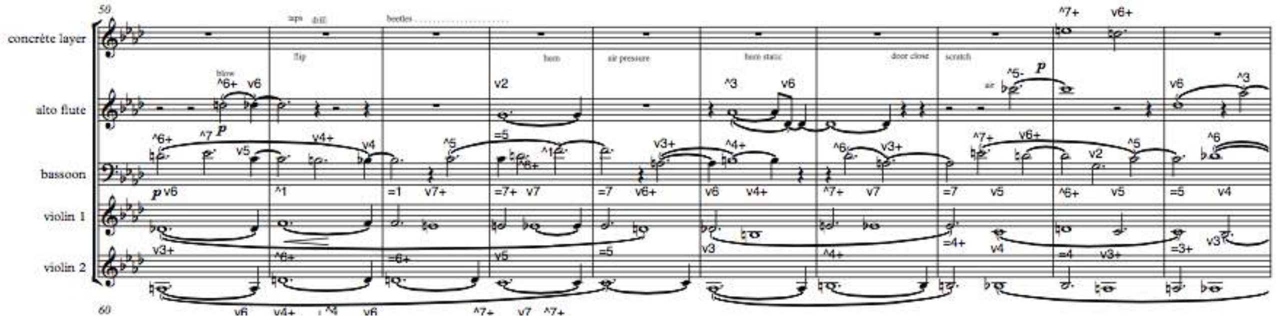

10
air sound stuttering . . . .
female vocals slide Eb-Db (1 bar)
concrète layer
quiet pulsing flange
slow loud pulsing flange
x marks silence in concrete layer
sparse bells
alto flute
bassoon
violin 1
violin 2
double bass
19
pulsing flange slowing
pulsing flange accelerating
metal sound (spooky)
pulsing flange very fast fades (2 bars)
concrète layer
alto flute
some flutter tongue . . . .
bassoon

Fig. 5.4


50
concrète layer
taps
drill
beetles . . . .
flip
horn
air pressure
horn static
door close
scratch
alto flute
blow
air
bassoon
violin 1
violin 2
p
60

The beginning of the piece has a high amount of discontinuity until a coalescing at bars 28-31, and after b. 31 is a section of solidification between instruments and between layers, though the acousmatics are both pulsing, sweeping and jaggedly intervening. After b. 40, which is the climax, there is deterioration of continuity between the instruments (Fig. 5.5). From bars 46-62 there is slippage and discontinuity between instruments, at odds with the violins which are in sync and descending. At b. 63 there is shifting, and a hint at possible continuity comes into awkward fruition, after which things seem to begin to cohere more though there is still slippage and shifting. Bass leaps are quite evenly altered, with fewer 7ths and slight prevalence of seconds and fourths. The fourth was emphasised by Xenakis in his writings and interviews, and conjunctions of tetrachords, note-groups of perfect fourths, form the basis of scale construction in *Pour la paix*—augmented fourths are avoided and the textures are mainly homophonic rhythmic sequences with some polyphonic texture.[181][182] Bars 93-95 were directly transcribed from the soprano part of *Ricorda cosa ti*

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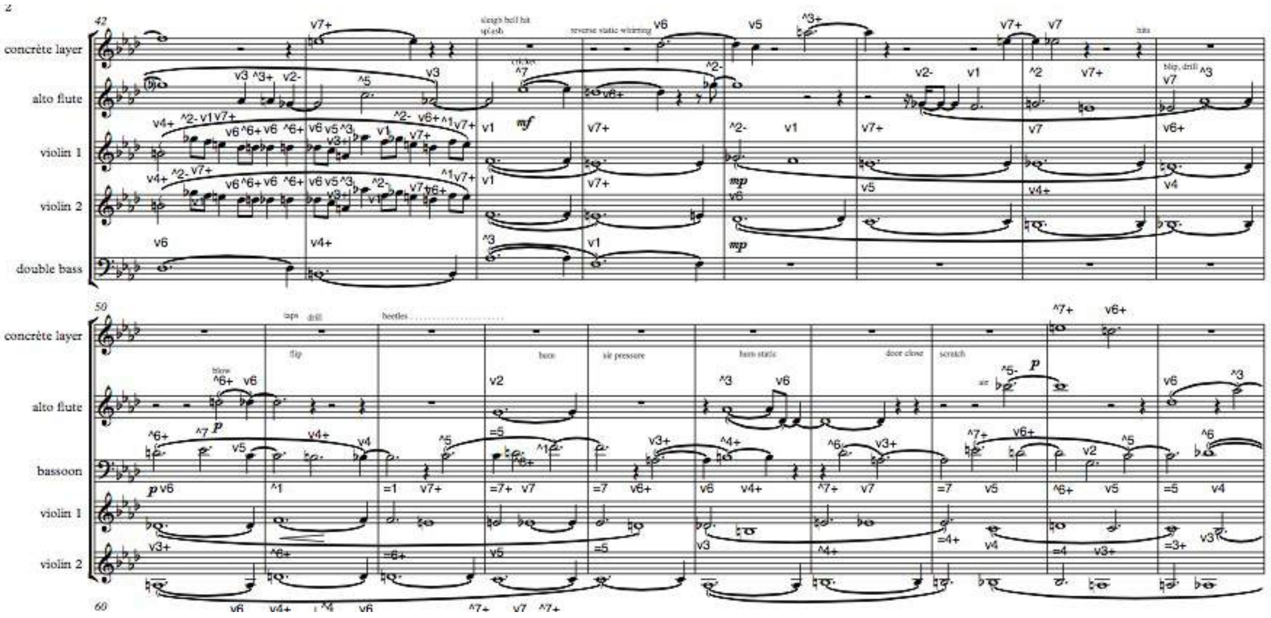
[181] Costas Tsougras, 'ANALYSIS OF IANNIS XENAKIS'S "POUR LA PAIX" FOR A CAPPELLA MIXED CHOIR', (2005), p. 7.

[182] In *Pour la paix*. the union of two structural sets forms a superset of the originals. The prolonged eight-tone sonority is F#, C, Eb, G, Bb, C#,, E, A. According to an interview with Varga, an influence was the Javanese *pelog* scale, based on linking two fourths to create leading tones. However, different sets are used to create contrast, including some use of the augmented fourth and a diatonic five not scale

hanno fatto in Auschwitz, which I incorporated after finishing the piece (Fig. 5.1).[183]

Fig. 5.5


2
42
concrète layer
alto flute
violin 1
violin 2
double bass
sleigh bell hit
splash
reverse static whirring
cricket
hits
blip, drill
mf
mp
50
concrète layer
alto flute
bassoon
violin 1
violin 2
taps
drill
beetles
flip
blow
buzz
air pressure
hum static
door close
scratch
air
p
60

I tried to hint at serialism and polytonality with brief moments of consonance of pitch, harmony and structured repeating rhythm. There is a sense of calm coherence throughout the chaotic instrumental dissonances, contrasting sound-objects, and within the unfolding theme of the flute held together by the other instruments like bass and violins. The flute and bass are in counterpoint, which is filled in with other instruments that highlight the sonic layer. It was inspired somewhat by the phantasmagorical chorus parts in *Pour la paix* and contains aspects of lyricism and non-lyricsm,[184] the musically prosaic and poetic,[185] and realism and surrealism combine to cause the listener to create a third imaginative subtext.[186][187] Broad melodic lyrical phrases are absent, as I was influenced by Xenakis's ideas of renounced lyricism during the 1989 conversation with Varga. The contrast of determinism and indeterminism added to the broken and fleeting feel. Gestures and timbres were inspired by Xenakis's use of UPIC.[188][189] I also used silence to break expectation, for example where there are incongruous or unexpected gaps in lines like in the flute part and between the acousmatic phrases. I used special rests with crosses in the top concrète staff briefly, like drum notation, to form rhythms of silence within the concrète fabric, like a sonic stencil. For the concrète layer I tried to use an arhythmic and non-time feel, with long strings of objects that ebbed and flowed cyclically without discernible or obvious rhythm, that would contrast more locked rhythms, for example in the violins which lock with an appearing and disappearing bass to form continuity. I consulted the dice at times. Phasing of the concrète layer surface-depth occurs, while the instrumental layer would also have a multi-layered surface-depth with phrases becoming more flowing or disjunct, locked or slipping, dense or sparse. I used Debussy's mediant chromatic relations where I could, for example in most of the bass from bars 32-45 and in the violins, for example at bars 1-12 and much of bars 44-77.[190] Fig. 5.6a shows a flute phrase at bars 32-35 that starts and ends on a 6th with dissonant 4, 7 and 2 in the centre. Fig. 5.6b shows a flute phrase at bars 21-27 starting on a 3rd and ending on a b6th preceded by a long sustained 7th.

---

[183] I placed the track into the mix and felt there were some good moments of overlay, mainly with the timbres at times, but also with some pitches. After writing *Hell realm (Naraka)* I stumbled across *Ricorda cosa ti hanno fatto in Auschwitz* and thought it similar in many ways.

[184] Lyricism in the sense of the typical idea of melody lines without large intervals or high amounts of rhythmic variability.

[185] Where prose is analogous to lengthy musical lines and poetry analogous to brief musical lines of higher contrast and possibly more space.

[186] Kim Stanley Robinson, *Kim Stanley Robinson: Science Fiction Is the Realism of Our Time,* online video recording, YouTube, 6 March 2018, <https://www.youtube.com/watch?v=ApA0_OyV0XE> [accessed 13.06.18].

[187] Realism is portrayed through clockwork orders, ostinatos and processes, and surrealism is portrayed through iconoclastic breaking, scattering, interrupting and fragmenting of mediations and ordering.

[188] Henning Lohner and Iannis Xenakis, ' Interview with Iannis Xenakis', *Computer Music Journal*, 10/4 (1986), 50-55 (p. 53).

[189] Xenakis designed and used UPIC, a graphic musical drawing board. I downloaded High C for Mac and PC, which was inspired by Xenakis's UPIC.

Fig. 5.6a

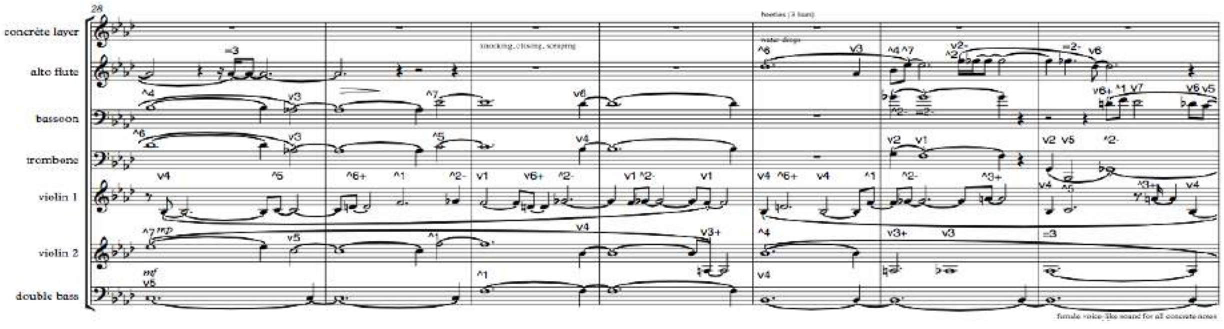
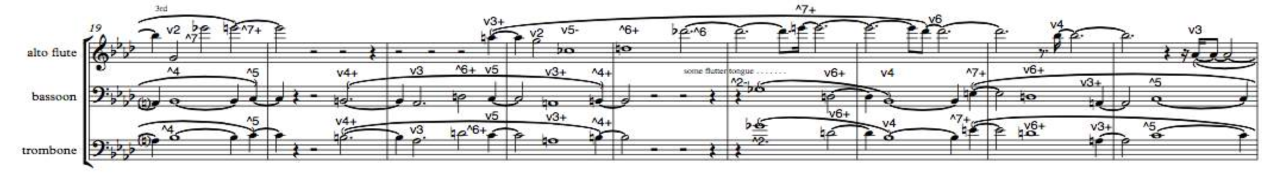


Fig. 5.6b



Other phrases break this serialist rule. At bars 40-43 the flute starts on a 7th and ends on a 3rd, and at bars 44-45 the flute starts on a 7th and ends on a 2nd, though the phrases almost never end on dissonant notes. I had been subconsciously using, to some extent, Xenakis's creational reference points from 'Fundamental Phases of a Musical Work', in *Musiques Formelles.*[191][192] I strove for a degree of removal of the artist's hand.

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[190] I bore Roslavets's quintal symmetry in mind, and tried to stick to Schoenberg's notions of higher dissonances toward the middle of phrases and consonances at the beginning and end of phrases, though some of the flute phrases start on a 2 or 7. I also tried a couple bars of sieve theory.

[191] Sharon Kanach, 'The Writings of Iannis Xenakis (Starting with "Formalized Music")', *Perspectives of New Music*, 41/1 (2003), 154-166 (pp. 158-59).

[192] 1. Initial conceptions (intuitions, provisional or definitive data), 2. Definition of the sonic entities and of their

Demi-god realm (Asura)

In this piece subtle acousmatic responses usually occurred just after instrumental notes and during phrases, but sometimes before phrases, as embellishment or accompaniment. Examples of responses are the crickets at bars 3-4 and flitting vibrations into drill at b. 33, while the ocean waves and air after b. 26 are more call than response. The initial idea was to explore vectors towards void and plenum sound-object states against the instruments,[193] and from there I began to become more interested in density changes. Musical sentences with errors are used (MMN), with notes and sound-objects knocked out, replaced, or swapped. The MMN is a dialectic-of-barriers process of creating to remove.[194] Later I would use this technique when an instrument could go no lower and I didn't want to modulate.[195] I incorporated a theme I'd written in 2016 called *55 reel* as I wanted to contrast a simple rhythmic melody in various ways. The sound-objects are slightly chaotic at times, for example after b. 79, although they never become dense. The flow is destabilised by interventional sections, like at the start and ending, at bars 19-25 and 43-50, and at the mild cuts at bars 55 and 59 in the instrumental layer. It is the simplest piece instrumentally and many of the sound-objects are synced on the downbeat of the first bar. The sound-objects are subordinate to the instruments, especially the long sustained sounds, except where brief sounds surface occasionally. I tried to illustrate Natasha Barrett's idea of acousmatic structural intensity at points,[196] for example in the interventions at bars 19-25 and 43-50 which have sustained instrumental notes and slightly denser sound-objects. Bars 13-14 use sixths and fourths (Fig. 6.1) in the violin lines like Debussy's *Nuages* at bars 21-24 (Fig. 6.2), while the end at bars 76 and 80 has two 2nds (Fig. 6.1). I did not alternate similar intervals like at bars 43 and 48 of Debussy's *Nuages* (Fig. 6.3). Thirds and sixths are used in *Nuages* at bars 14-16, while b. 11 shows use of stacked 4ths and octaves, and there are many instances where instruments are doubled by an octave, for example in the violins.

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symbolism …, 3. Definition of the transformations which these sonic entities must undergo …, 4. Microcomposition . . . of the elements of (the sonic entities) …, 5. Sequential programming of (the transformations and microcomposition) ..., 6. Implementation of calculations …, 7. Final symbolic result . . . (setting out the music on paper in traditional notation, numerical expressions, graphs or other means . . .), 8. Sonic realization ...(... performance,. . . electro-acoustic music, . . .).

[193] Plenum signifies completely filled space in physics.

[194] Similar to thinking thoughts to think thoughts.

[195] The third count of b. 227 of *Tadvanalila part 1* omits a note that is too low for violins to play.

[196] Patricia L. Dirks, ' Reviewed Work(s): Trade Winds by Natasha Barrett' *Computer Music Journal*, 34/1 (2010), 114-115 (p. 114).

Fig. 6.1

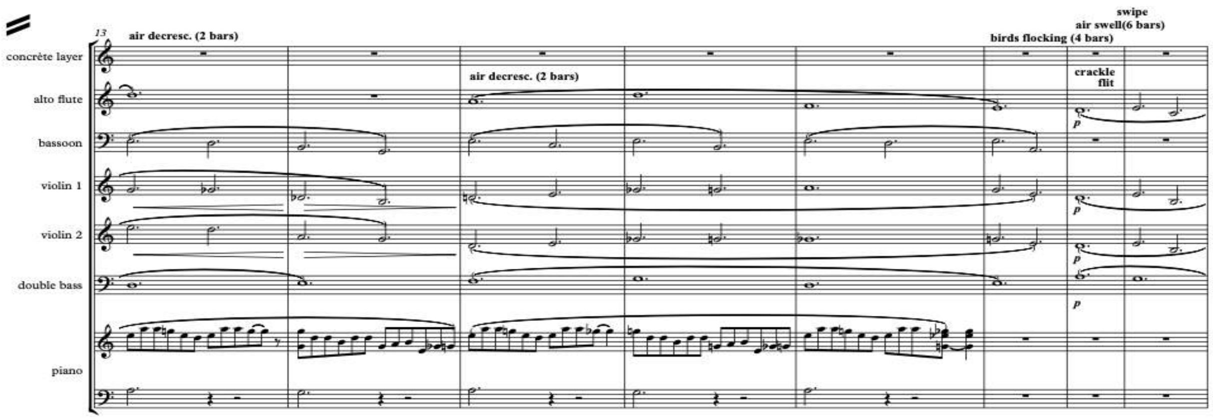

13
air decresc. (2 bars)
air decresc. (2 bars)
swipe
air swell(6 bars)
birds flocking (4 bars)
crackle
flit
concrète layer
alto flute
bassoon
violin 1
violin 2
double bass
piano
p

Fig. 6.2

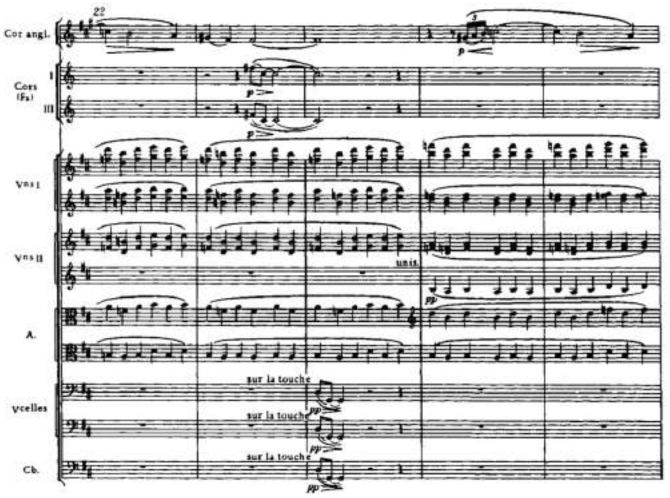
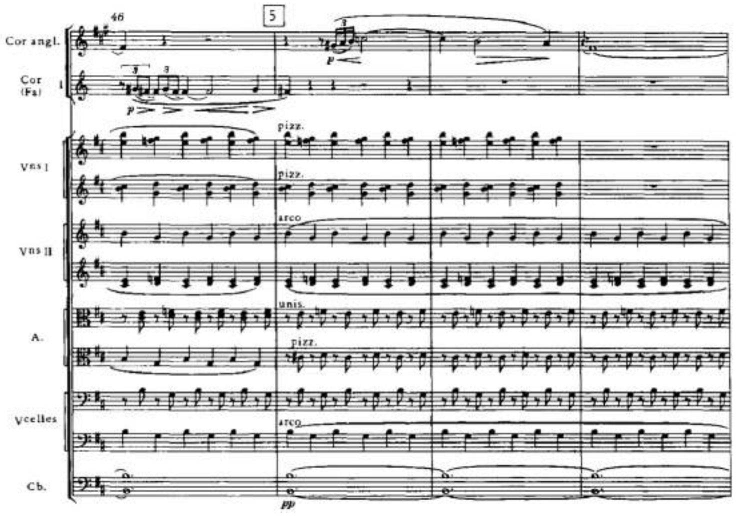

22
Cor angl.
Cors (Fa) I III
Vns I
Vns II
A.
Vcelles
Cb.
p
unis.
pp
sur la touche

Fig. 6.3


46
5
Cor angl.
Cor (Fa) I
Vns I
Vns II
A.
Vcelles
Cb.
p
pizz.
arco
unis.
pp

The piano at bars 65-66 and 67-68 (Fig. 6.4) uses close-knit tones with minor thirds moving to a tritone, like Roslavets's *5 Preludes* at bars 9-10 (Fig. 6.5) where a close-knit 2nd with a third above also moves to a tritone.

Fig. 6.4

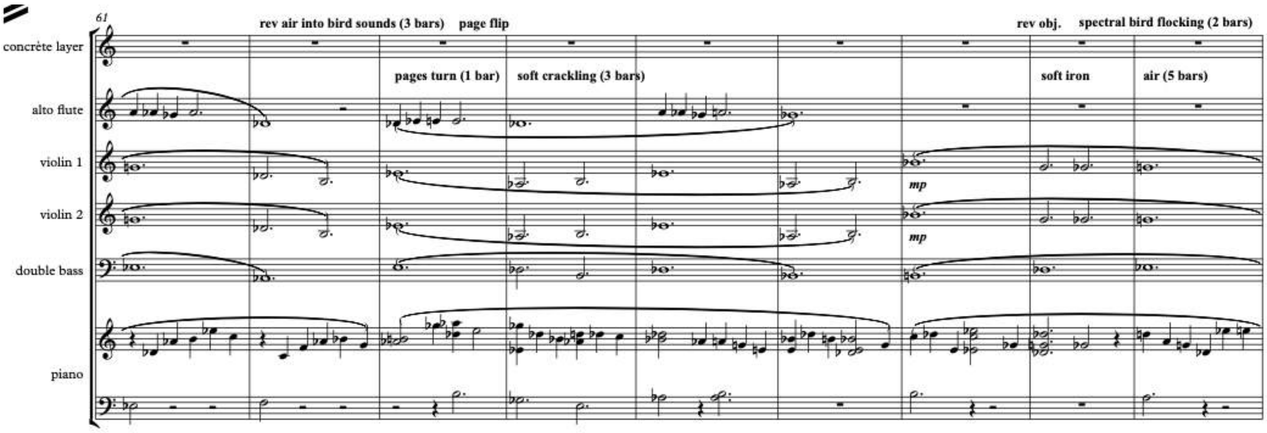
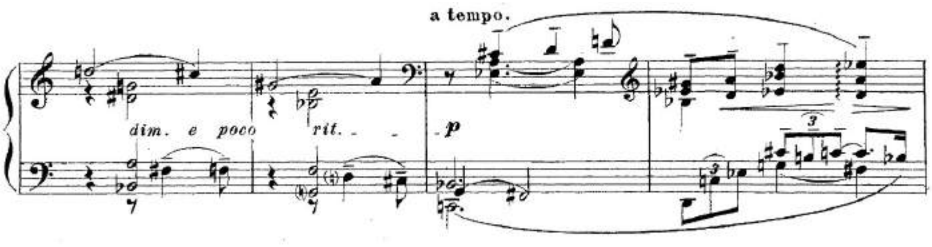

61
rev air into bird sounds (3 bars)
page flip
rev obj.
spectral bird flocking (2 bars)
pages turn (1 bar)
soft crackling (3 bars)
soft iron
air (5 bars)
concrète layer
alto flute
violin 1
violin 2
double bass
piano
mp
mp

Fig. 6.5


a tempo.
dim. e poco rit.
p
3

I would often justify the harmony around the melody lines and motifs in these works. Schoenberg foresaw a new future of polyphonic music where 'as in the earlier epochs, harmonies will be a product of the voice leading: justified solely by the melodic lines!'[197] Authors have talked about voice leading in early Schoenberg but none have shown the workings of the note-to-note elements, some seeing it as contextual atonal structures that replace traditional harmony.[198] I explored uses of musical mismatch negativity (MMN) and the balance of the expected and non-expected which makes music possible. If we read the sentence, 'the woman went to the store to buy a walrus' we illicit MMN at the word 'walrus' which stands out—we expect something else. Findings from Bever and Chiarello in 1974 indicated that non-musicians processed melodies better in the right-brain, while musicians listened more analytically with far more left-brain hemisphere activity,[199] where language, mathematics and logic are processed more.[200] I used notated musical sentences with errors that contrast sound-object phrases in various ways, though this is slight. The acousmatic silences I was exploring were eventually filled in more with sparsely textured, quiet, sustained objects with little timbral change in order to maintain relation between layers.[201] I experimented with the dynamics of the sections, for example at bars 51-54 where all four instruments drop to *p* and then suddenly switch to *mp* at b. 55. Sometimes I wanted the cuts to carry on without dynamic change, and other times dynamic shifting occurred between instruments, or it might get louder or softer for most instruments.

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[197] Peter Schubert, '"A New Epoch of Polyphonic Style": Schoenberg on Chords and Lines', *Music Analysis*, 12/3 (1993), 289-319 (p. 289).

[198] Peter Schubert, '"A New Epoch of Polyphonic Style": Schoenberg on Chords and Lines', *Music Analysis*, 12/3 (1993), 289-319 (p. 289).

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[199] Molly Gebrian, 'The Differences Between Musicians' and Non-musicians' Brains', (n.d.), p. 3.

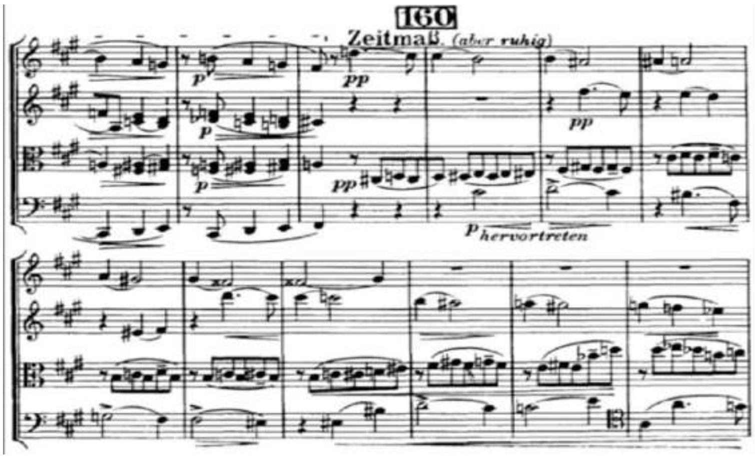
[200] The study on melodic processing in musicians done by Tervaniemi and her colleagues from 2001 had similar findings to mine. In this study, they played melodic fragments to musicians and non-musicians who were not paying attention, with infrequent 'incorrect' melodies and the 'wrong' note in the middle. Nobody elicited MMNs. Next, they had them pay attention and press a button when they heard the incorrect melody. By analysing the results they were able to divide the subjects into accurate and inaccurate responders. Then they played the melodies to them again with a silent movie. This time, the accurate responders showed an MMN, while the inaccurate responders did not. All the accurate responders were musicians, most of them jazz and pop musicians. All of the non-musicians were inaccurate responders, but so were most of the classically trained musicians. This is fascinating because jazz and pop musicians learn music almost entirely by ear, while classically trained musicians do not. Musicians process music like language and are left hemisphere dominant for musical perception. It implies that the more trained in music you become the more you are able to analyse musical input and think about it analytically rather than abstractly, and may manipulate its parts mentally like words. However, classically trained musicians can be more accepting of dissonance.

[201] The original idea was to have higher dissonance paired with denser or timbrally more complex sound-objects and consonant instruments paired with sporadic sound-objects and tenuous instruments. For the ending I reversed portions of the track in Pure Data and added some filters. I used the MMN techniques to break apart the melody more randomly at the end. The lamenting tones of the trombone and bassoon at the end are inspired by Vangelis's *Le Singe Bleu*, from *L'Apocalypse des Animaux*. By the end of the sectional cuts lines were quite altered. The piano line from b. 27 is a three-part backing motif, or answer, I wrote to the traditional folk tune *Star of the County Down*. It is fused in this section with a flute theme I wrote which is quite disparate to the melody of the piano, which is in an alternate time and tends to dip down at the odd point to become a harmony while it too is its own melody.

God realm (Deva) part 1

For this piece I mixed new and old motifs. After completing 14 pieces I decided to re-do the sound-objects for this piece as I felt the silences were too long, though originally I intended a sparse concrète layer. I contrasted few sustained sound-objects of serial lengths with instrumental consonance till the end, which would then contrast instrumental atonality with supportive sound-objects locked rhythmically. There are chromatic mediant relations in the violins and soft fragmentation by cuts. The feel of the piece is supposed to be tranquil, with several minor cuts and a soft floating second half that ends with a brief dissonant intervention. Throughout the pieces I used coarticulation, smearing sound-objects into phrases or gestures,[202] which contrast the instrumental phrases. I tried to create a sense of ease with long, slowly shifting violins and spare consonant piano ostinatos, as well as falling and rising piano lines like at bars 74-88. The descending piano in thirds at bars 139-154 is almost atonal (Fig. 7.2) and bears some resemblance to Schoenberg's descending atonal 3rds in Fig. 7.1.

Fig. 7.1



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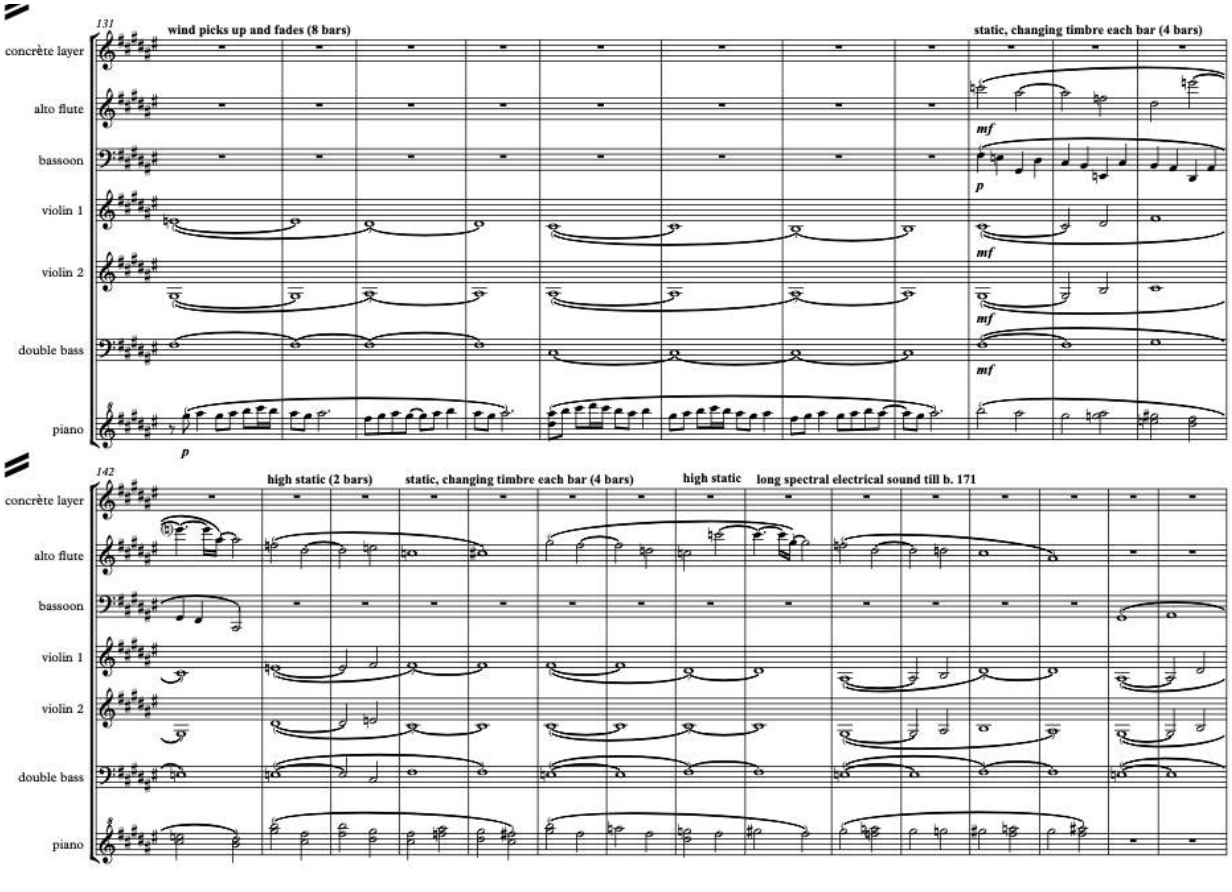
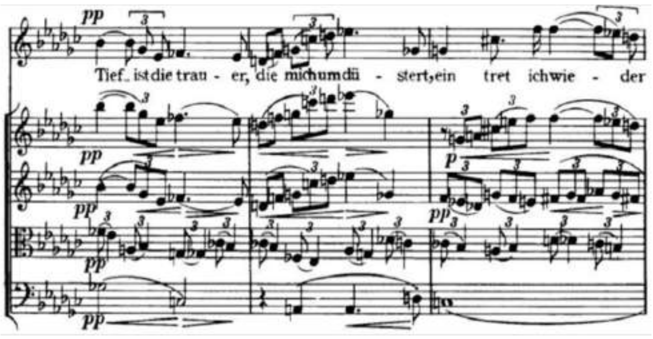
[202] Ccrmalite1, *Natasha Barrett - Spatial Sonification of Performance Gestures*, online video recording, YouTube, 4 May 2017, <https://www.youtube.com/watch?v=bEkDTrQznBI> [accessed 30.08.18].

Fig. 7.2


131
wind picks up and fades (8 bars)
static, changing timbre each bar (4 bars)
concrète layer
alto flute
bassoon
violin 1
violin 2
double bass
piano
mf
p
142
high static (2 bars)
static, changing timbre each bar (4 bars)
high static
long spectral electrical sound till b. 171

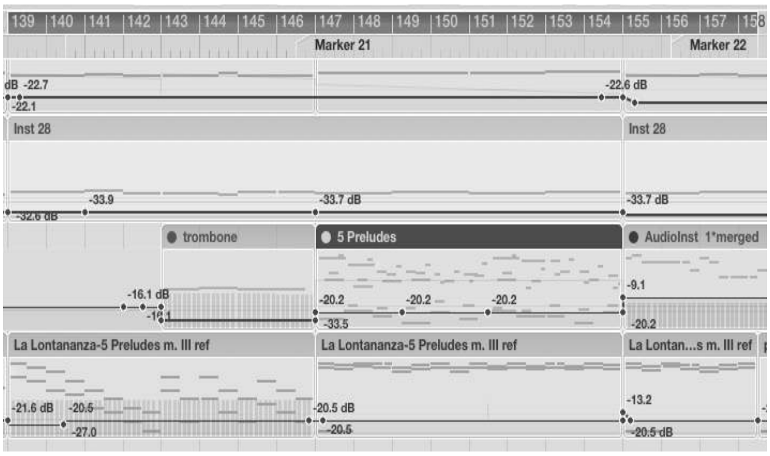
I tried to implement some tone rows and chose a specific one to work with from Schoenberg's *Litanei*, the third movement of *String Quartet No. 2*, bars 14-16 (Fig. 7.3).

Fig. 7.3


pp
3
Tief_ ist die trau - er, die mich umdü - stert,ein tret ichwie - der
p

At bars 139-153 I referenced Nono's *La Lontananza Nostalgica Utopica Futura* (29'15 – 29'38) (Fig. 7.4). The sequence is very similar although there is no rhythmic similarity, and different tonalities are hinted at.

Fig. 7.4


139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158
Marker 21
Marker 22
dB -22.7
-22.1
-22.6 dB
Inst 28
Inst 28
-33.9
-32.6 dB
-33.7 dB
-33.7 dB
trombone
5 Preludes
AudioInst 1*merged
-16.1 dB
-16.1
-20.2
-20.2
-20.2
-33.5
-9.1
-20.2
La Lontananza-5 Preludes m. III ref
La Lontananza-5 Preludes m. III ref
La Lontan...s m. III ref
-21.6 dB
-20.5
-27.0
-20.5 dB
-20.5
-13.2
-20.5 dB

The first cut at b. 57 is very gentle and almost not a cut, and the cut at b. 89 is also gentle and reinforces the floating pastoral serenity and slight rhythmic, melodic and harmonic shifts. The cut at b. 139 recapitulates a dissonant variation of the beginning theme. There are mediant relations in the violin part after b. 139, much like its consonant counterpart after b. 25 which has violin part crossings for timbral shifting. Modulation and modal interchange do not occur in this piece, with only allusions to modulations, like from bars 49-55 which modulates briefly to a ii harmonic minor from the bVII lydian and I mixolydian in the previous bars. Movement was created via cuts, timbral shifts, dropping the bass in phrases and anticipation notes. The bass cycles almost entirely by 2nds with a few 4ths and 3rds. I explored shifting of foreground and background, for example at b. 89 when the bass, piano and trombone drop away and leave two quiet violins of elongated notes, air (8 bars), and flute and bassoon melodies. I had been using fluttering sounds in the previous pieces and I wanted to bring in more water and fluttering amongst the swirling ebb and flow contrasts.[203] Though there are static and spectral sounds from b. 143 the instrumental layer does not have enough gaps of silence for the sound-objects to come through and get the effect achieved at the end of *A Desolate Market*, where patterning creates instrumental gaps.[204] I tried a musical equivalent of ideomimesis, using sound repetition and contrast,[205][206] although not at length. I used filters on the metal and water sounds, often creating an airy quality.[207] Like many of the other pieces it ends on a different tonic to depart from the expected. I rolled dice to get serial lengths for a sound-object that is equalised differently four times (Fig. 7.5). Fig. 7.6 and 7.7 show more single sound-objects shifting by serial lengths. For the concrète layer text I put 'roll dice for shifting timbres of sound-object lengths (x bars)'.

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[203] I originally wanted to add a passage where the concrète layer had a similar timbre to the instruments that transforms timbrally similar to spectralism, perhaps into sustained decays, and create a washed out ending similar to build up of small sections in Barrett's *Homolog 1* that has interesting harmonic transformations.

[204] A technique I didn't try was rolling dice to get gaps and gap lengths, which I will use in future works.

[205] W. B. Stanford, 'Varieties of Sound-Effects in the Homeric Poems', *College Literature*, 3/3 (1976), 219-227 (p. 223).

[206] Some sounds are thought to be more aesthetically pleasing in linguistics though this is still contentious and lacking proof, but if it were true then heavy repetition of certain sounds could be termed ideomimesis, as in Pope's 'and the smooth stream in smoother numbers flow', or Milton's 'Grate on their scrannel pipes of wretched straw'.

[207] I also wanted an optional score for live electronics that would have another notation using only a few objects: newspaper (rain, wind, waves, reverse sounds, swipes), two clickers (beetles, snaps), duck quacker, bird whistle, lentils and tub, smooth glass and tub, bottled water, dice and tub (splashes, droplets), paperback book (flips, thuds, bangs), metal bar and chimes. These could be mixed through filters to obscure the source, like a GRM filter at

Fig. 7.5

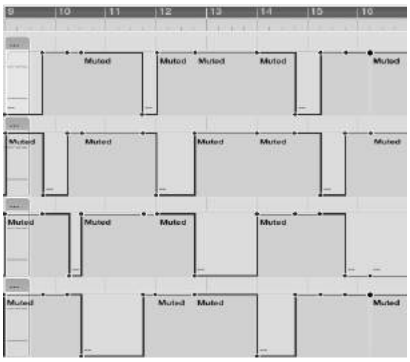


Fig. 7.6

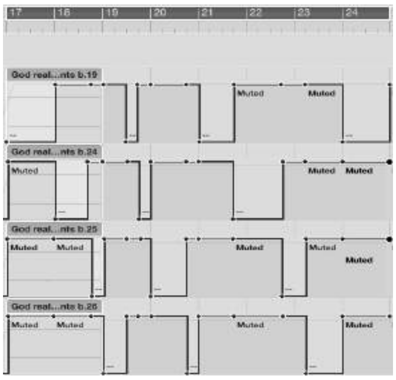
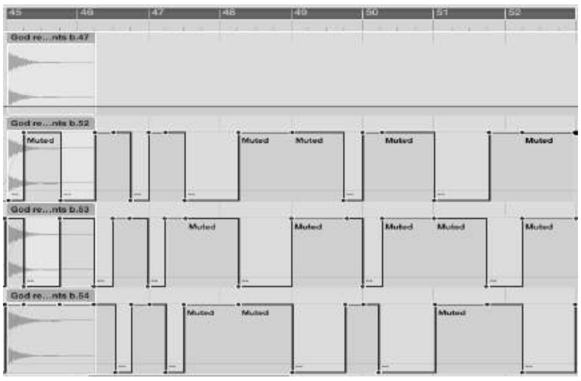


Fig. 7.7



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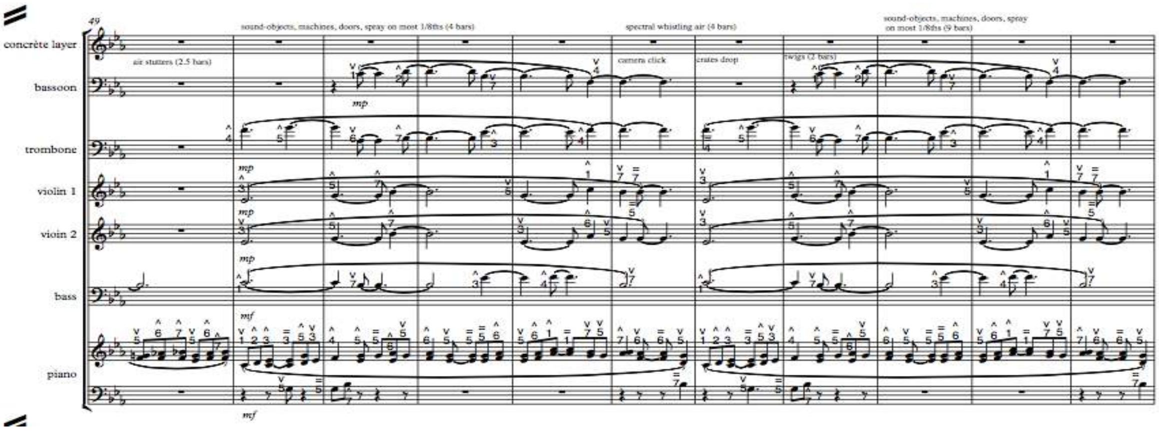
around 55-75 percent, though it could benefit from some live manipulation to alter the spectra. This score was unrealised.

God realm (Deva) part 2

I explored hypotaxis (subordination) and parataxis (parallel contrasting) between the layers. Consonant themes are contrasted with atonal interventions that hint at bitonality, like the violins at bars 49-64. For these interventions I was inspired by Schnittke's idea of polystylism, exemplified in his *Piano Quintet* which incorporates nostalgic music like a Viennese waltz or simple lamenting gestures overlaid onto a serialist blackness, creating the quality of isolation, alienation, bereavement and emotional juxtaposition. I used a similar process of overlaying a bright, uptempo theme onto serialism in the intervention sections at bars 25-32, 49-64 and 89 till the end.[208] The middle piano theme at bars 25-48, taken from the 2014 piece *1771-tsbtc* and reworked from the 1992 original, uses chromatic phrases which contrast the surrounding diatonicism and interventions. The piece is quite vacant in terms of sound-objects, and the indicated feel is *transparent, sparse, vacant, sweeping.*[209] The beetles' theme from bars 50-59 (Fig. 8.1) is recapitulated in bars 17-24, 65-72 and 81-88 in slightly varied form (Fig. 8.2). This theme is contrasted by the intervention at bars 49-64 (Fig. 8.3) and then again at the atonal ending that contains ostinatos of shifting relations by quints in bars 89-110 (Fig. 8.5). The intervention at bars 49-64 (Fig. 8.3) is an attempt at stripped back block material with little melodic content. Consonant themes are surrounded and balanced by atonality and there are segmental cuts and allusions to bitonality. I tried to hint at compound melody at times whilst taking account of every note in syntax, for example in the piano from b. 89 till the end. I used dense coarticulate sound-objects from bars 81-88. The violins play in sixths from bars 25-28 and in thirds from bars 29-36, though there are few mediant chromatic relations. There is little discontinuity, only between the flute and piano after b. 89.

Fig. 8.1


49
concrète layer
bassoon
trombone
violin 1
vioin 2
bass
piano
air stutters (2.5 bars)
sound-objects, machines, doors, spray on most 1/8ths (4 bars)
spectral whistling air (4 bars)
camera click
crates drop
twigs (2 bars)
sound-objects, machines, doors, spray on most 1/8ths (9 bars)
mp
mf

---

[208] Ivan Moody, 'The Music of Alfred Schnittke', *Tempo*, New Series, 168 (1989), 4-11 (p. 4).

[209] I used *#97 Montage acousmatic* (2016) as a concrète layer base, and much was then recomposed.

Fig. 8.2

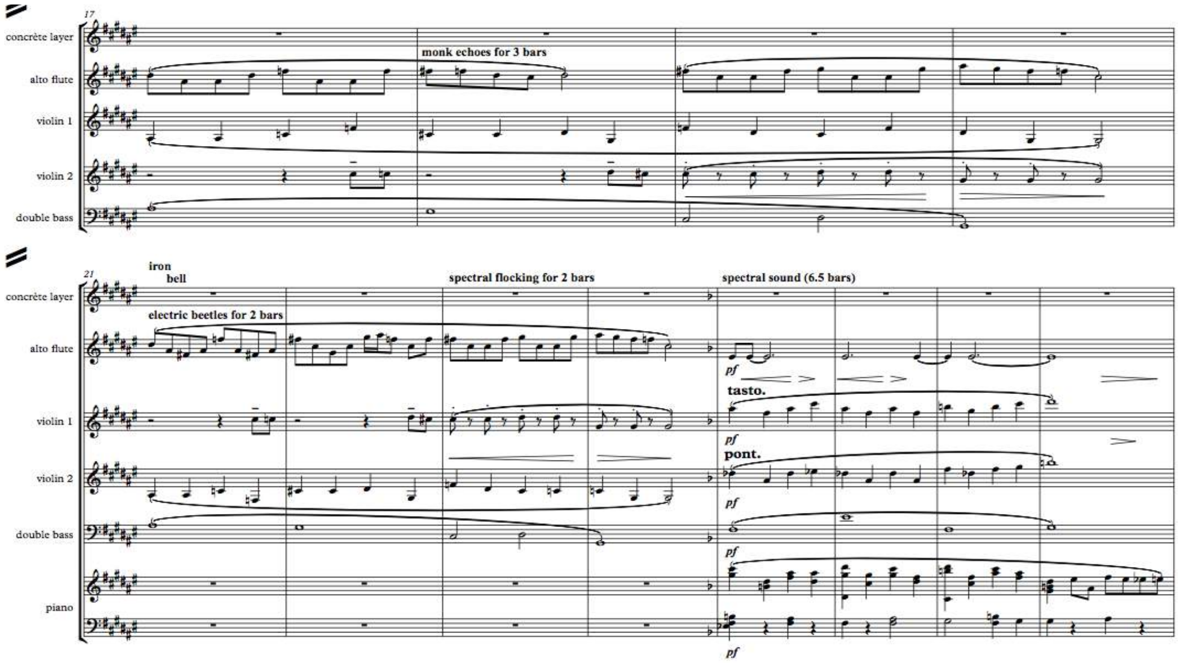
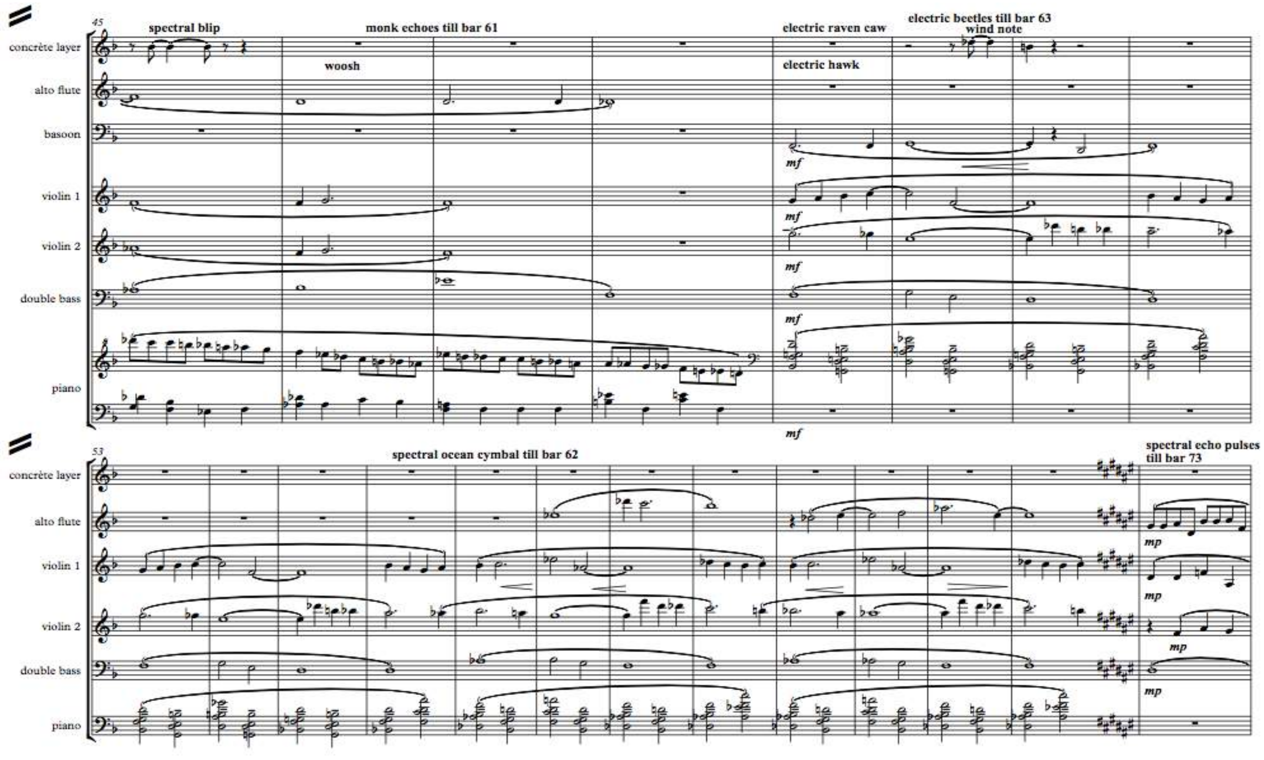

17
concrète layer
alto flute
violin 1
violin 2
double bass
monk echoes for 3 bars
21
iron
bell
spectral flocking for 2 bars
spectral sound (6.5 bars)
electric beetles for 2 bars
pf
tasto.
pf
pont.
pf
pf
piano
pf

Fig. 8.3


45
spectral blip
monk echoes till bar 61
woosh
electric raven caw
electric hawk
electric beetles till bar 63
wind note
concrète layer
alto flute
bassoon
violin 1
violin 2
double bass
piano
mf
mf
mf
mf
mf
53
spectral ocean cymbal till bar 62
spectral echo pulses
till bar 73
mp
mp
mp
mp

The descending violins at bars 29-32 use 3rds and 2nds. I used a reference from Debussy's *Nuages*, in 6/4, though regrettably I lost the exact reference placement.[210] I tried to portray a very sophisticated and physically painless world, but also brought in dissonance and harsh sounds, like panning hyperreal crows and clanging irons and water, to signify that this too is just illusion and saṃsāra.[211] The most tenuous instrumental line was the ending from b. 89. Fig. 8.4 shows Roslavets's *5 Preludes* —I implemented the general shape into the work shown in Fig. 8.5.

Fig 8.4

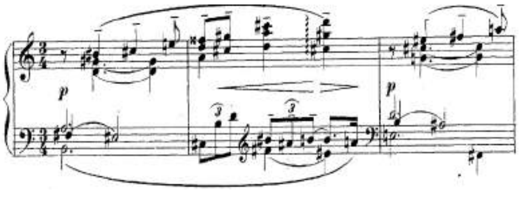
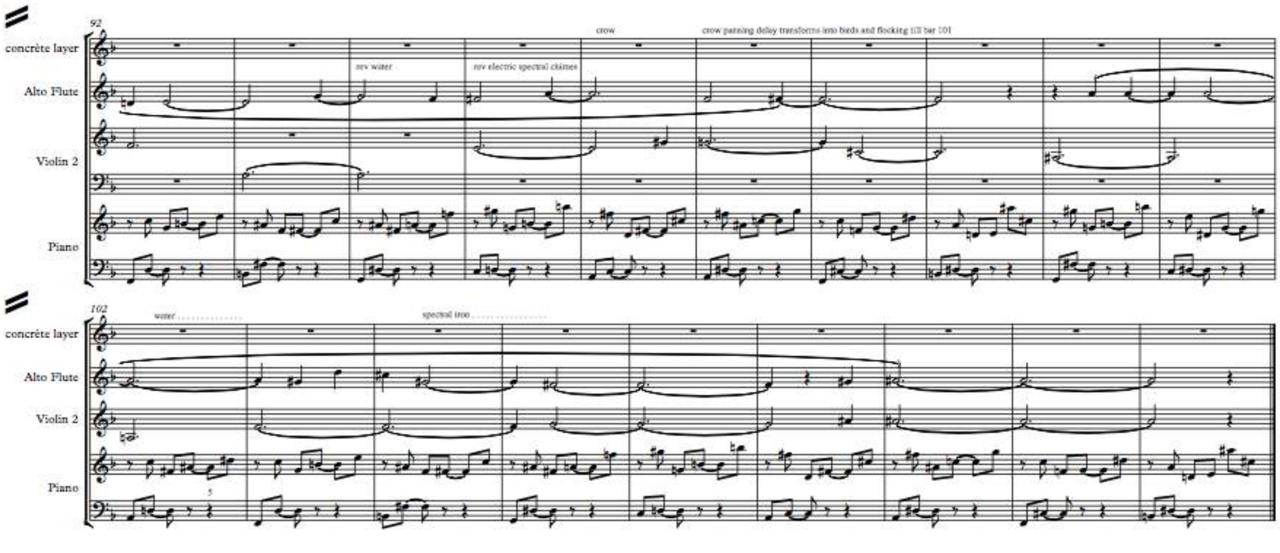


Fig. 8.5


92
concrète layer
Alto Flute
Violin 2
Piano
crow
crow panning delay transforms into birds and flocking till bar 101
rev water
rev electric spectral chimes
102
water
spectral iron

---

[210] A fleeting ii – vi – V(add 6) – ii7 – IV – ii7. The V(add 6) is deceptive due to the voice leading of the added 6 in the melody and a seemingly quartal harmony, and the following ii7 has an added 7th in the mid voice followed by a IV with a 6th in the root and another whole tone in the mid section, a D and E that follows on from the C and D of the previous ii7. It instantly jumped out at me, although Debussy expounds it further: a languid feeling containing open 7ths where I could alter it with inversions, while possibly using 6ths in the descant. What began to take shape contained parallel 4ths, 5ths and 6ths, and I began to tweak the harmonies.

[211] In Buddhism saṃsāra is the eternal cycle of brith and death in various existences, apart from the absolute.

Tadvanalila, Part I

I tried to create a sense of mystery and peace, and hint at terrible beauty. I began with tone rows in the piano lines and a sense of melody, while the violins would again fill out 'colours' and motifs. I used mediant chromaticism and sixths and fourths, and I took some effort to apply a sense of democratic parts, yet this does not occur much.[212] In *Tadvanalila* and *A Desolate Market* there is variation and new logic is taken up after exhausting possibilities, similar to Nono's *Canti di vita e d'amore*.[213][214] There is slight discontinuity between the layers in the intervention at bars 85-112. Bars 147-164 have discontinuity ending in continuity between layers. The section at bars 192-207 has dense, chaotic sound-objects that provide non-coherent discontinuity against the steady rolling ostinatos and locked, long instrumental phrases, which end with a sudden cut-section at b. 208 where the piano falls away and the sound objects become coherent. There is a flitting feel of 'chapters'—motifs abruptly end, veer off course and mutate into non sequiturs while threads may be alluded to or picked up elsewhere. Continuity seems fragmented with motifs that switch instruments abruptly, undeveloped motivic lines, shifts of timbre and instrumental block-cuts. Limits are explored through sweeping themes that intertwine, lock and slip, and narrative cuts that suddenly jump to new themes. I tried to create delicate and strong motifs that contrast these narrative techniques. The tempo is around 134 bpm, with dynamics in the soft to medium range, almost never going into forte, to get across a sense of peace. Some motion is derived from rhythmic and timbral nuance between the instrumental and concrète layers, from key changes, instrumental consonance and dissonance, continuity and discontinuity, density shifts, mediant chromatic relations, and cuts that have varying degrees of contrast between instrumental themes and sound-object themes. These variations create temporal contrast like parataxis. Like *Through the Six Worlds*, *Tadvanalila* is composed mainly in the mid-range of pitch. There is a lot of atonality in the violins. Bars 131-146 drops to only strings, with only one sound-object, glass echoes, starting at b. 142 (Fig. 9.1a), while complex diversity happens in places like bars 81-91 (Fig. 9.1b). There is an extended dissonant intervention in the middle of the piece. At b. 33 the key drops slightly, like a platform pulled away to create a depth of seriousness and retrospection, and towards the end I did a lot of modulation. At the start I was inspired by Debussy's *Trois Nocturnes, Part III*, bars 123-130 (Fig. 9.2a) and by Henri Dutilleux's *Piano Sonata, Part II*. I began in 2/4 to match the *Piano Sonata*, experimenting with its close-knit two-note left-hand voicings that cycled through slight changes with the higher note repeating often, and the off-beat varying rhythms of the single line right-hand melody that almost feels atonal, the lines often appearing like tone rows of 6 or 4 notes, for example from bars 1-8 (Fig. 9.2b).

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[212] I would often use countermelodies or motifs that create harmonic and rhythmic textures, yet the bass line was usually very rhythmic and non-melodic.

[213] Bruce Durazzi, 'Luigi Nono's Canti di vita e d'amore: Musical Dialectics and the Opposition of Present and Future', T*he Journal of Musicology*, 26/4 (2009), 451-480 (p. 457).

[214] Part I uses exhaustion of variations less than parts 1I and III, and part III uses exhaustion through aleatoric processes to reset material.

Fig. 9.1a

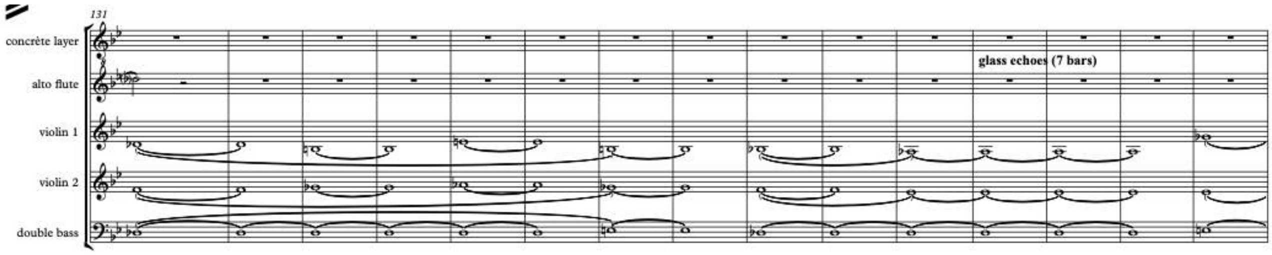

131
concrète layer
alto flute
violin 1
violin 2
double bass
glass echoes (7 bars)

Fig. 9.1b

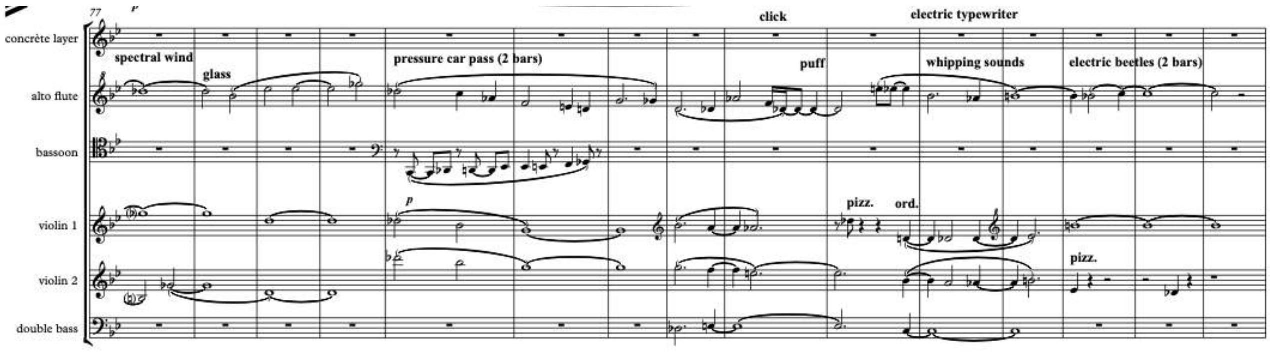

77
concrète layer
alto flute
bassoon
violin 1
violin 2
double bass
spectral wind
glass
pressure car pass (2 bars)
click
puff
electric typewriter
whipping sounds
electric beetles (2 bars)
p
pizz.
ord.
pizz.

Fig. 9.2a

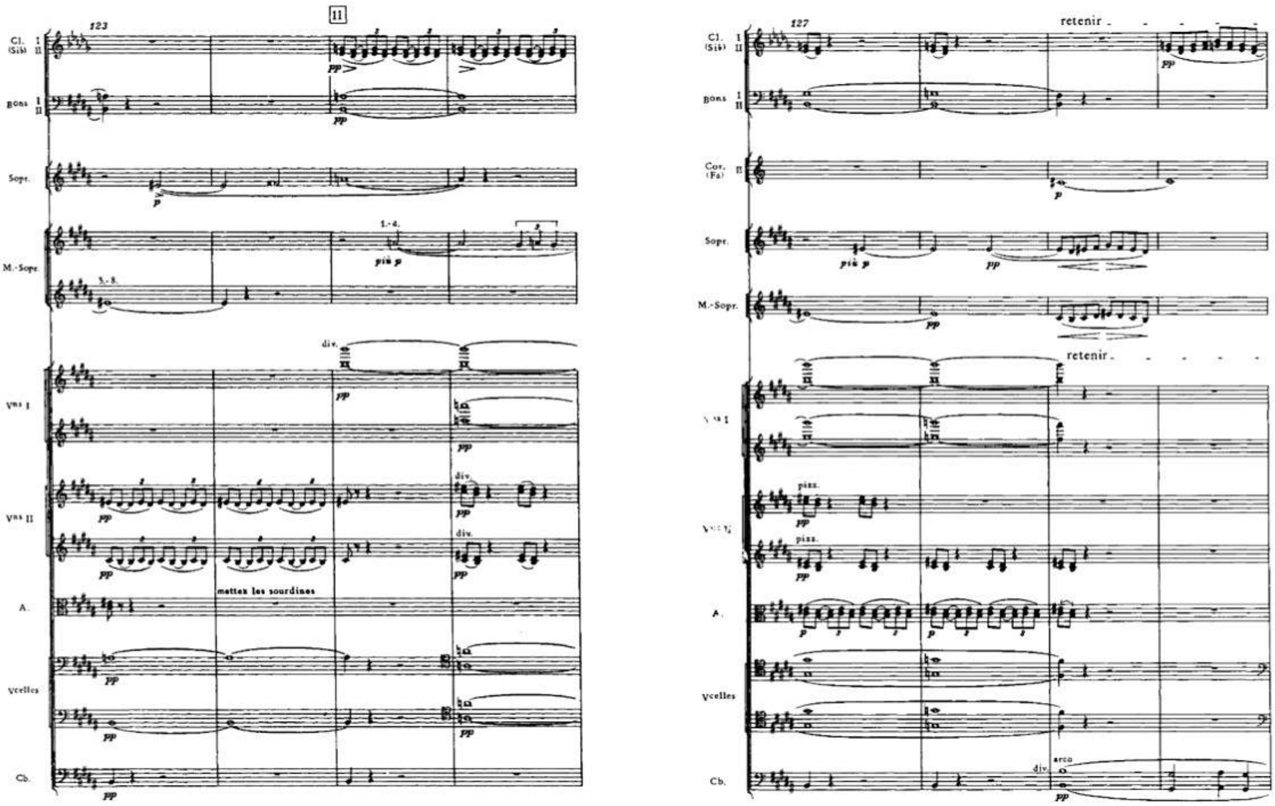

123
11
Cl. (Sib) I II
Bons I II
Sopr.
M.-Sopr.
Vons I
Vons II
A.
Vcelles
Cb.
pp
più p
div.
mettez les sourdines
127
retenir
Cor. (Fa)
pizz.
arco
div.

Fig. 9.2b

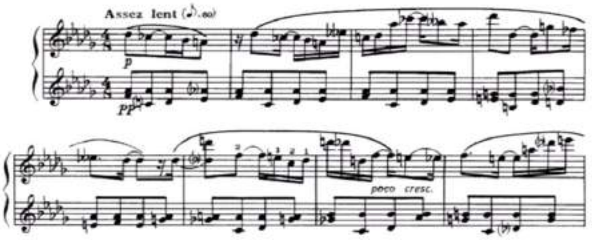
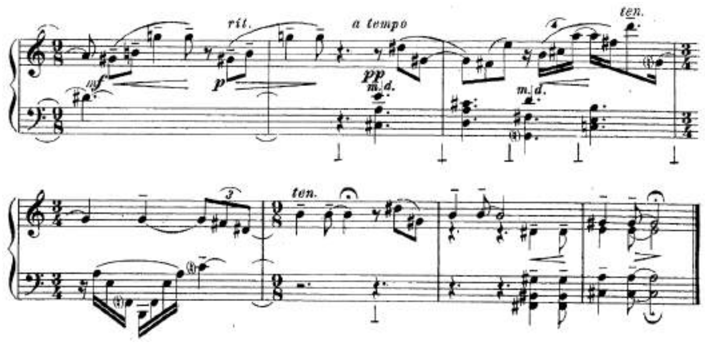


Fig. 9.3



Like Debussy's *Trois Nocturnes* in 6/4, Roslavet's *5 Preludes* starts in 3/8, and like Dutilleux's *Piano Sonata, Part II,* Roslavet's *5 Preludes, Part V* also has many atonal elements amongst repetition of pitches (Fig. 9.3). I tried to create a sense of 'cracked' and abrupt schisms, sections that break off and modulate or carry on with a new theme suddenly. Becomingness is an essential theme in *Tadvanalila*,[215] and excepting the middle dissonant intervention progression revolves around framing of variations. The sectional cuts are mediations that create a sense that perhaps a potential was negated through a skipping effect, a subtractive ontology like the mediations described by Hagel and Adorno as potentials of possibility and not set identities, similar to Adorno's idea that mediations counter the idea of 'facticity'.[216] There is the feel of a quick switch that seems as if something may be missing due to discontinuity and contrast, a gap of potential continuity or slight negation of mediation. Like my other pieces I wanted to contrast simple and complex ordering with repetitive ordering—like simple consonant melodic lines contrasting atonal textures. Hyperreal sound-objects, recapitulated themes and varying ostinatos helped anchor a sense of returning fixity, sometimes with new material and variations over ostinato variations. More lengthy melodic lines begin but are cut short, while in the second and third parts prominent melodies surface more and become central, if only briefly. In *Tadvanalila, Part I* a block of phrases might focus on an intricate piano line and flute while the next block would contrast this with less centring of melody, without a piano perhaps, and the continuity and discontinuity might change. The idea for the three parts was that contrasting themes can keep returning to a very simple block of phrases that indicate direction. Tenuous instrumental sections would let sound-object phrases surface. The dual layers create a tearing into symbiotic space, where confluence and compression of disparate forms create unique architectures.

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[215] Even though it has a feel of darkness and turmoil, *Tadvanalia* is about peace and becomingness, and I had been reading, and rereading, *The Tao Tse Ching*, *The Avatamsaka sutta*, *The Lankavatara sutta*, the Buddhawajana, *Summa Theologica* and other meditative texts with insights into form, time and perception.

[216] Piet Strydom, 'Critical Theory's Negative or Subtractive Ontology: Seminar Theses', Presented at the Critical Theory and Cognitive Sociology Seminar, Harbour View, Kilbrittain, Co. Cork, Ireland, 20 December (n. d.), 1-17 (p. 4-5).

Roslavets used a lot of triplets and quintuplets in *5 Preludes*, and I began experimenting in the piano lines with similar tuplets. For the flute I used a degree of serialism while repeating notes give a harmonic effect, perhaps staggered, and the phrasings are meant to slide out of phase while the violins and bass stay locked. The first 32 bars of the piano use serialist technique, although instead of Schoenberg's idea of consonant or important notes at the start and finish of each phrase or bar I used Nono's band knock-out techniques and found the consonant low ratio notes were not always needed, that the ear would tend towards hearing fundamentals or low ratio notes due to context, though it could add to an off-balance feel. Although I used serialist technique I also tried to resolve in step-wise motion, despite the awkward jilting effect of leaps I created for effect. Sometimes a repeating note of a recurring similar phrase will have an intentional 'mistake', or MMN, for example the A at b. 25, which was Ab in the previous three phrases. The violins at bars 142-143 are in thirds which switch to quartal motion at bars 144-145. B. 50 of Schoenberg's *String Quartet No. 2, movement III* has staggered rhythmic offsetting to create an effect of space that complements sombre serialist lines (Fig. 9.4a and 9.4b). In Fig. 9.4a and 9.4b there are patterns of rhythmic swapping, almost palindromic, between instrumental lines within the serialism. I used this idea at b. 78-82. I attributed the term 'micro-cuts' to abrupt line switching in instrumental lines, sometimes at unexpected points, and this transmission of coherence can be applied to sound-objects where coherence and information is transmitted to a different set of coarticulate sound-objects or to an instrumental line, or vice versa—it creates a discontinuity of potential and mediation, fracturing centrality, gestalt and the neutral. This occurs, for example, at bars 78-109 and at b. 169 when the flute line is completed by the first violin. Another micro-cut occurs at b. 108 where the flute stops its line and is picked up by the violin, while shortly after at b. 110 a sectional cut takes place.

Fig. 9.4a

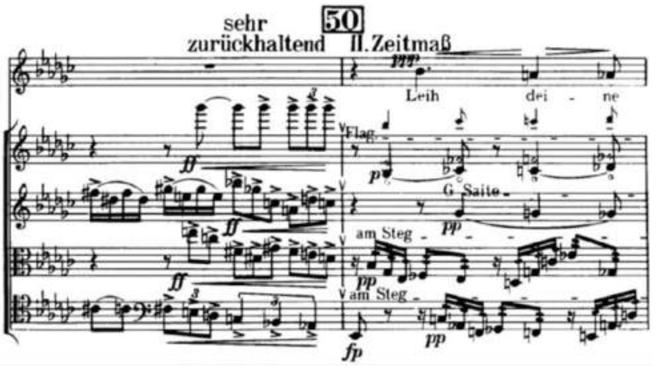
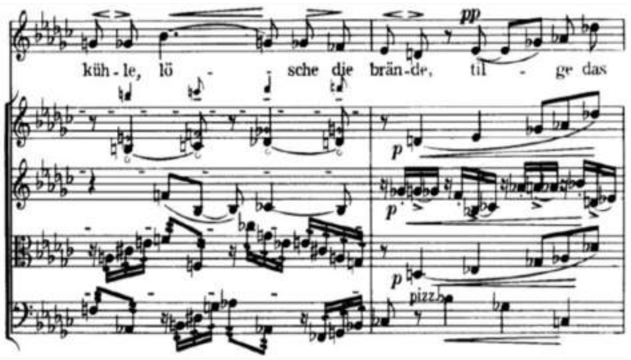


Fig. 9.4b


pp
küh - le, lö - sche die brän-de, til - ge das
p
p
p
pizz.

There is much mediant motion in the bass, sixths are frequently used in the violin parts and mediant relations abound. Fig. 9.5 shows a descending flute line at bars 149-150 using a series of mediant relations, and Fig. 9.6 shows mediant relations in the bass from bars 147-160.

Fig. 9.5

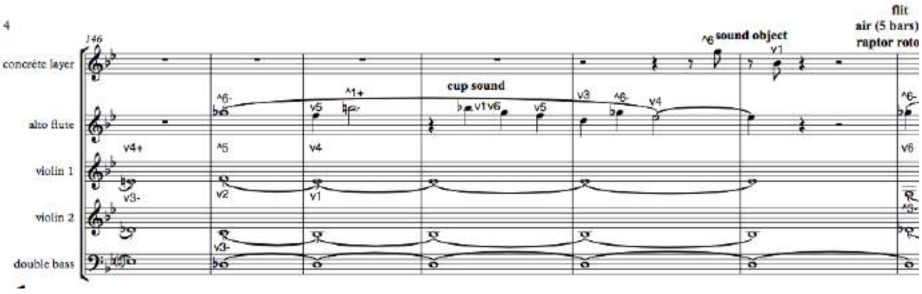
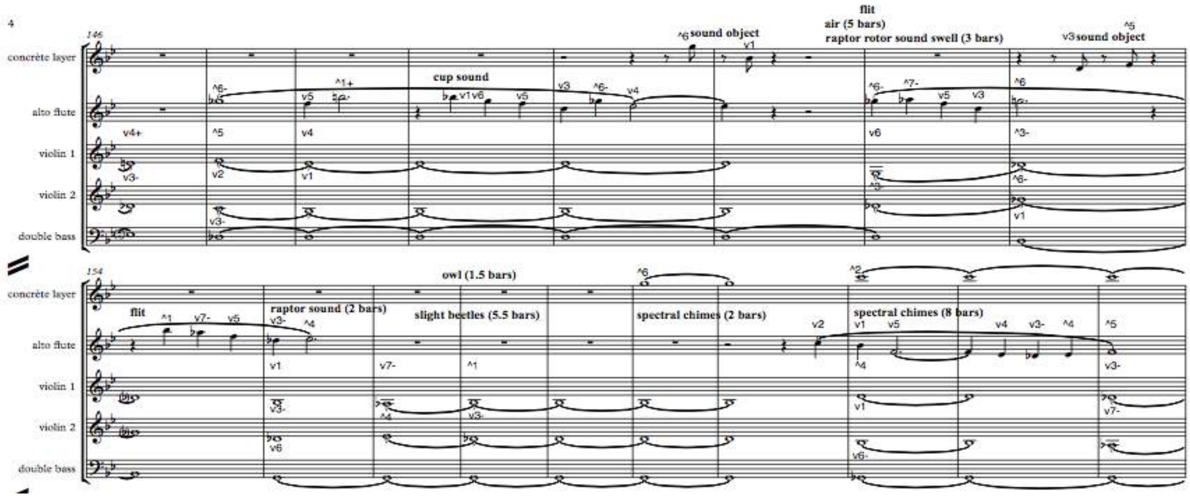
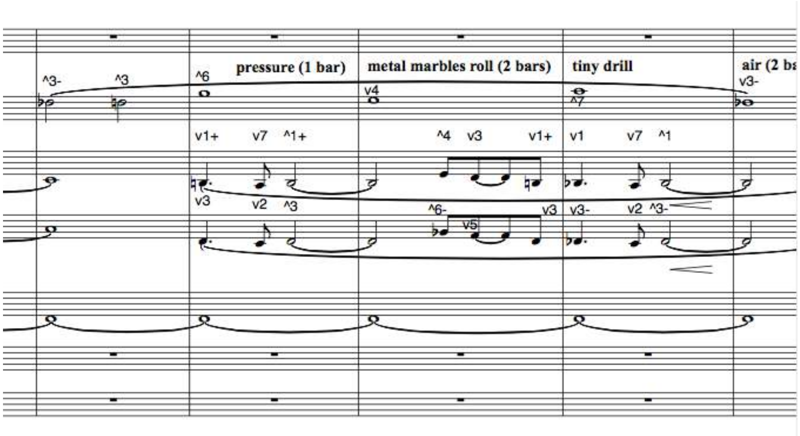

4
146
concrète layer
alto flute
violin 1
violin 2
double bass
^6 sound object
flit
air (5 bars)
raptor roto
cup sound
^6-
^1+
v5
v1v6
v3
v4
v4+
^5
v3-
v2
v1
v6

Fig. 9.6


4
146
concrète layer
alto flute
violin 1
violin 2
double bass
^6 sound object
flit
air (5 bars)
raptor rotor sound swell (3 bars)
v3 sound object
cup sound
154
flit
raptor sound (2 bars)
owl (1.5 bars)
slight beetles (5.5 bars)
spectral chimes (2 bars)
spectral chimes (8 bars)

Some interesting features include the tritone flute grace note at b. 185, though not notated as a grace here, and the 2nds between the bass and second violin at bars 193-195. Fig. 9.7 shows the violins in thirds from bars 188-190.

Fig. 9.7



In the first dissonant section I used coarticulation to smear sound-objects together into entities, and I tried to implement micro-cuts in sound-object phrases where a potential idea transmits across a discernible break.[217] For the instruments the pitch is the constant of transmission, a theoretical tonal line that runs across instruments, and for the sound-objects I decided that the timbre should be the constant—a timbral line that runs across objects, which meant that I would tweak the equalization or use subtle effects. At times a consonant piano ostinato with hints of serialism is offset by a serialist flute line and dissonant violins. A sixth is held by the violins from bars 181-184 and the line from 184-188 is in parallel thirds. At b. 238 the bass is lowered by a third, and then again at b. 240. Three important things happen within the diegesis of the concrète and instrumental layers in this piece: balance, a sense of the mesmerizing, and suspension of time. Suspension of time occurs through devices of recapitulation and resetting of material, sudden breakages and cuts, and suspended notes. Mesmerizing occurs through a teetering effect of non-resolving and resolving motifs with repetitious forms.[218] The last thing I did was experiment with ways in which the sound-object lines could shift timbre, through equalization and processing, and how they interacted with the section cuts and micro-cuts. I broke this interaction down into foreshadowing, mimesis, harmonizing/embellishing and interjecting/clashing. I started developing these sound-object line shifts around where the section cuts and micro-cuts were. From bars 94-108 the bassoon line switches to the flute at the end, yet the flute has an anticipating line that meanders prior to the continuation of the bassoon line, and there is a snake-like sound which changes timbre abruptly at b. 104 and suddenly ends halfway through bar 106, just before the section cut at b. 110. On the second beat of b. 104 the wind sound changes pitch and timbre, a sound-object micro-cut mimicking the block-cut at b. 152. From bars 152-154 the sound-objects are in tritone.

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[217] For example across instruments or layers.

[218] The piano line has been described as sweet-sounding with other instruments clashing.

Tadvanalila, Part II

Tadvanalila, Part II investigates the resetting of instrumental and sound-object phrases amongst varying material. There is constant resolution of dissonance, with moments of considerable consonance juxtaposing the dissonance, and an end fading to oblivion. It is highly lyrical and melancholy, but just when a theme begins to develop it inevitably veers off course. I wanted it to evoke peace, beauty and terror with fleeting, incarnating forms of complexity. The three parts are meant to be incarnations of the same thing, variations of a momentary snapshot, thus each part contains variations on the same opening and ending. The idea of the moment, immanence and boundaries was important for me to get across.[219] I sought to make the fragmentation allude to single moments through variations. I created some phrases that alluded to larger phrases, where it is hard to tell what is complete, much like a run-on sentence. I'd employ discrete automated effects on the sound-object rows to bring them into coarticulation at times. This would complement the micro-cuts, missing or out-of-place notes, and sectional cuts. I infused simpler melodies with complex harmonies and timbres, juxtaposing density with less dense material, and I felt it should be easy to latch onto and yet provoke and challenge—and I focused on fragmented cyclic thematic development. I used a string break from a tune I had recently written, *Like the Night*, which would have an intricate puzzle-like piano section at the beginning, then the stated theme with a cut or two, then a cut departure perhaps, then an expounding of the theme with variations and an ending cut. The piano lines vary subtly through exhaustion of possibilities. The piano for all three movements is part of the texture yet often comes forward as a line, and I felt it could have benefited from more variation although it is intended to be repetitive. I felt that Nono's ideas of contrast created through thematic tension were important, for example contrast by dramatising a circumstance.[220][221] In *Tadvanalila, Part II* motifs abound and are related and framed in different ways, while the sound-objects provide further context, syntactic relations, embellishment and contrast. Also, before *Opus 21*, Webern used subjective poetic and thematic motives, and later used objective structural functional motives, exemplifying a shift from poetic to structural dialectics,[222][223] which is similar to Nono's compositional forms where lead motivic phrases are replaced by functional micro-phrases embedded within contrasting tapestry-like segments of functional motifs. This is important in my works as it directly relates to how functions and devices may form diegesis, nuance and context in the concrète and instrumental layers. Instruments swap at odd moments during micro-cuts, there are abrupt narrative shifts that may seem disjunct, and key changes and perspectival shifts occur through resetting and reharmonizing. I experimented more with the sudden drop key change, like a rug pulled out from surety where something shifts or is revealed, yet everything else is similar with exception to slight variations and I felt that cycles and repetition were essential.[224] I used some of the pitch formatting from Roslavets's *5 Preludes*, movement two, bars 1-7 (Fig. 10.1) to create initial dissonance and then continued from this. At b. 33 there is a drop in the piano line by a major second, and the line is altered and hints at polytonality. Fig 10.2 shows the 'slippage' effect I used in the phrasing of voices from bars 17 to 32. The dissonant break occurs from bars 97-160, where swapping of parts becomes convoluted and builds in dissonance, hinting at polytonality. I decided to have long sustained sound-objects that contrast one another, with abrupt endings, during the main theme, for example at bars 33-48, 65-80 and 145-240, and pitch information in the sound-objects may add to instrumental harmonies.[225]

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[219] I am using immanence in the transcendent sense here, not the post-modern critical theory sense that establishes a positivistic fact or identity and is the antithesis of subjective negatives as described by Hegel and Adorno.

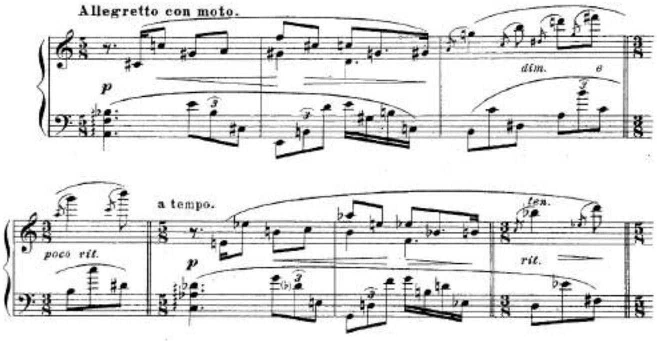
[220] Bruce Durazzi, 'Luigi Nono's Canti di vita e d'amore: Musical Dialectics and the Opposition of Present and Future', T*he Journal of Musicology*, 26/4 (2009), 451-480 (p. 463).

[221] These themes can be analogously specific, such as notes descending in a bomb-like manner or an acousmatic bird trill, or can be a general mood within large passages. I view major contrasting of sections as important, and as sonic architectural thematic contrasting of placeness and narrative, and yet even in highly contrasted sections I constantly return to motivic development, for example the returning theme of the flute at bars 177-192.

[222] Gundaris Poné, 'Webern and Luigi Nono: The Genesis of a New Compositional Morphology and Syntax', *Perspectives of New Music*, 10/2 (1972), 111-119 (p. 112).

[223] This indicates that context, mediations and repetition objectify material, whereas abrupt cuts break these and are subjective and more poetic/impressionistic, and yet can be post-modern and objective too.

Fig. 10.1



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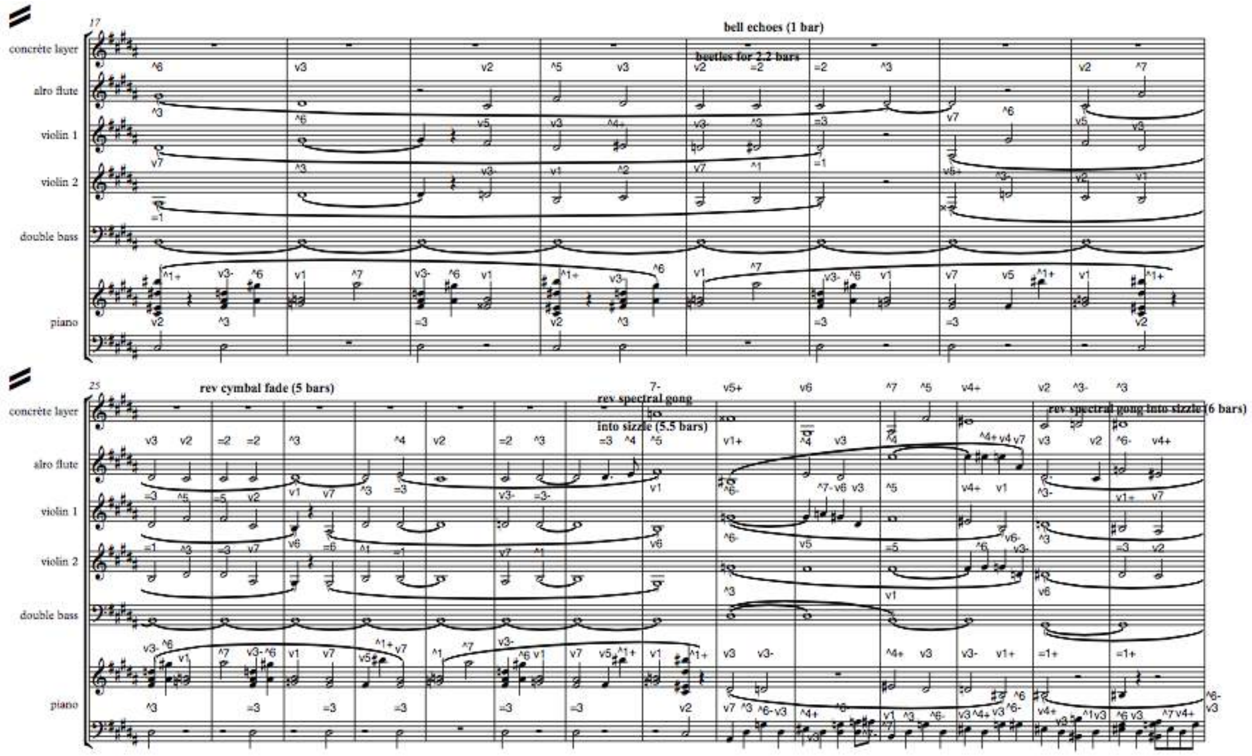
[224] This gave me the idea to try a key drop during non-cyclical, non-repetitiousness sections.

[225] This strength of pitch information in sound-objects could perhaps be called pitch strength, transparent notes or ghosting strength though I have not heard of such labels.

Fig. 10.2


17
concrète layer
alto flute
violin 1
violin 2
double bass
piano
bell echoes (1 bar)
beetles for 2.2 bars
25
rev cymbal fade (5 bars)
rev spectral gong
into sizzle (5.5 bars)
rev spectral gong into sizzle (6 bars)

Fairly dense use of textured and layered sound-objects occur at bars 49-64 (Fig. 10.4a) and 81-96 (Fig. 10.4b). Mediant relations abound in the piece, especially between the violins, and the bass shifts by mediants throughout. The midsection from bars 113-144 becomes softer in dynamics, though there is not much dynamic change in this piece which relies on modal shifting, cuts, mediant relations, tone rows, sound-object placement, timbral contrast, motifs, exhaustion of variations, intertwining melodies and ostinatos to drive it forward. While the beginning uses slight discontinuity against continuity of lines, the ending similarly has a slight slippage followed by an abrupt cut from 4/4 to 3/4 phrasings. It is not quite the end but abruptly shifts to a soft dynamic, while the end follows at b. 217 at the same dynamic level.

Fig. 10.4a

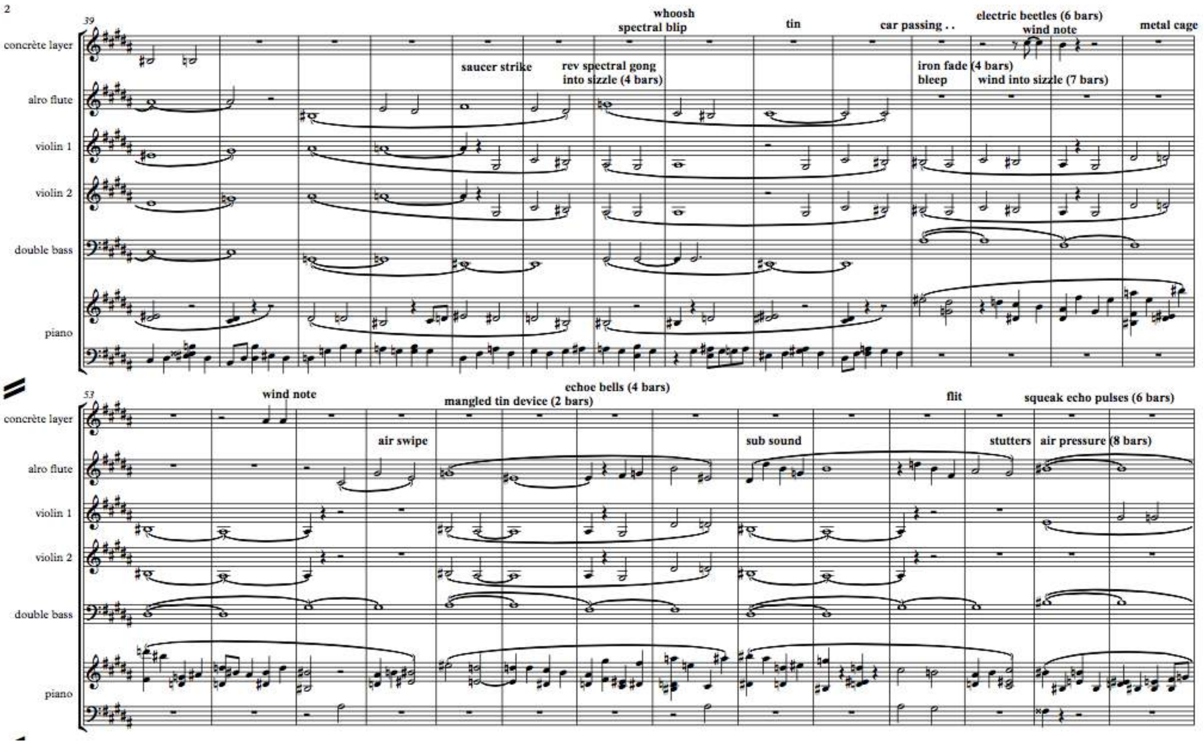
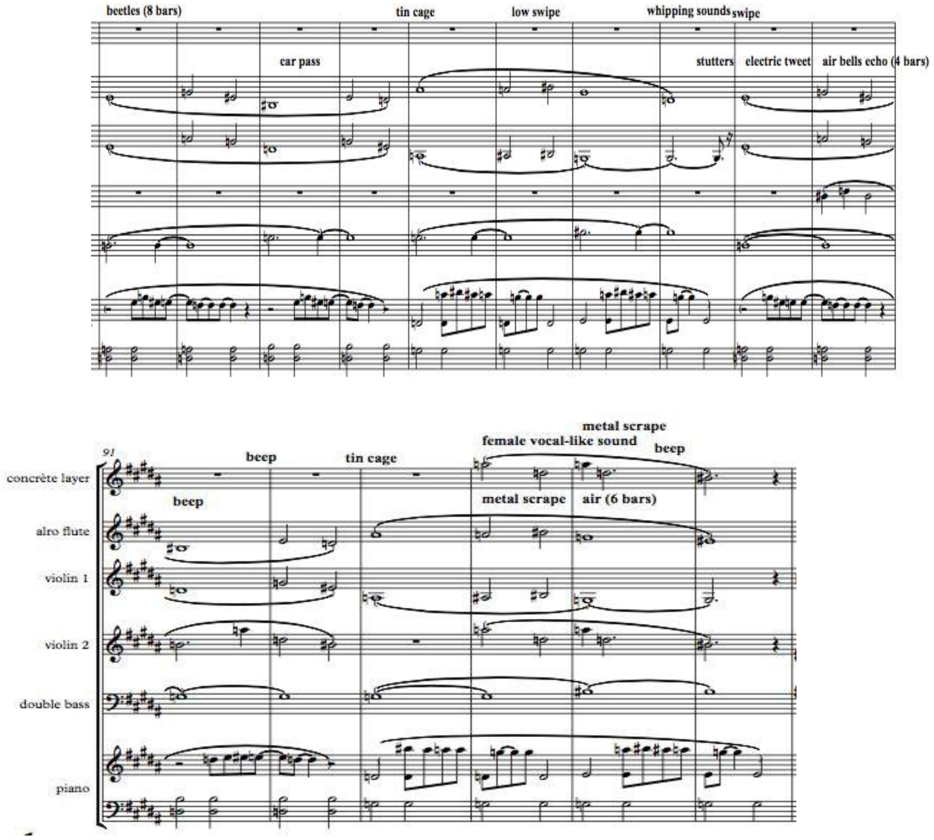

2
39
concrète layer
alro flute
violin 1
violin 2
double bass
piano
whoosh
spectral blip
tin
car passing . .
electric beetles (6 bars)
wind note
metal cage
saucer strike
rev spectral gong
into sizzle (4 bars)
iron fade (4 bars)
bleep
wind into sizzle (7 bars)
53
wind note
echoe bells (4 bars)
mangled tin device (2 bars)
flit
squeak echo pulses (6 bars)
air swipe
sub sound
stutters
air pressure (8 bars)

Fig. 10.4b


beetles (8 bars)
tin cage
low swipe
whipping sounds
swipe
car pass
stutters
electric tweet
air bells echo (4 bars)
91
concrète layer
alro flute
violin 1
violin 2
double bass
piano
beep
tin cage
metal scrape
female vocal-like sound
beep
beep
metal scrape
air (6 bars)

I began experimenting with shifting counter-perspectives of repeating phrases, or slight variations. I wanted to take the listener through changing passages with something familiar to grasp on to with collapsing and cyclical contrasts.[226] I wanted to evoke beauty and terror through its perspectival shifts that continuously end and start abruptly, though this happens more in part three, and through its contrasting dissonance with strong and delicate tonal and atonal melodies. The steady diatonic violin themes clash with the atonal flute and sound-objects in a less radical, but more pathos, way than part three. Sound-objects are re-set amidst variant sound-objects, for example each time the beetles' theme of sound-objects occur it is re-set amongst other sound-objects. There is also a condensed version for string quartet.[227]

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[226] This was inspired by both vedanta and postmodern theory such as negative dialectics where Swami Tathagatananda explains in 'The Concept Of Soul Or Self In Vedanta', p. 4, that 'The objective world is a projection of the Self and hence is only apparently real' . . . 'Just as the microcosm is held, sustained, and controlled by the individual self, so is the macrocosm by the Universal Self' and where Adorno outlines the postmodern fracturing of meaning and objectivity in *Negative Dialektik* through 'a nothing, subtractable supplement . . .[which] . . . goes far beyond [the] facts . . . of the positivistic scientific enterprise and pre-scientific consciousness . . . [and] shatters the belief in facticity'.

[227] In the string quartet version I rearranged the piano part into strings adding slightly more consonance, keeping other adjustments as minor as possible with the most natural and intuitive feel I could portray, and rounding off some of the dissonance. Very few new lines were written, but inevitably some had to be in order for it to work coherently, especially as there is less timbral difference of instruments.

Tadvanalila. Part III

I used modulations and dissonant harmonisations so that the listener would get a sense of different angles and perspectives on previous themes, and I tried to create a stressed, tempestuous feel, with cuts that add a sense of immediacy. The themes from *Tadvanalila, Part II* are mixed together at length with themes from *Tadvanalila, Part I* and material is reset in various ways. I left artefacts within the instrumental layer, bits of material that seemed half finished, to give the shifting landscape interesting extra material that flows by, structures that seem half finished amongst fuller bits that seem to complete or connect instrumentally and with the concrète layer. I used an extended tranquil ending variant, similar to parts I and II, with a static drone-like bass. Like the first two parts, I tried to convey a dramatic, mysterious, ominous fleetingness and peacefulness. It takes some of the lyrical content and restructures it out of alignment harmonically, and the cuts add to the sense of fleetingness.[228] The long ending contains sound-objects phasing in and out sporadically with bits of fleeting rhythms. The piano line is again like a texture, and alludes to serialism but also creates a sense of fleeting polytonality, with notes that are shifted to pull repetitively at the tonal centres momentarily. The piano line passes through different modalities even though there are tonic centres, creating distinct tonalities against the bass, violins and flute. As with *Part II* I used a lot of resetting of material with different phrases, themes, counter-themes and sound-objects. Though there is contrasting serialism, diatonicism, modulations, modal variety and abrupt cuts, I also kept phrases distinctly simple. For the three pieces I tried to use more call and response phrases in the instrumental layer, set against a sense of shifting via narrative cuts and some discontinuity. I used the themes of *Tadvanalila, Part II* near the start and a recapitulation of *Tadvanalila, Part I* towards the end, and often the bass progresses by 3rds. I cut parts I and II into bits, rolling dice to determine successions of bars. This would generate instrumental and acousmatic material similar to parts I and II, but would be sufficiently different. I began reducing *Tadvanalila, Part I* using dice for various phrases and sections.[229] Fig. 11.1 shows slippage in the instruments during a soft interventional section, from bars 87 -110, where phrases are in seemingly different times—the phrases are offset.

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[228] This fleetingness of surface forms with deeper undercurrents was the main idea, inspired by Vedanta and Buddhism, but also Sufism, Gnostic, Egyptian, Greek and Jewish mysticism, which may view reality as consciousness like infinite ocean depths, giving rise to emotion and deeper mind states as undercurrents, in turn giving rise to mind as surface waves which give rise to physical existences—perhaps analogous to panexperientialism, panpsychism or Chinese centrality. That atheism eschews beliefs appears quite similar to modalities of mysticism and has the added strength of realism, and can be in line with many philosophies like Barthes' metaphysical as neutral where reduction leads to knowledge but not wisdom, perhaps because knowledge forms complexity, contrast and meaning and fractures simplicity. It can be viewed as a form of panprotopsychism, which is the antithesis of panpsychism, which David Chalmers explains on p. 18 of 'Panpsychism and Panprotopsychism' synthesise as Russellian monism. On page 11 Chalmers asks 'are quiddities physical properties?', from which material existence follows. I wandered if quiddities in constitutive Russellian panpsychism were something like symbols or consciousness. In my view complexity is not against the neutral—I believe we do not have the conscious ability to realise many truths, to be able to express ideas beyond a certain point, and our words and wild concepts, like 'nothing', 'everything' or 'chaos' may not exist as we view them, though I believe that internal insights, like mental factors, can be insightful. On p. 13 of Ludwig Wittgenstein's Tractitus Logico-Philosophicus it states that 'If I know an object I also know all its possible occurrences in states of affairs'. Padmasambhava's Tibetan Book of the Dead states that voidness is not to be taken as nothingness but as intellect and consciousness, shining and blissful, and the Gospel of Mary Magdalene speaks of the awareness of 'I' and the transcendent, including metempsychosis. Padmesambhava also asks: since your own immediate awareness is just this, how can you say that you do not know anything with regard to it? A panpsychism and metempsychosis are expounded in The Gospel of Mary Magdelen. Later I found that stanzas 18 and 23 of Vasubandhu's Buddhist work Trimsika, or Thirty Stanzas, describes a similar concept wherefrom dharmas ensue ripples and waves which can be called atmans or souls, or distinctions, which have no nature of their own. The philosophy that consciousness is fundamental to reality appears in the works of Plato, Plotinus, Thales, Spinoza, Leibniz, William James, Bertrand Russell, Alfred North Whitehead and Galen Strawson, and the idea of transcendental consciousness occurs in post-enlightenment philosophy like Kant, Hagel and Brentano. Jung spoke of the tendencies of the unconscious mind, hinting at the collective unconscious. Those sympathetic to neutral monism, where at least a third element exists apart from mind and matter, were Bertrand Russell, Baruch Spinoza, David Hume and others, and William James talks of it in 'Does Consciousness Exist?'. These wave peaks of consciousness and ripples forming dharmas seem like Brentano's idea of directed intention giving rise to consciousness. For Brentano intention and acts are characteristic of mind, and intentional objects which exist in the mind are not actually real, as explained on page 3 of Paul M. Livingston's 'Edmund Husserl: From Intentionality to Transcendental Phenomenology'. Yet Jung said in a 1957 interview that fantasies are facts: '[. . .] you see it is a fact that a man has such and such a fantasy, and it is such a tangible fact, for instance, that when a man has such a fantasy another man may loose his life [. . .] and so psychical events are facts, are realities [. . .] and when you observe the stream of images within you observe an aspect of the world [. . .] of the world within [. . .]'. Though I wrote *Tadvanalila* with Vedanta in mind, at the time of this writing, 2021, I neither rejected or affirmed the four gross generalizations that: the one is real and the individual soul is real (Christianity, Islam), the one is real and the individual soul is not real (Vedanta, Hinduism), the one is not real and the individual soul is not real (some forms of Buddhism), and the one is not real and the individual soul is not real (atheism). For

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Christians and Muslims both god (or everything beyond what is knowable, including mind) and the physical world are real, for Buddhists neither god or the physical world is real, for Hindus only god (or all that is beyond the knowable and mind) is real, and for atheists only the physical world is real. Does Maya or the Gnostic demiurge come into play to create panpsychism from panprotopsychism? In my view there may be infinite properties beyond our knowing that could interfere with causal chains of logical events, it is just that it is unlikely in our everyday lives to witness anything like this, such as through higher consciousness intervention. In Shams Tabrizi’s 40 Rules of Love, Rule 4 states that 'Intellect ties people in knots and risks nothing, but love dissolves all tangles and risks everything' and that 'Intellect does not easily break down, whereas love can effortlessly reduce itself to rubble.' Bodhidharma, the first patriarch, traditionally accepted as transmitter of Buddhism from India to China, says 'erudition and knowledge are not only useless, they cloud your awareness [. .]. doctrines are only for pointing to the mind, once you see the mind why pay attention to doctrines.' Anaxagoras believed that the unfathomable one divine balanced itself out where needed throughout life, veritas, awareness, perception, in natural course, although he thought that awareness cannot order the physical world, and indeed I think this idea could extend to an idea that 'I'-awareness cannot order the physical world, only greater awareness can. The Persian Sufi Bayazid Bastami said that 'Forgetfulness of self is remembrance of God'. In the Trika ideology of Kashmir Śaivism it is thought that the limitation that gives rise to causality is an interaction by which the subject imparts fleeting conditions on the object, and that causal time is too unstable to support relations between subject and object via determined and definite conditions. The primary unmanifest consciousness, the first cause relative to the Neoplatonic One, is a timeless spontaneous act without limitation or condition, it is active, giving rise to extroversion and introversion that mediates between the unmanifest source and phenomenal realities, an idea that radically departs from other schools of thought, including Advaita Vedanta, for example as propounded by Siddharameshwar Maharaj. Whether it is Bodhidarma's Bloodstream Sermon, the philosopher Nishida on nothingness, Meister Eckart on immanence, or Marguerite Porete's practical mysticism, the essential message is the importance of seeing one's nature. Whether seen as immanence, transcendence or nothingness, it is shining and blissful. It is a nature that can be hard to discern, for awareness is the fire that cannot burn itself. The Shaivite Trika yogini Lalleshwari, or Lal Ded, the Kashmiri mystic, said 'I searched for myself until I grew weary, but no one I know now reaches the hidden knowledge by means of effort. Then, absorbed in 'though art this' I found the place of wine. There all the jars are filled but no one is left to drink.'

[229] If three was rolled I would delete the third bar and bring the remaining material over. I would usually do this at least five times or more while using reduced listening on a loop until an approximate result of something interesting was heard, then I might delete more bars or arrange minimally as needed. After this process of reductions I imported the material into part three and began arrangement and compositional procedures. I then placed the main violin themes from *Tadvanalia, Part II* over the bass and piano parts of *Tadvanalila, Part I* to give a shuffled feel that produced a new variation to work with, and adjustments could be made for a re-setting of similar material.

Fig. 11.1

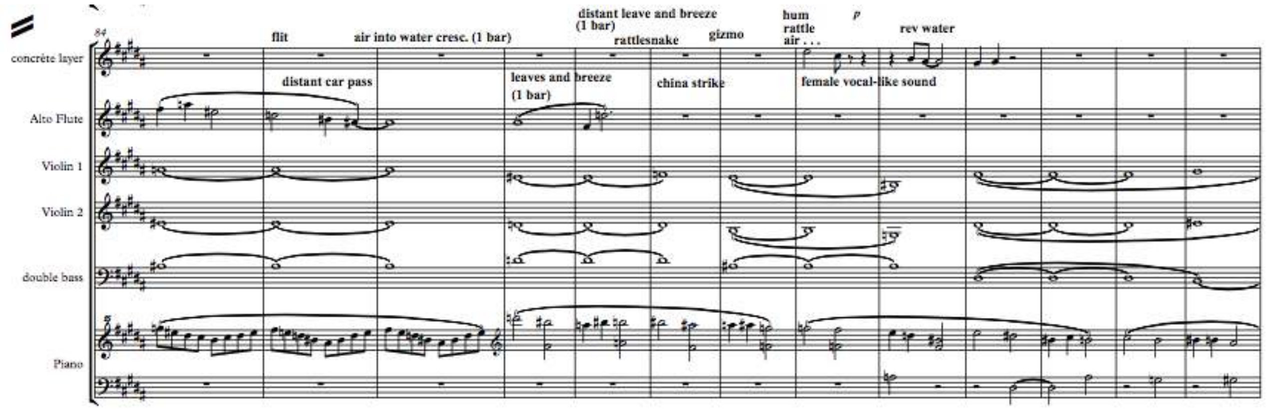

84
flit
air into water cresc. (1 bar)
distant leave and breeze (1 bar)
rattlesnake
gizmo
hum rattle air . . .
p
rev water
distant car pass
leaves and breeze (1 bar)
china strike
female vocal-like sound
concrète layer
Alto Flute
Violin 1
Violin 2
double bass
Piano

Fig. 11.2 shows the violins in quartal harmony at bars 17-18 and then in 3ds at bars 19-22. From bars 87-134 the bass is no longer largely in mediant relations. The ending starts with two four-bar blocks at b. 199, then undergoes diverse changes in phrase lengths between the violins and piano, and settles at the very end (bars 255-267) into three-bar blocks starting on the third beat. Fig. 11.3 shows the variation of phrase lengths and slippage effect at. b. 238 and Fig. 11.4 shows this at b. 253 till the end.

Fig. 11.2

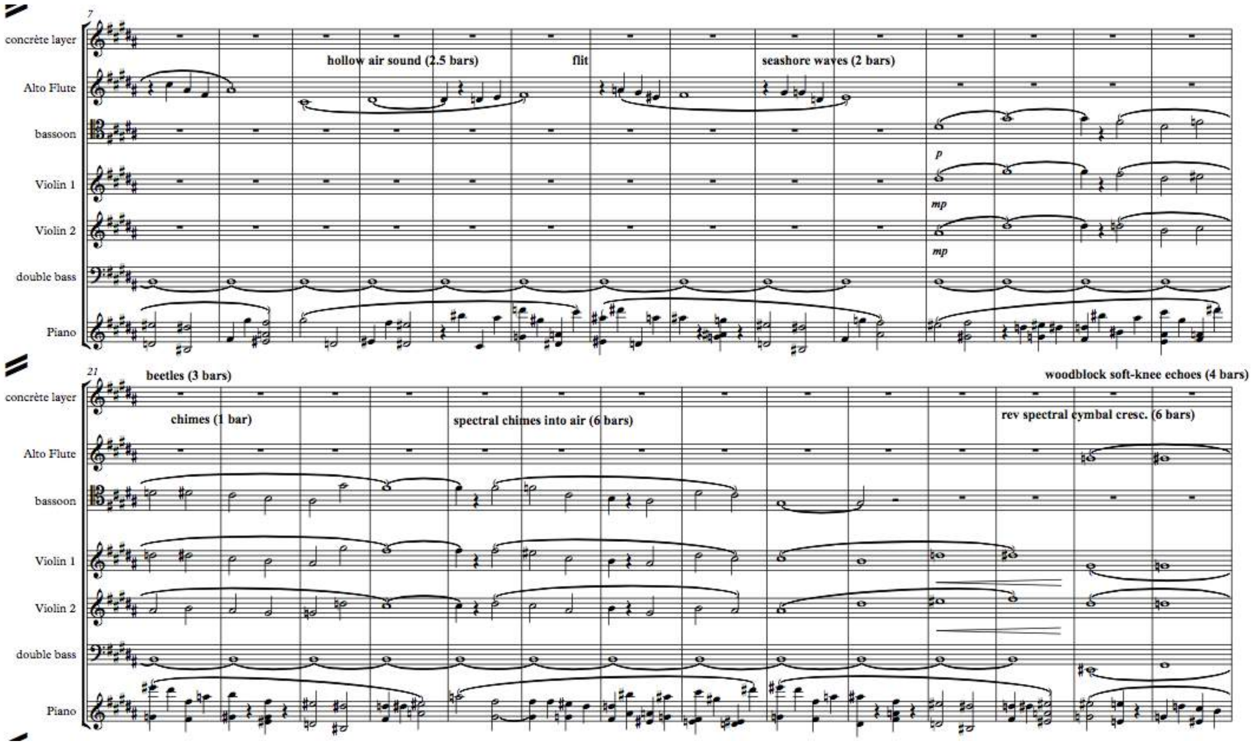

7
hollow air sound (2.5 bars)
flit
seashore waves (2 bars)
p
mp
mp
21
beetles (3 bars)
chimes (1 bar)
spectral chimes into air (6 bars)
woodblock soft-knee echoes (4 bars)
rev spectral cymbal cresc. (6 bars)
concrète layer
Alto Flute
bassoon
Violin 1
Violin 2
double bass
Piano

Fig. 11.3

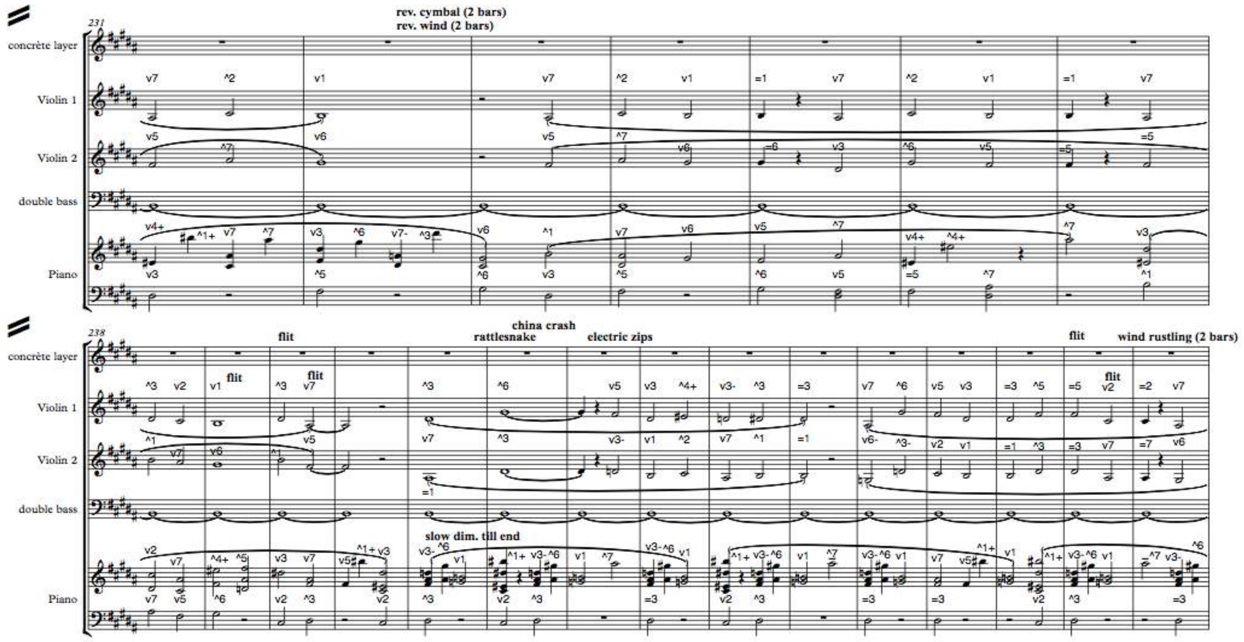
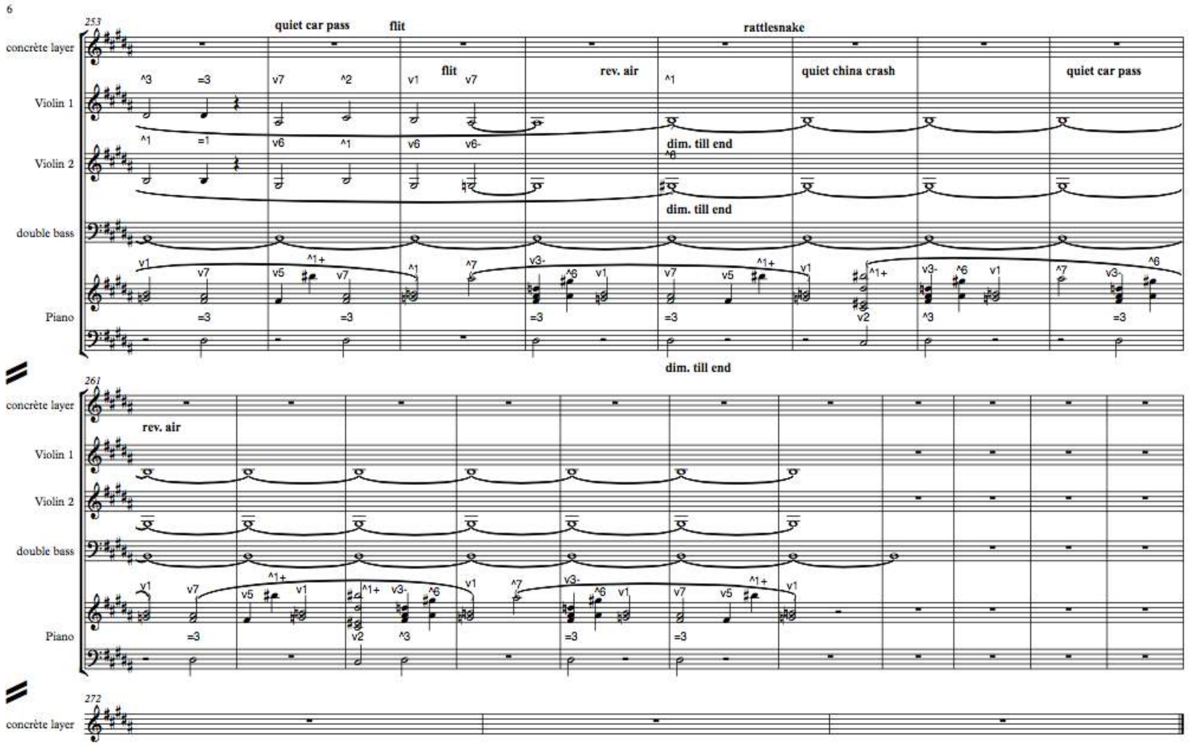

231
concrète layer
Violin 1
Violin 2
double bass
Piano
rev. cymbal (2 bars)
rev. wind (2 bars)
238
flit
china crash
rattlesnake
electric zips
flit
wind rustling (2 bars)
slow dim. till end

Fig. 11.4


6
253
concrète layer
Violin 1
Violin 2
double bass
Piano
quiet car pass
flit
rattlesnake
rev. air
quiet china crash
quiet car pass
dim. till end
dim. till end
dim. till end
261
rev. air
272

A Desolate Market

A Desolate Market is a tone poem depicting my impressions of David Lindsay's *The Haunted Woman*, and the name is taken from Blake's *The Four Zoas* where "Wisdom is sold in the desolate market where none come to buy". After placing the central 4/4 theme of bars 29-62 from the preliminary work, and creating a similar expansive, bustling, toiling mid-section leading into tranquility, I ended with a soft consonant intervention and recapitulation of the beginning theme. The static low-note intervention suddenly drops to *m p* at bars 17-28, which brings the sound-objects forward through denser timbral shifting and long instrumental notes, and is taken from the preliminary work (Fig. 12.1). The main dark, brooding 4/4 theme of bars 29-62 was greatly cut down, modulated down, refined, and has a tagged-on end which is further modulated. I did not get to implement mediant chromatics in the bass but did so where I could, for example the shift from bars 25-29 that modulates from the static intervention into the mid-theme, and from bars 57-63. I felt that the piece is more developed in certain ways than the earlier pieces of *Through the Six Worlds* because I had composing experience of low and high frequencies between the layers, of the use of longer instrumental notes and densities to bring out the sound-objects more, of pattern-swapping of instrumental lines and gap patterning, and of forming contrast, continuity and discontinuity. The variation from bars 9-16 uses violins in parallel sixths and the section at bars 29-62 modulates to V. The violins in this section are mainly in parallel thirds, which vary from the previous parallel sixths, except at bars 39-40 and 59-60 which are in sixths. Bars 71-78 are instrumentally tight and locked, and the piano begins descending lines at b. 79 while the left hand piano rhythms dissolve by b. 83 till the end. Violin two has two rests in this section from bars 83-102, which creates more openness and a slight slippage or movement effect (Fig. 12.2). Nono resisted the idea of a main melodic thread in many of his works,[230] and I used this idea in the static intervention at b. 17. In Nono's work there is shifting of content in clusters on deeper levels, and this content would then be contrasted.[231] From bars 17-28 there are longer sound-objects of varying timbres, like fluttering wind sounds, air, rustling, metallic strikes, short reverse cymbals and flickering. At b. 29 the slow, dark theme is played and the sound-objects drop in intensity becoming considerably more subliminal and hypotextually subordinate, with similar air sounds and short reverse cymbals, and there is more silence. There are varying timbres like beetles, flickering and air stutters, with a few more abrupt syncopated sound-objects.

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[230] Bruce Durazzi, 'Luigi Nono's Canti di vita e d'amore: Musical Dialectics and the Opposition of Present and Future', T*he Journal of Musicology*, 26/4 (2009), 451-480 (p. 463).

[231] Bruce Durazzi, 'Luigi Nono's Canti di vita e d'amore: Musical Dialectics and the Opposition of Present and Future', T*he Journal of Musicology*, 26/4 (2009), 451-480 (p. 463).

Fig. 12.1

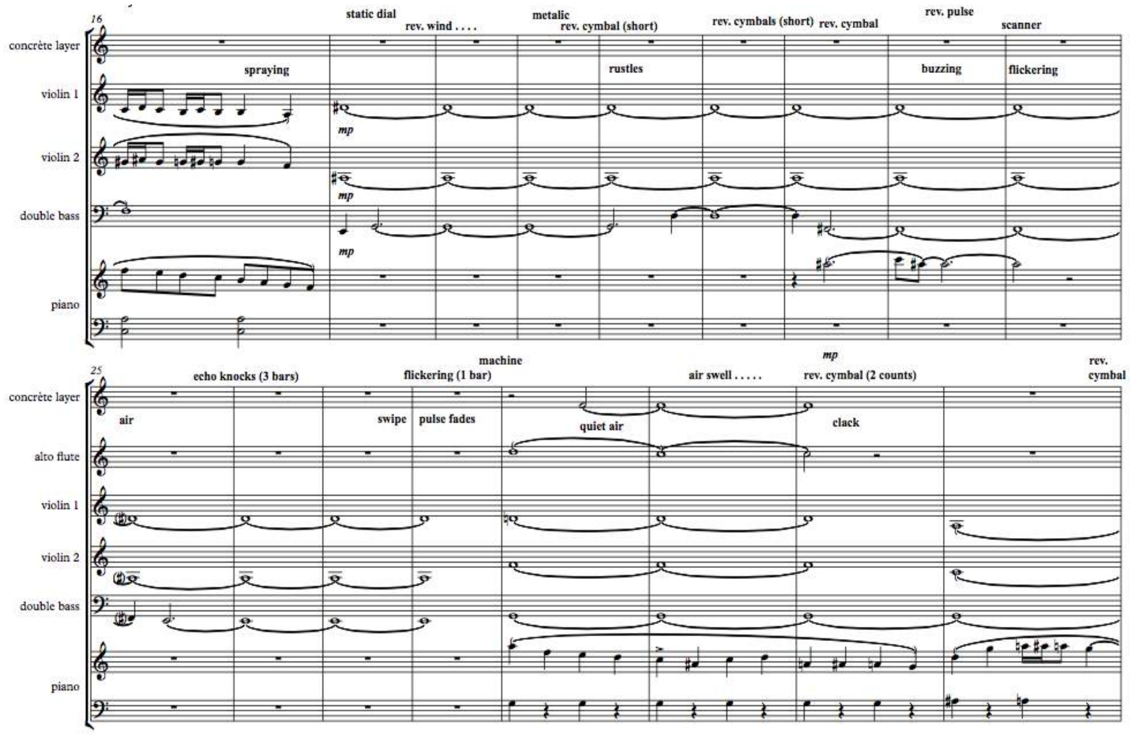
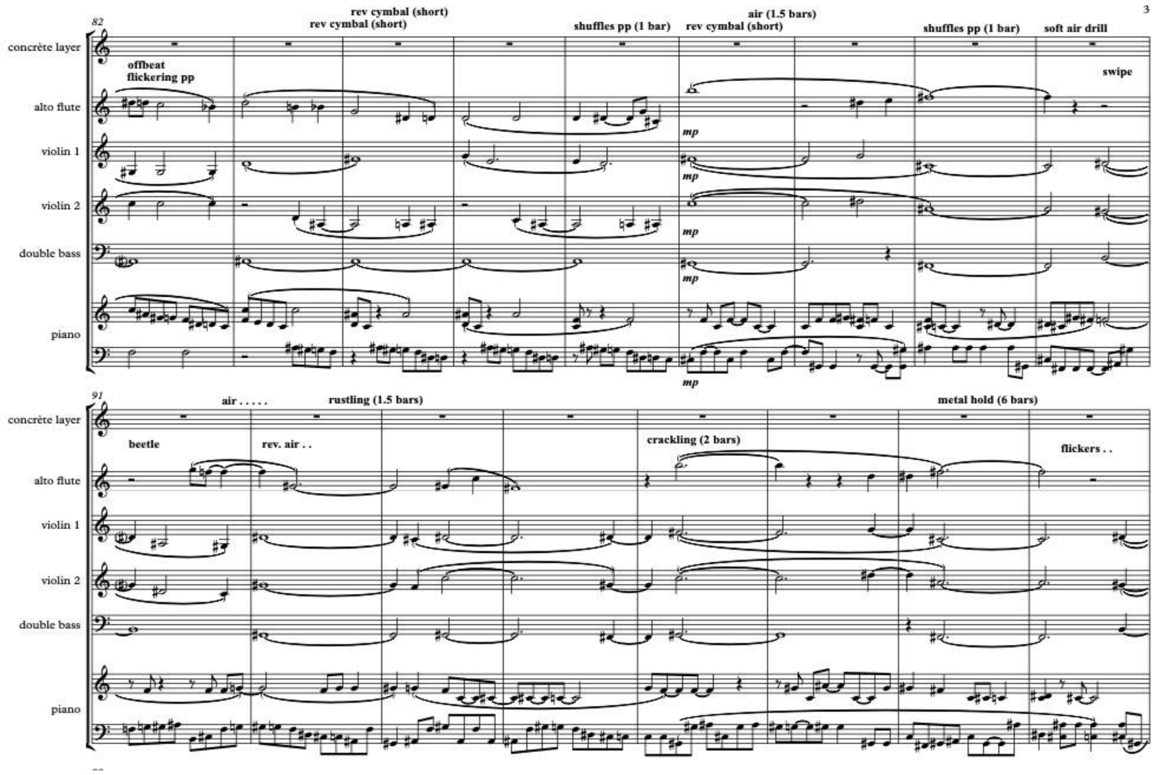
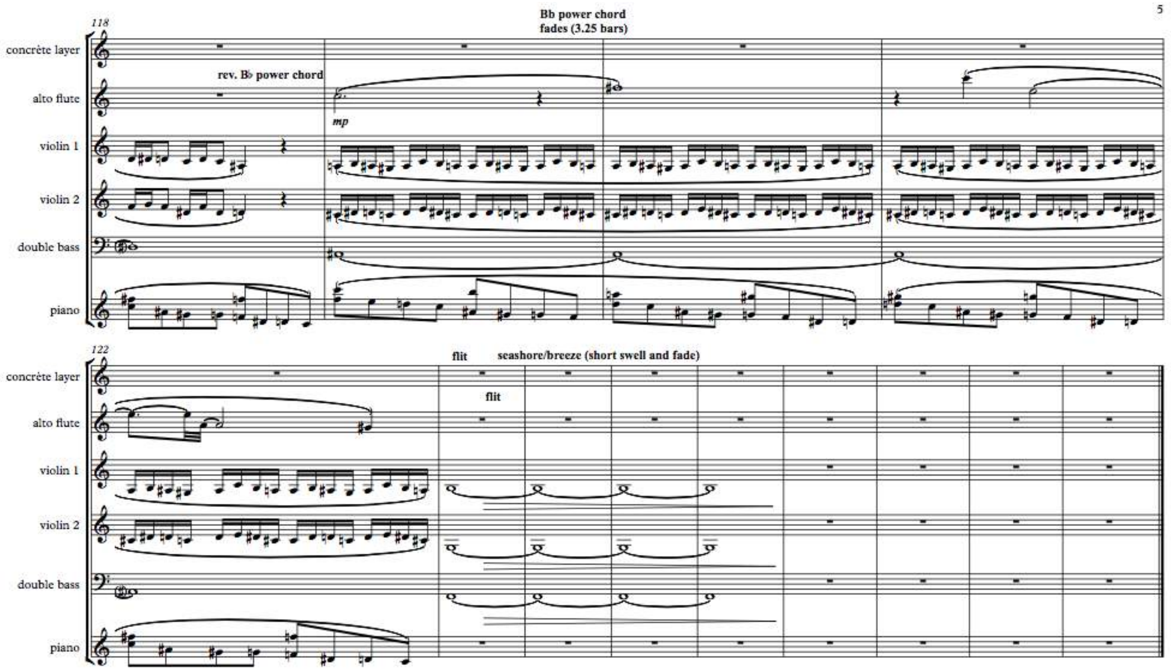

16
static dial
rev. wind . . . .
metalic
rev. cymbal (short)
rev. cymbals (short)
rev. cymbal
rev. pulse
scanner
concrète layer
spraying
rustles
buzzing
flickering
violin 1
violin 2
double bass
piano
mp
25
echo knocks (3 bars)
machine
flickering (1 bar)
air swell . . . . .
rev. cymbal (2 counts)
rev. cymbal
air
swipe
pulse fades
quiet air
clack
alto flute

Fig. 12.2


82
rev cymbal (short)
rev cymbal (short)
shuffles pp (1 bar)
air (1.5 bars)
rev cymbal (short)
shuffles pp (1 bar)
soft air drill
3
concrète layer
offbeat
flickering pp
swipe
alto flute
violin 1
violin 2
double bass
piano
mp
91
air . . . . .
rustling (1.5 bars)
metal hold (6 bars)
beetle
rev. air . .
crackling (2 bars)
flickers . .

The parallel mediants in the violins hold up throughout most of the piece, altered by sixths or passing notes. In the first draft, with an altered ending after b. 87, there was slight slippage due to rests and palindromes, from bars 79-103, and then locking again from b. 107 till the end—and from b. 119 there was a fast chromatic run by the violins in parallel thirds, while at b. 123 all instruments dropped away except the violins and bass, which quickly faded with thirds in the violins and a seventh in the bass (Fig. 12.3).[232] At the ending there is recapitulation of the opening theme transposed up a minor third. The flute is similar to *Tadvanalila* in that its appearances are often synced to the cyclic phrases and can be somewhat atonal at times, while the violins are in thirds and sixths mostly and the lines mix with other parts to create consonance and dissonance. The flute becomes more atonal from bars 71-102.

Fig. 12.3



I began with a simple theme, expanding it based on various rhythms from *Trois Nocturnes*. The first rhythm I tried was from bars 59-62, movement III, of *Trois Nocturnes* (Fig. 12.4). *Trois Nocturnes* was inspiring rhythmically due to its complexity, and I felt that, along with Roslavets and perhaps Nono, my rhythms paled extremely in comparison. I implemented triplet semiquavers (sixteenths), much like movement 3, b. 3 of *Trois Nocturnes* (Fig. 12.5).

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[232] The first draft ending has a dissonant intervention without resolution, except at b. 115 where the strings focus into parallel sixths (bars 109-111), quartal and third consonance, and shift at b. 119 to chromaticism in parallel thirds only to finally be defeated by a block chord at b. 123 where only the strings prevail.

Fig. 12.4

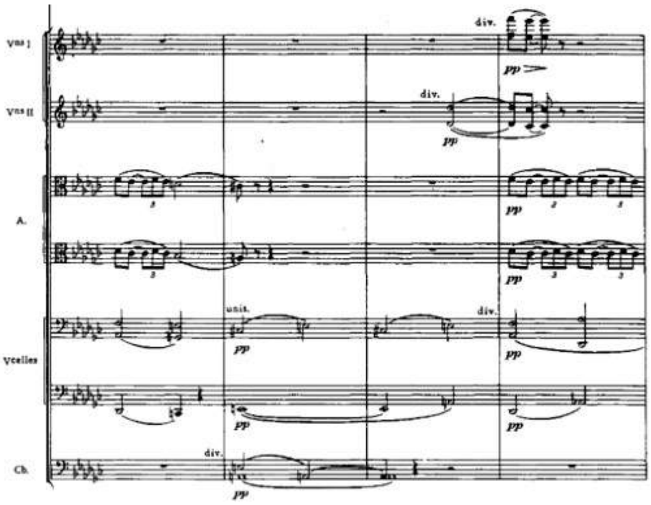
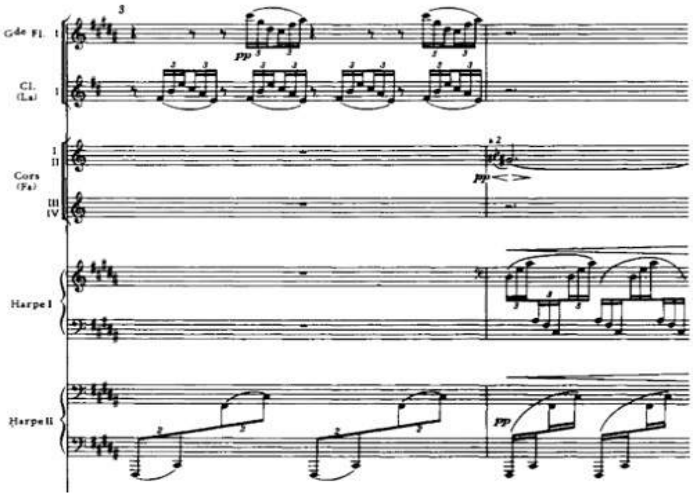

Vns I
Vns II
A.
Vcelles
Cb.
div.
unis.
pp

Fig. 12.5


Gde Fl. 1
Cl. (La) 1
Cors (Fa) I II III IV
Harpe I
Harpe II
pp

I used compact patterning of call and response across instruments from bars 79-82 (Fig. 12.6), inspired by Schoenberg's *String Quartet no. 2*, movement 2, at around b. 70 (Fig. 12.7).

Fig. 12.6

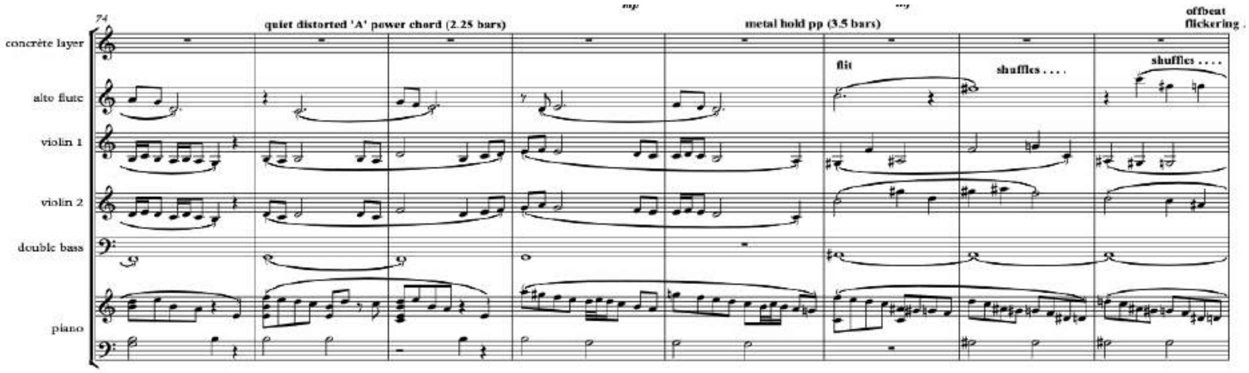
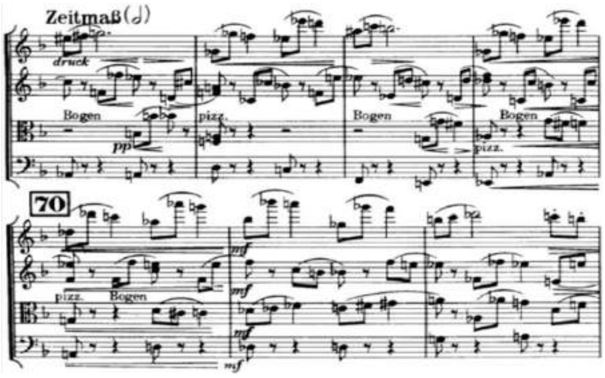
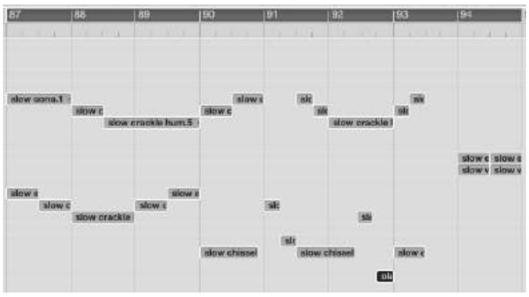

74
quiet distorted 'A' power chord (2.25 bars)
mp
metal hold pp (3.5 bars)
offbeat flickering .
concrète layer
alto flute
violin 1
violin 2
double bass
piano
flit
shuffles . . . .
shuffles . . . .

Fig. 12.7


Zeitmaß (𝅗𝅥)
druck
Bogen
pizz.
pp
Bogen
Bogen
pizz.
70
pizz.
Bogen
mf
mf
mf

I applied this compact call and response of instruments to sound-objects at bars 87-94, and then used this again at bars 79-82. At bars 87-94 the piano line is in half-time, and the concrète layer reflects this with slowed-down sound-objects (Fig. 12.8).[233]

Fig. 12.8


87
88
89
90
91
92
93
94
slow sona.1
slow c
slow crackle hum.5
slow c
slow
slow crackle
slow c
slow c
slow v
slow c
slow v
slow
slow c
slow crackle
slow c
slow
slow chissel
slow chissel
slow c

I used less discrete rhythmic sound-object phrases, for example at bars 63-70 (Fig. 12.9a) and bars 79-86

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[233] I wanted to have the piece end with the layers departing from coherence but this proved challenging, for I realized after much scrubbing and reduced listening that to get the layers to have little commonality would take reworking of the original instrumental layer.

(Fig. 12.9b).

Fig 12.9a

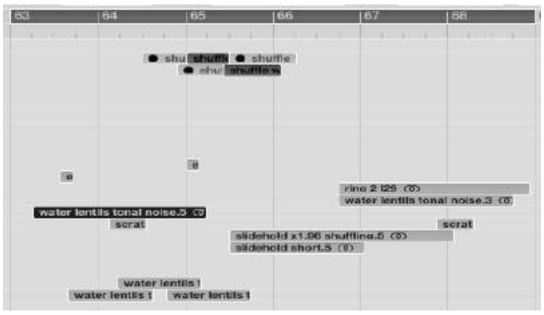
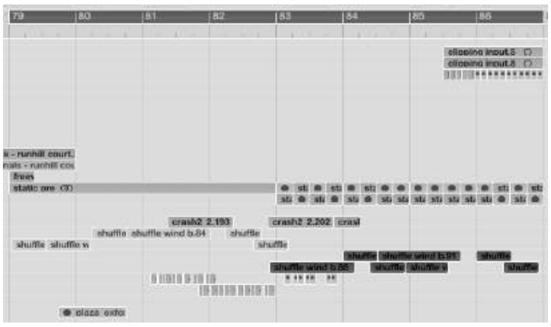

63
64
65
66
67
68
shu
shuffle
shuffle
shu
shuffle w
ring 2 I29
water lentils tonal noise.3
water lentils tonal noise.5
scrat
scrat
slidehold x1.96 shuffline.5
slidehold short.5
water lentils
water lentils
water lentils

Fig. 12.9b


79
80
81
82
83
84
85
86
clipping input.5
clipping input.8
x - runhill court.
nals - runhill co
static ore
crash2 2.193
crash2 2.202
crash
shuffle
shuffle wind b.84
shuffle
shuffle
shuffle w
shuffle
shuffle
shuffle wind b.91
shuffle
shuffle wind b.86
shuffle
shuffle w
shuffle
plaza exfo

The Broken Oracle, Part I

For this last piece I wanted a fast moving collage of motifs, and more use of aleatory and MMN, with patterning by swapping phrases in palindromic fashion or using stacked repeating intervals impressionistically.[234] The end result did not use strict palindromic patterning, and cut sections were approached by dropping beats, seen at the time signature changes. Fleeting motifs came across strong and small sections are strung together as equal interventions. The piece is consistently quite dense with only some passing shades of breaking, though I had wanted to create more tenuous sections and fleeting bits of discontinuity and decoherence. The gestalt was meant to be unstable and varying, yet cyclical with phrases that decohered briefly and repeatedly. The idea was to have coherence and continuity between the layers, with slight pullings away like a decohering that adds nuance, like through silences, dissonances, altered harmonizations and variations. I started looking at gaps, silences and breaks within the compositions under investigation (see Fig. 13.5-13.7). I began to line up sound-objects with themes, for coherence between the layers, then I wrote counter themes to be placed along with sound-object phrases that did not cohere well. As each section was treated like an intervention, an effect was created where density within the layers broke briefly at times, and atonality and sound-objects are deeply embedded within the rhythmic and harmonic structures. Everything is rhythmically locked and simple with little or no slippage of lines, except between the instruments and concrète layer. It was important to vary the density and dynamics of the sound-object phrases. I used many of the techniques developed during the earlier works: lower pitches in the instruments to bring forward sound-objects, less shifting of instrument pitches rhythmically to bring forward sound-objects, short sectional interventions with higher atonality that offset balance and cohesion and create motion (bars 82-101), and cuts that abruptly change theme or display a gap in mediation. Continuity of structure and order are done by much transposition, harmonic alteration, mediations, foreshadowing and recapitulation.[235] I managed to insert rests and elongated notes where I could due to the busy feel of the piece. I kept in mind that in Barrett's *Submerged* there are never any gaps of complete silence, although there are a few moments of quietude with few sound-objects.[236] I used quartal parallel fourths to contrast parallel thirds and sixths, inspired by fauxbourdon that is written a perfect fourth below the line. I decided to try rhythmic repetitions of sound-objects within coarticulate groups, or phrases, like at bars 124-133. I used a data bin shifting effect on the serial sound-row phrases.[237] At bars 124-133 there are fast and repeated sound-object rhythms (Fig. 13.1).

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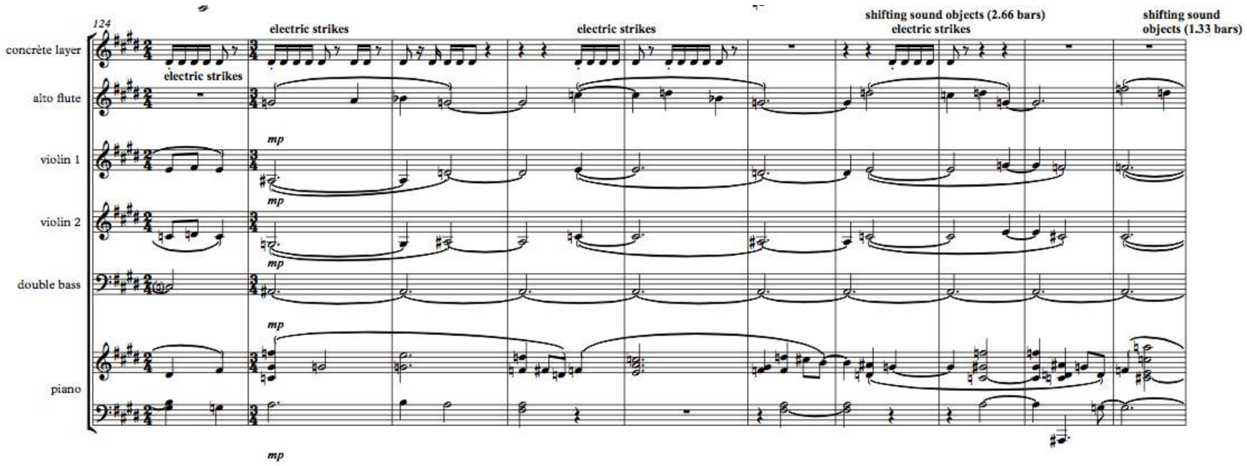
[234] The name is taken from an idea I had for a band name, and around the time of writing these two pieces I had been having dreams about astral travel in which I discovered that the pearl of wisdom is one's self, and that is broken because we've lost this knowledge. The broken aspect is also borne out in the fleeting shattered aspect to the music.

[235] Foreshadowing for example may be through similar tonalities, rhythms and timbres forming between variations.

[236] One that stood out to me was after 0:22 where a low watery gurgling sound-object descends in pitch and volume amongst quiet soft pulses of clicks, while a high pitched metallic sound begins phasing in.

[237] A bin is a data structure that enables region queries in computational geometry.

Fig. 13.1



At bars 92-102 the piano plays broken fragments of ascending whole-tones, the bass is low pitched and static, the violins are in minor sixths accentuating the pulse of the piano phrases and the flute plays a fairly atonal line. This instrumental passage is contrasted by dense shifting sound-objects of quarter notes (crotchets) with a sparse break of an air and droplet sound. I used near symmetry by quints in the piano bass line at bars 82-83 (A# starting on the seventh), 84-85 (B# written as C), 86-87 (B), 88-89 (C* written as D) and 92-93 (C#). At bars 92-101 the right hand piano plays ascending broken whole-tone lines in thirds, the violins repeat harmonised diminished sixths and the flute plays six-note serialist lines (Fig. 13.2). At bars 189-207 the sound-objects become less dense over rising, shifting whole-tones in thirds and descending stacked diminished sevenths with mediant relations and some tritones (Fig. 13.3). Serialist sound-rows of eighth note (quaver) length take place, the phrases varying in length which create a sense of patterned texture, like at bars 89-101 (Fig. 13.2) and at the beginning. One passage started with dense sound-objects becoming gradually sparser, as I wanted to explore gradations (bars 103-113). Bars 92-102 has sound-objects starting dense, falling to sparse and then becoming dense again. I rolled dice, with higher numbers signifying high dissonance and mid-numbers signifying consonance and dissonance.[238] Fig. 13.4 shows less shifting of pitches rhythmically in the strings to bring forward sound-objects at bars 32-55, while the piano part is denser and counters the sound-objects and the strings shift slowly with lower notes.

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[238] An arbitrary 12-sided dice roll system was: 1 – high dissonance, 2 – high consonance, 3 – dissonance and consonance, 4 – short section, 5 – long section, 6 – medium section, 7 – sound-objects, dense, 8 – sound-objects sparse, 9 – sound-objects medium, 10 – instruments dense, 11 – instruments sparse, 12 – instruments medium. Later I would ask questions with a resulting high to low of the dice.

Fig. 13.2

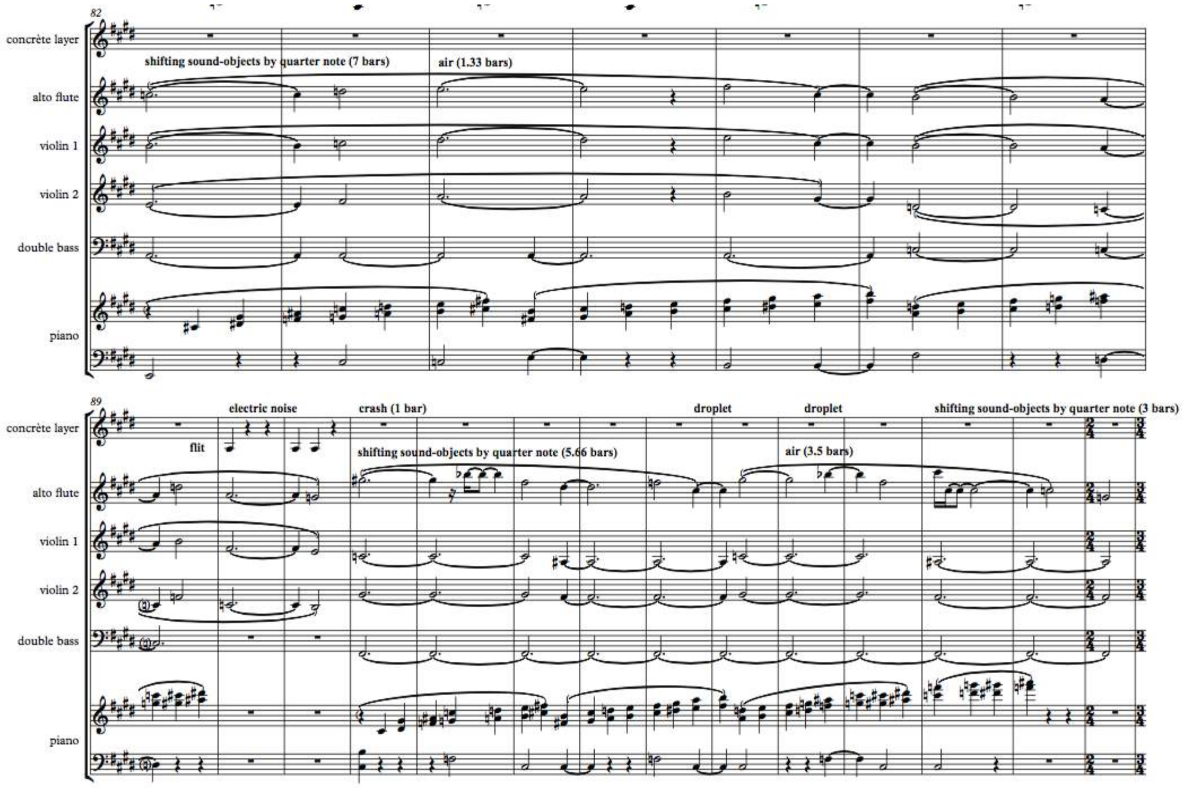

82
concrète layer
alto flute
violin 1
violin 2
double bass
piano
shifting sound-objects by quarter note (7 bars)
air (1.33 bars)
89
electric noise
flit
crash (1 bar)
shifting sound-objects by quarter note (5.66 bars)
droplet
droplet
air (3.5 bars)
shifting sound-objects by quarter note (3 bars)

Fig. 13.3

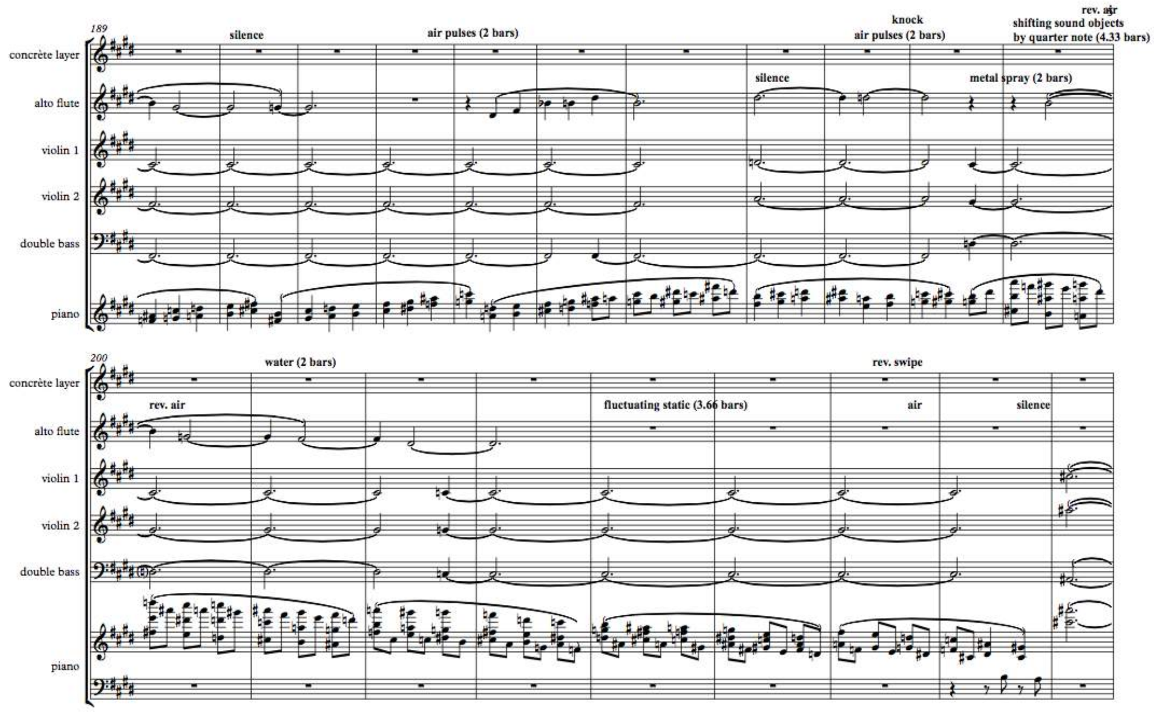

189
concrète layer
alto flute
violin 1
violin 2
double bass
piano
silence
air pulses (2 bars)
knock
air pulses (2 bars)
rev. air
shifting sound objects by quarter note (4.33 bars)
silence
metal spray (2 bars)
200
water (2 bars)
rev. swipe
rev. air
fluctuating static (3.66 bars)
air
silence

Fig. 13.4a

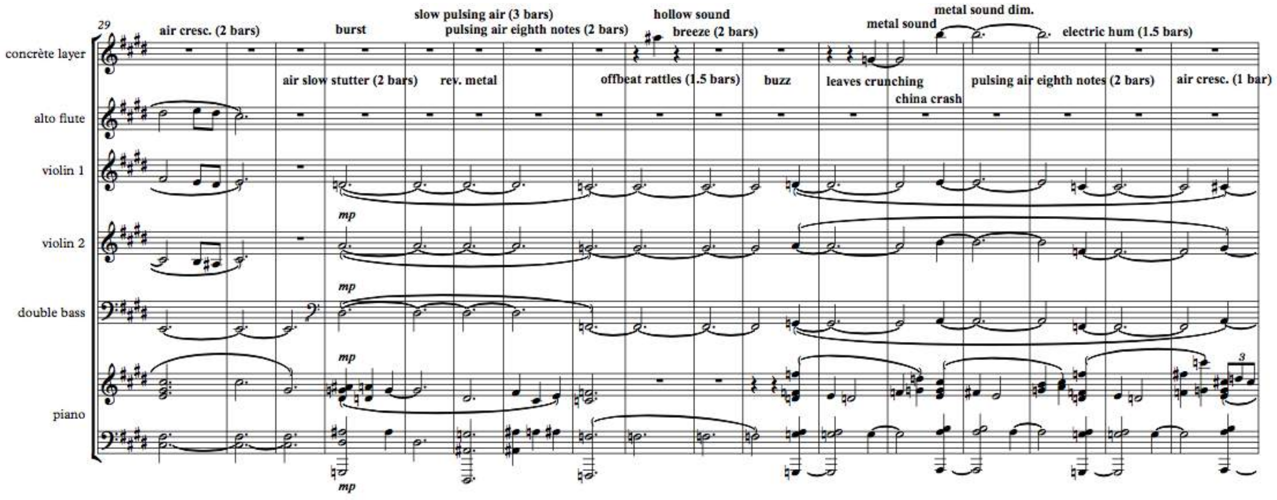
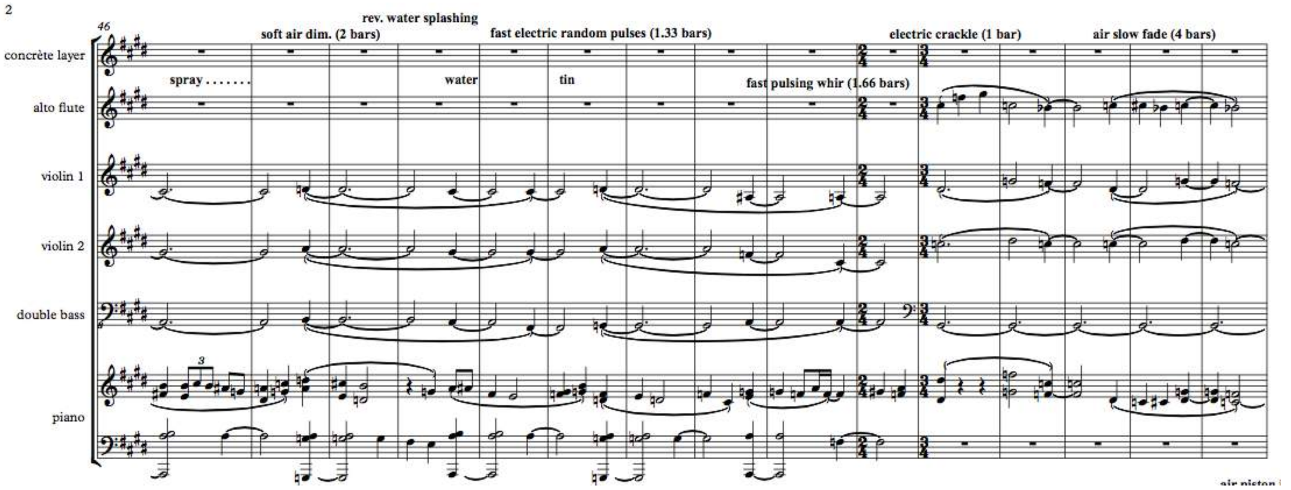

29
air cresc. (2 bars)
burst
slow pulsing air (3 bars)
pulsing air eighth notes (2 bars)
hollow sound
breeze (2 bars)
metal sound dim.
metal sound
electric hum (1.5 bars)
air slow stutter (2 bars)
rev. metal
offbeat rattles (1.5 bars)
buzz
leaves crunching
china crash
pulsing air eighth notes (2 bars)
air cresc. (1 bar)
concrète layer
alto flute
violin 1
violin 2
double bass
piano
mp
mp
mp
mp
3

Fig. 13.4b


2
46
soft air dim. (2 bars)
rev. water splashing
fast electric random pulses (1.33 bars)
electric crackle (1 bar)
air slow fade (4 bars)
spray.......
water
tin
fast pulsing whir (1.66 bars)
concrète layer
alto flute
violin 1
violin 2
double bass
piano
3
2/4
3/4
air piston

I was inspired by Roslavets's *5 Preludes* to create instrumental space by lengthening notes, due to its variegated note lengths and rests. There are few pauses in Roslavets's *5 Preludes*, but there are three instances in part three that stood out where minims (half-notes) are used to vary density (Fig. 13.5, 13.6, 13.7). There is an ending phrase in Nono's *Polifonica Monodia Ritmica for Ensemble* where four 32nd notes are followed by five 32nd notes, followed by six 32nd notes—all the same pitch.[239] This struck me as a novel way to shift densities within the gestalt and to end a phrase that seemingly speeds up. I rolled the dice to determine note lengths and pitches in one section early on, editing the desired results. Figures 13.8 to 13.10 show impressionistic forms of harmonic effects overwhelming melody, and 3rds and 6ths, in *Trois Nocturnes.* Fig. 13.9 illustrates repeated use of seconds in *Trois Nocturnes*.

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[239] George N. Gianopoulos, *Luigi Nono - Polifonica-Monodia-Ritmica for Ensemble (1951) [Score-Video]*, online video recording, YouTube, 23 November 2016, <https://www.youtube.com/watch?v=ONzMbysynhc> [accessed 01.09.17].

Fig. 13.5 *5 Preludes,* movement 3 bars 1-2

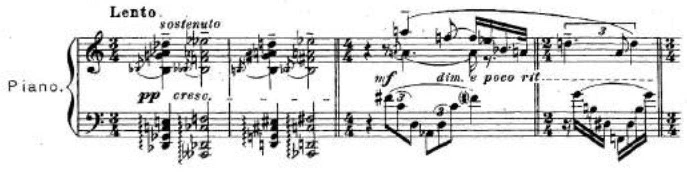

Lento
sostenuto
Piano.
pp cresc.
mf
dim. e poco rit.

Fig. 13.6 *5 Preludes,* movement 3 bars 13-14 and 15-16

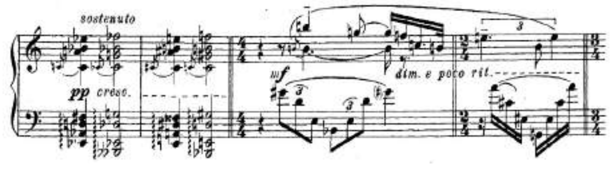

sostenuto
pp cresc.
mf
dim. e poco rit.

Fig. 13.7 *5 Preludes,* movement 3 bars 22-23 and 24-25

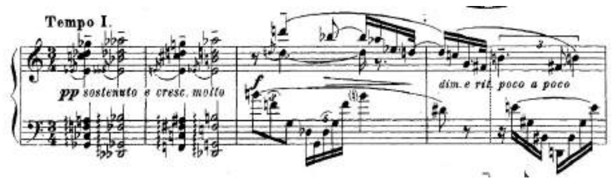

Tempo I.
pp sostenuto e cresc. molto
dim. e rit. poco a poco

Fig. 13.8 Trois Nocturnes, movement 2 bars 112-115

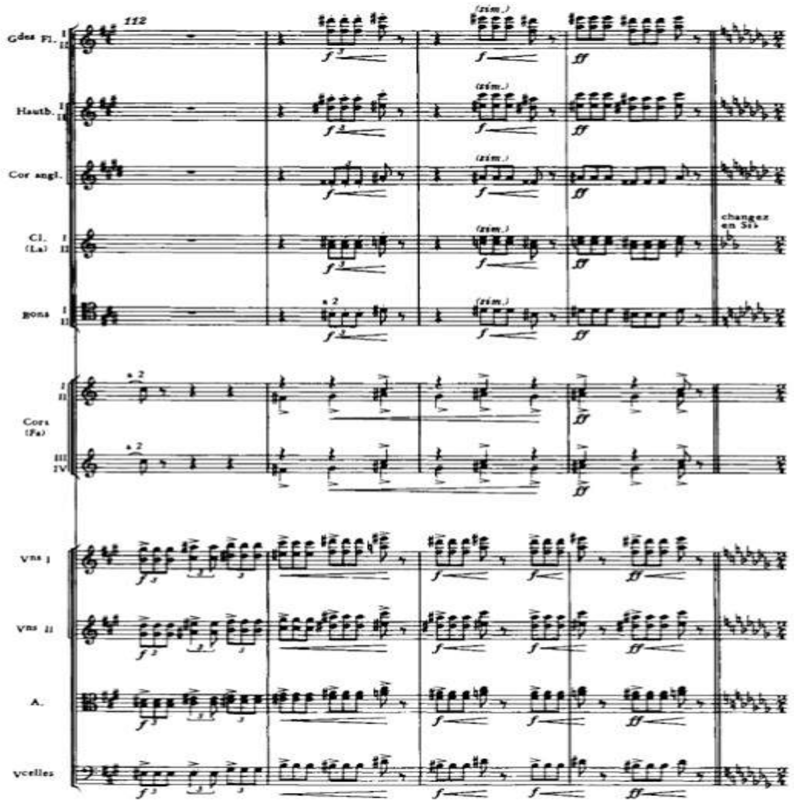

112
Gdes Fl.
Hautb.
Cor angl.
Cl. (La)
changez en Si♭
Bons
Cors (Fa)
Vns I
Vns II
A.
Vcelles
(sim.)
f
ff

Fig. 13.9 *Trois Nocturnes*, movement 2, bars 18-22

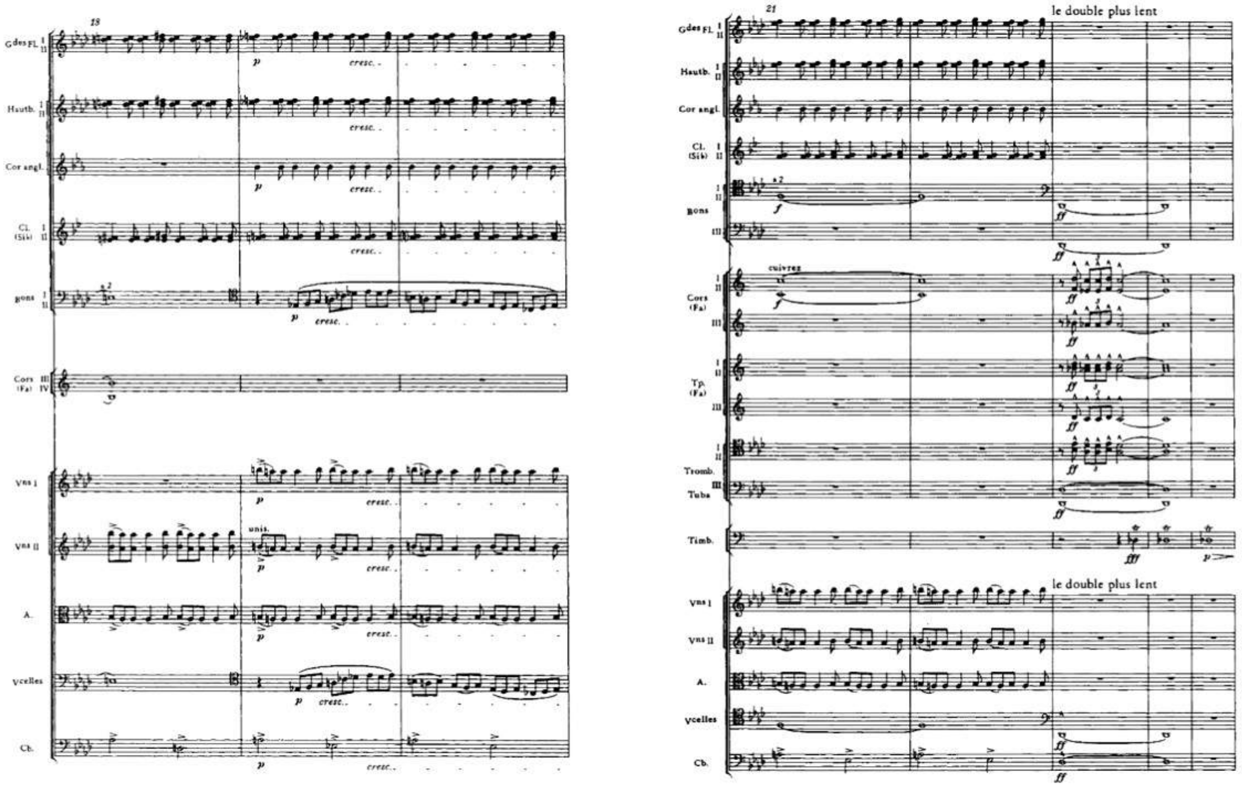

18
21
Gdes Fl.
Hautb.
Cor angl.
Cl. (Sib)
Bons
Cors (Fa)
Tp. (Fa)
Tromb.
Tuba
Timb.
Vns I
Vns II
A.
Vcelles
Cb.
cresc.
unis.
a 2
cuivres
le double plus lent

Fig. 13.10 *Trois Nocturnes*, movement 2, bars 32-39, with repeating fifths.

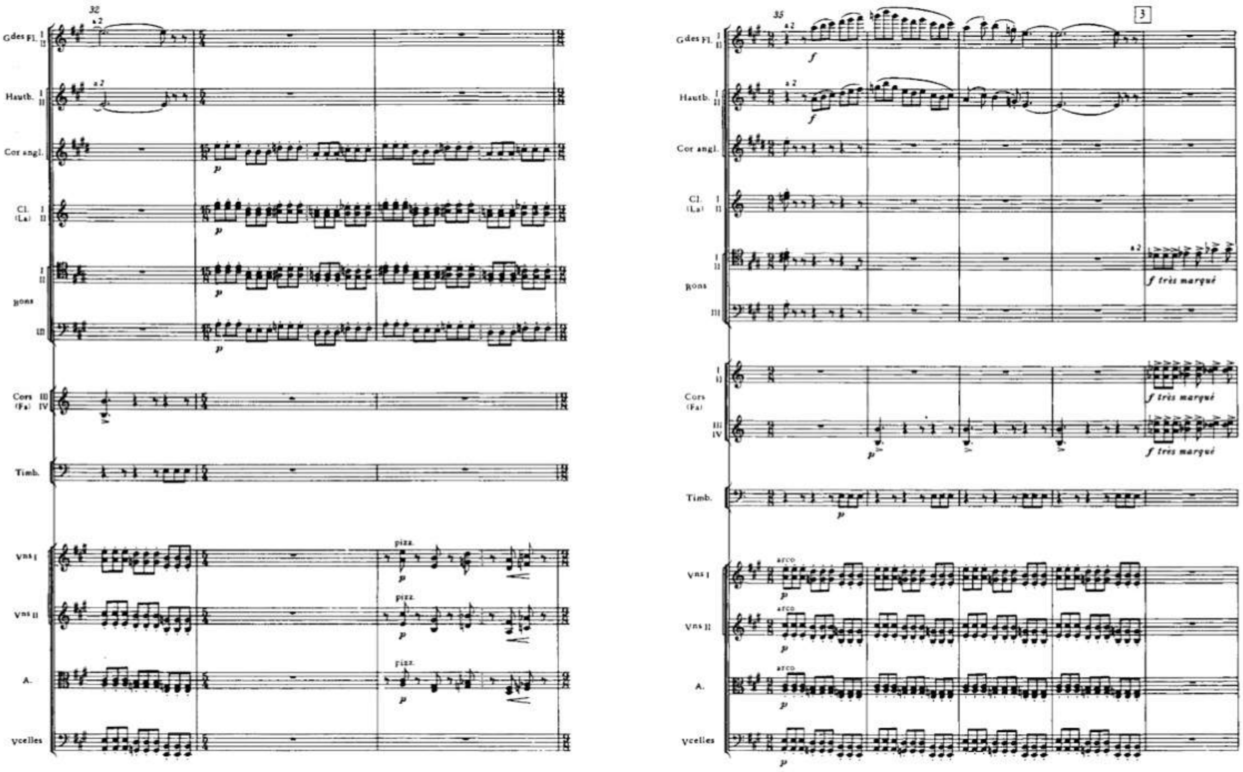
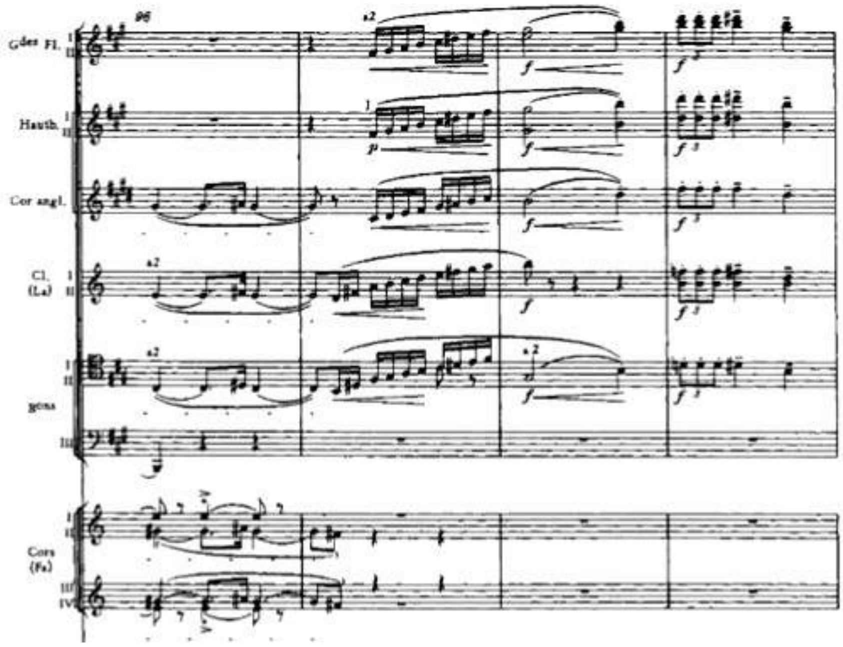
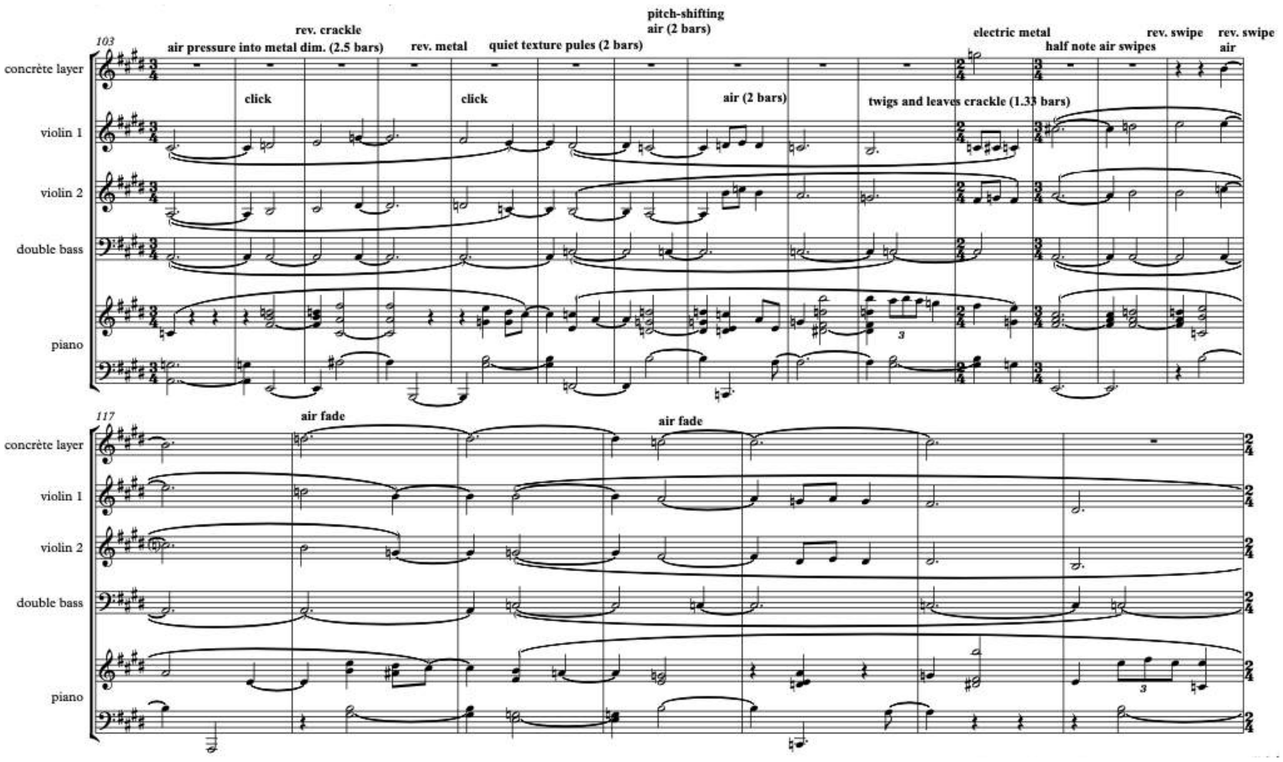

32
35
3
Gdes Fl.
Hautb.
Cor angl.
Cl. (La)
Bons
Cors (Fa)
Timb.
Vns I
Vns II
A.
Vcelles
a 2
pizz.
arco
f très marqué

Fig. 13.11 Quartal harmony in *Trois Nocturnes*.


96
Gdes Fl.
Hautb.
Cor angl.
Cl. (La)
Bons
Cors (Fa)
a2

A melancholy theme becomes prominent at bars 103-124 (Fig. 13.12), where the bass rises and falls by long thirds, the violins are in thirds and there are many 6ths and 3rds in the piano .

Fig. 13.12


103
concrète layer
violin 1
violin 2
double bass
piano
air pressure into metal dim. (2.5 bars)
rev. crackle
rev. metal
quiet texture pules (2 bars)
pitch-shifting air (2 bars)
electric metal
half note air swipes
rev. swipe
rev. swipe air
click
click
air (2 bars)
twigs and leaves crackle (1.33 bars)
117
air fade
air fade

The Broken Oracle, Part II

For *The Broken Oracle, Part II* I wanted to try to use more repeating and palindromic sound-object phrases that change timbre unexpectedly (micro-cuts) over contrasting instrumental segments. Like *Part I* there are fast paced changes of theme with varying dissonances, changes which are somewhat disjunct and much like sectional cuts. I tried to experiment with palindromes in both layers. I thought that writing parallel melodies from a set built on thirds, with few passing tones or seconds, would give an impressionistic feel, but melodies often require at least a few passing tones and I did not explore this at length.[240] I tried to have more little gaps at the end of instrumental phrases where the sound-objects could stand out or give a short reply. I used dissonance to pull at the consonance. While some of the abrupt cuts worked with minimal adjustment others took more effort, altered through modulations and tonality for example. The sound-object phrases would sometimes snap into place quickly, and I used negation often, sometimes in whole sections where I wasn't sure about the density or characteristics yet. I also tried to have fading or increasing density of sound-objects. After an initial draft I knocked out notes to create spareness. I thought Nono's idea of deriving duration-class sets from pitch-sets in a long string, then cutting away and linking the strongest material,[241] was good, though I did not get a chance to experiment with this. I rolled dice to add and remove duration-classes and pitch-classes. I rolled 12-sided dice to create initial sections, rolling three times for each section to get an idea of what a random structure might be (Fig. 14.1). I rolled dice to delete notes by count and shift, and for note-banding by interval. Fig. 14.2 shows how I composed variations, with muted notes in light grey.

Fig. 14.1

1 – high dissonance, 2 – high consonance, 3 – dissonance and consonance, 4 - short section, 5 – long section, 6 – medium section, 7 – sound-objects dense, 8 – sound-objects sparse, 9 – sound-objects medium, 10 – instruments dense, 11 – instruments sparse, 12 – instruments medium.

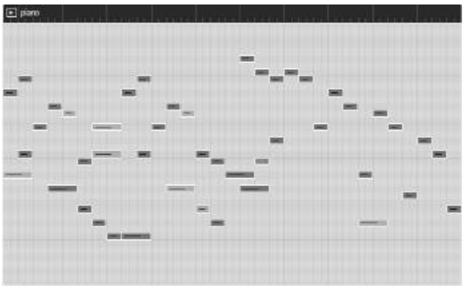
First roll for number of sections: 12
First section: 3 – dissonance and consonance, 5 – long section, 9 – sound-objects medium
Second section: 1 – high dissonance, 8 – sound-objects sparse, 6 – medium section
Third section: 4 - short section, 2 – high consonance, 7 – sound-objects dense
Fourth section: 4 - short section, 9 – sound-objects medium, 1 – high dissonance
Fifth section: 3 – dissonance and consonance, 7 – sound-objects dense, 12 – instruments medium
Sixth section: 5 – long section, 9 – sound-objects medium, 2 – high consonance
Seventh section: 12 – instruments medium, 5 – long section, 1 – high dissonance
Eight section: 3 – dissonance and consonance, 6 – medium section, 12 – instruments medium
Ninth section: 3 – dissonance and consonance, 6 – medium section, 12 – instruments medium
Tenth section: 7 – sound-objects dense, 11 – instruments sparse, 6 – medium section
Eleventh section: 4 - short section, 7 – sound-objects dense, 3 – dissonance and consonance
Twelfth section: 12 – instruments medium, 5 – long section, 9 – sound-objects medium

---

[240] I tried extended stacked chords that shift and reoccur as in Debussy's music, in *The Broken Oracle, Part I*, but was unhappy with the section as it did not integrate.

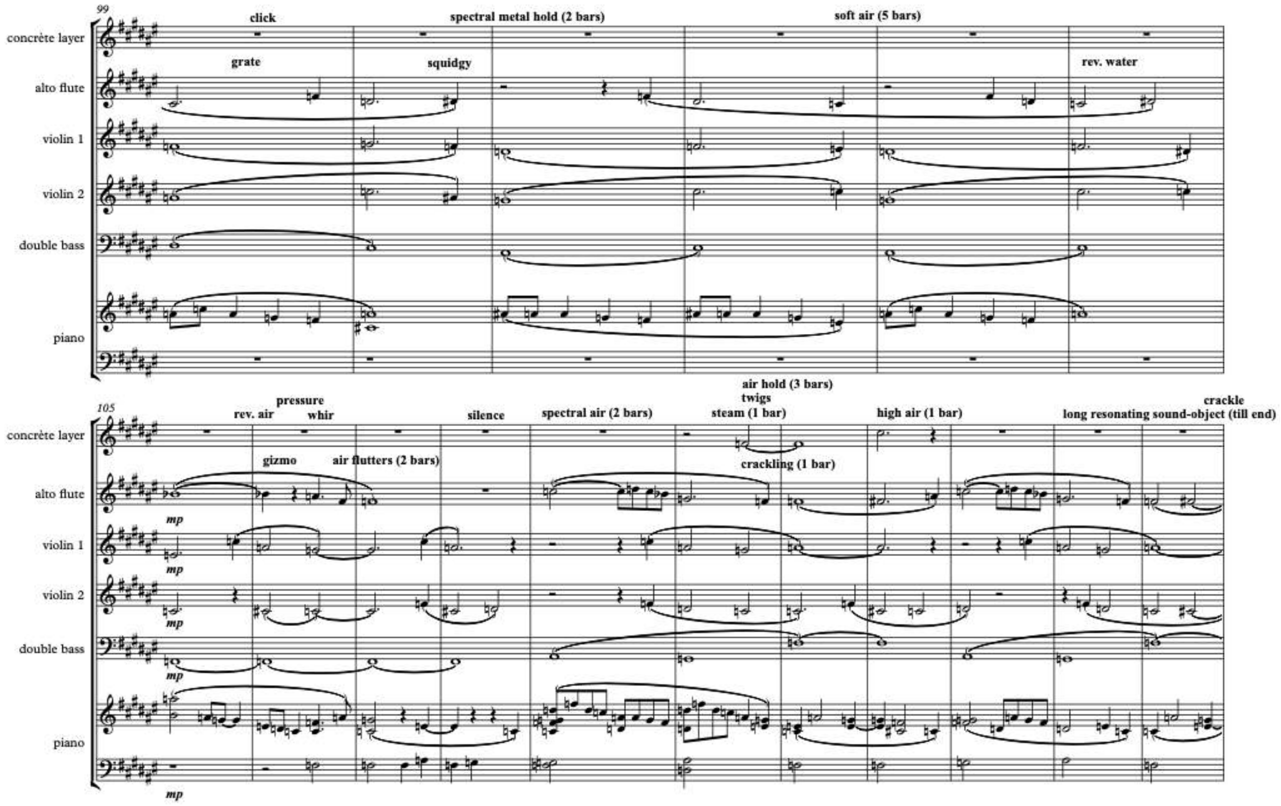
[241] Bruce Durazzi, 'Luigi Nono's Canti di vita e d'amore: Musical Dialectics and the Opposition of Present and Future', T*he Journal of Musicology*, 26/4 (2009), 451-480 (p. 463).

Fig. 14.2



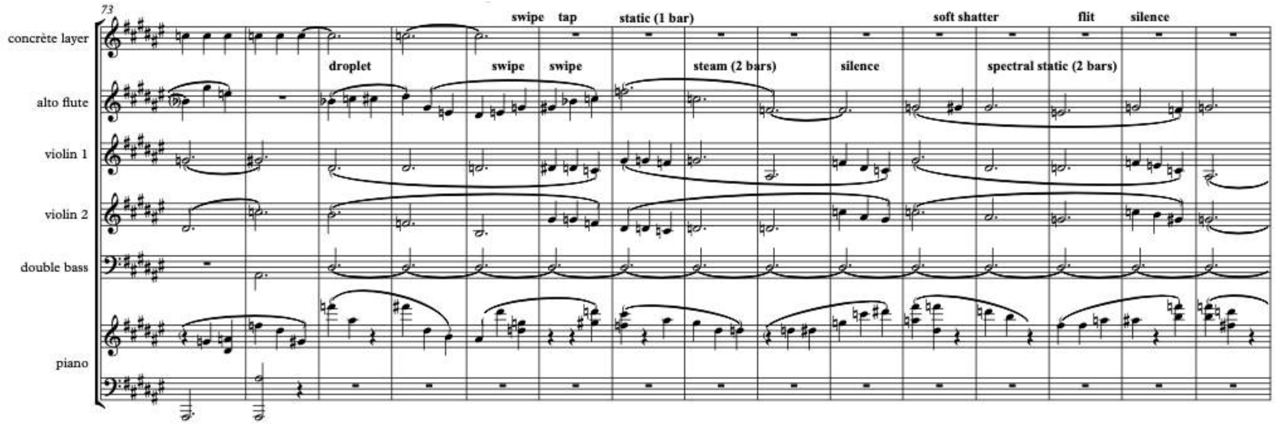
Very few mediant relations occur in the bass, with one example at bars 100-108 (Fig. 14.3).

Fig. 14.3


99
concrète layer
alto flute
violin 1
violin 2
double bass
piano
click
grate
spectral metal hold (2 bars)
squidgy
soft air (5 bars)
rev. water
105
rev. air
pressure
whir
gizmo
air flutters (2 bars)
silence
spectral air (2 bars)
air hold (3 bars)
twigs
steam (1 bar)
crackling (1 bar)
high air (1 bar)
crackle
long resonating sound-object (till end)
mp

Bars 75-90 has an elongated bass note and the violins play long notes with snippets of brief melodic replies to the flute melody, contrasted by denser sound-object phrases (Fig. 14.4). For this section I knocked out notes and made adjustments with dice, through tone-banding for example, and modulated by mediants.

Fig. 14.4

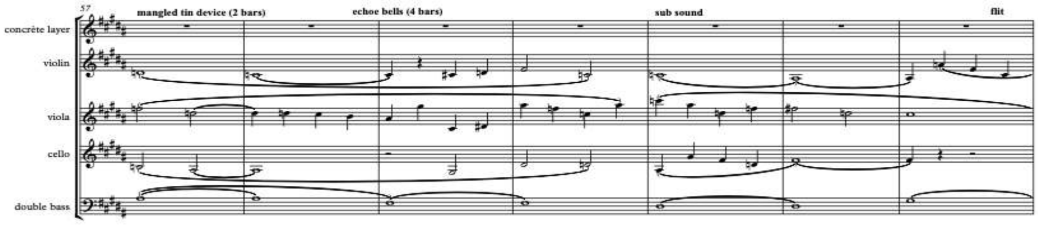

73
concrète layer
alto flute
violin 1
violin 2
double bass
piano
swipe
tap
static (1 bar)
soft shatter
flit
silence
droplet
swipe
swipe
steam (2 bars)
silence
spectral static (2 bars)

Lastly, I used mismatch negativity (MMN) to alter expected notes that repeated, and applied micro-cuts. A good example of a repeating sound-object over varying material is the Spectral Static (2 bars) at bars 84 and 88.

Tadvanalila, Part II (for string quartet)

This re-write with only four string parts remains faithful to the original in many ways, and the concrète layer is the same as the original. Fig. 15.1 shows how many of the notes created through tone rows are softened and made less dissonant, for example here at bars 57-63, to give a different feel to the piece.

Fig. 15.1


57
mangled tin device (2 bars)
echoe bells (4 bars)
sub sound
flit
concrète layer
violin
viola
cello
double bass

Figs. 15.2 (for string quartet) and 15.3 (original) show how different the instrumental layer is.

Fig. 15.2

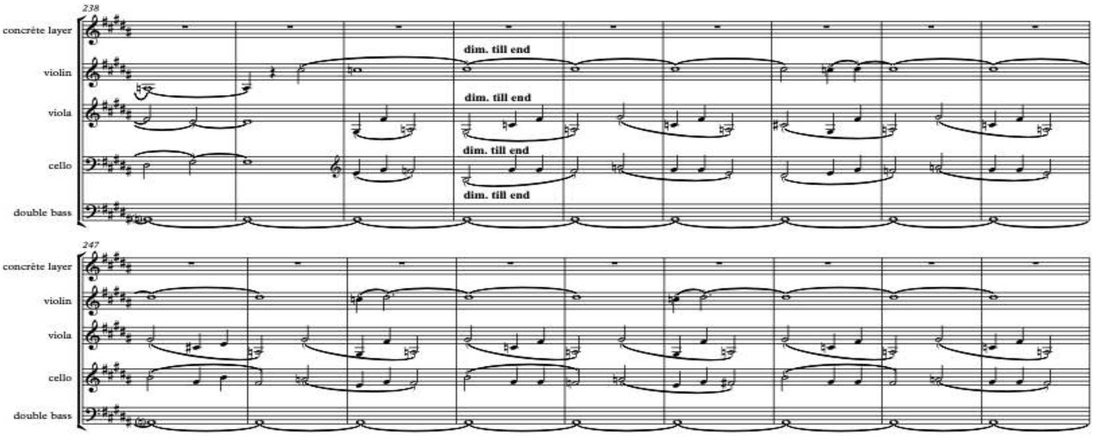
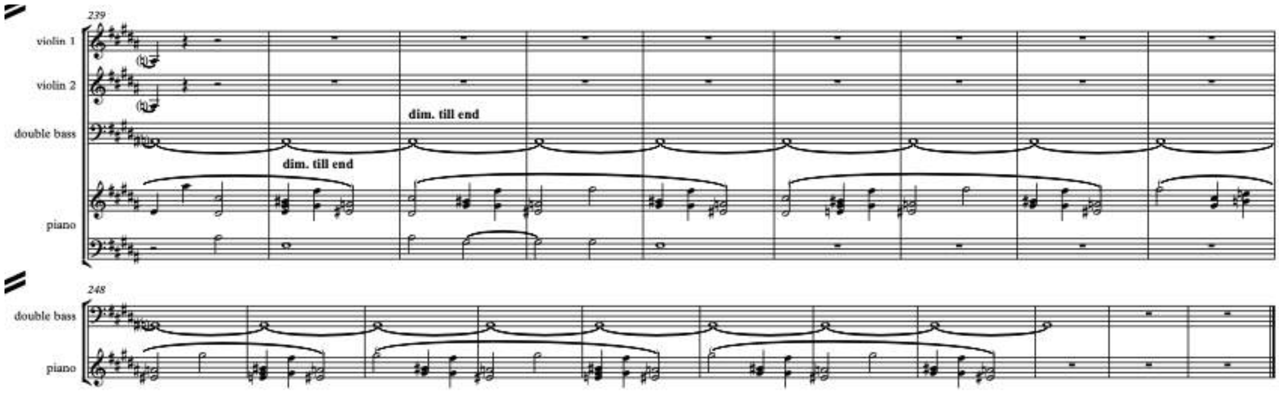

238
concrète layer
violin
viola
cello
double bass
dim. till end
dim. till end
dim. till end
dim. till end
247
concrète layer
violin
viola
cello
double bass

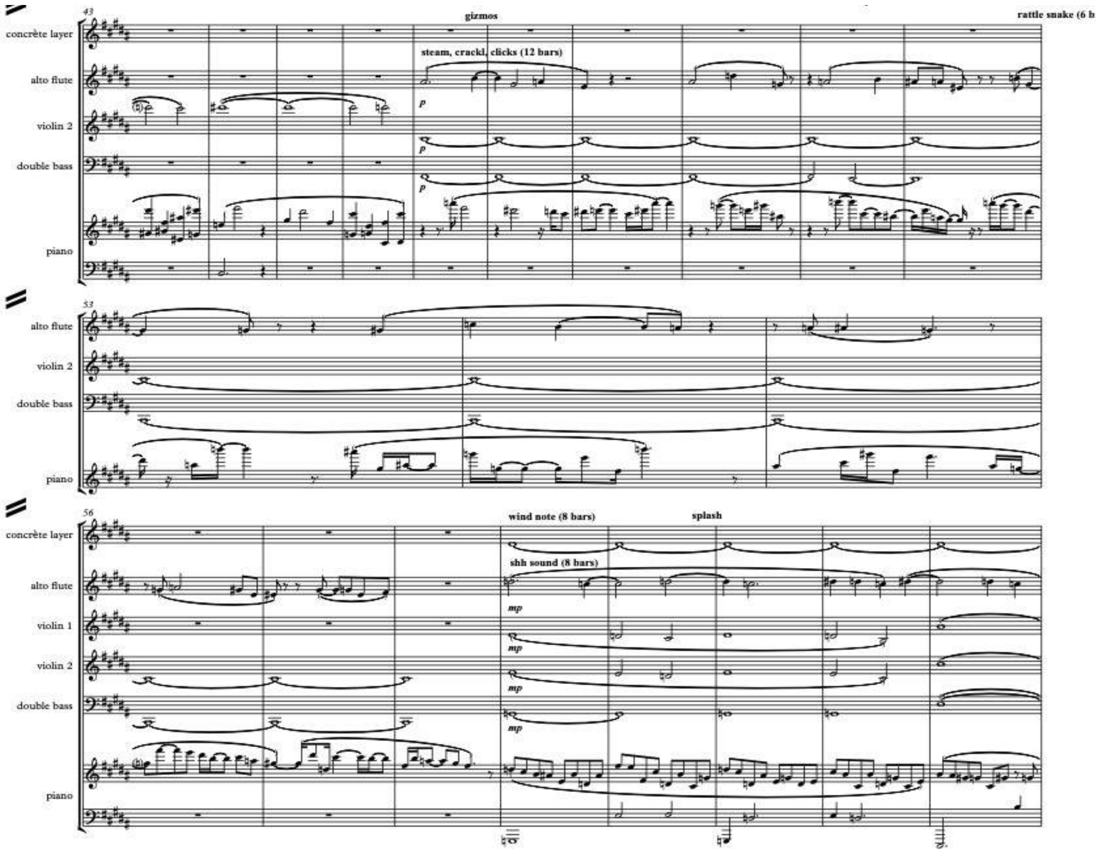
Fig. 15.3


239
violin 1
violin 2
double bass
piano
dim. till end
dim. till end
248
double bass
piano

Demon Sands

I began this work by using mediants where I could and inserting sections of serialism. I then got the idea to use tonal banding of serialism in the piano, knocking out notes to produce shifting sets similar to synthetic chords, with the time between shifting sets determined randomly. This shifting piano would contrast the mediant chromaticism elsewhere. I wanted this piece to be less tonal than many others, with hints of tonality, but with bits of whole tone scales. I tried to use more variations and repeating sound-object phrases and instrumental phrases, which would contrast each other. Also, I would roll die for sound-object placement, length and frequency knockout. For one of the interventions I had atonal phrases repeat by shifting up or down by mediant, thus mediant relations are overlaid onto atonality through symmetry. I used a high degree of sound-object and instrumental symmetry but also used image breaking for discontinuity and decoherence. The start is full of instrumental suspensions contrasted with soft sweeping and a few intervening sounds. At bars 13-28 the piano ostinatos start contrasted by flowing instrumental phrases, scratches and sweeps, and low rattle. From bars 29-40 the sound objects become sparser and fade away to silence at the break from bars 41-46, which has an off-kilter piano ostinato variation and high violin suspension. The complex serial section from bars 47-58 (Fig. 15.1) breaks from simpler surrounding ostinatos and it is contrasted by steam, crackle and clicks in the concrète layer. After this the piece uses a lot of ostinatos and repeating phrases.

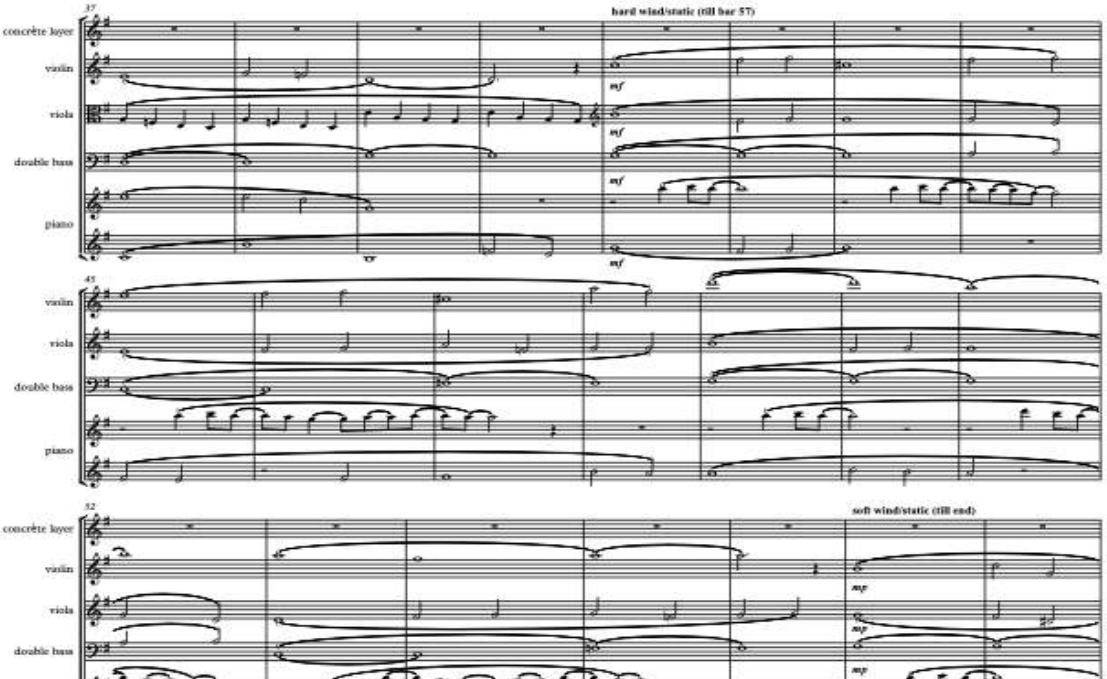
Fig. 15.1



Like the Night

This piece is the last for the PhD work which investigates relations between sound-objects and instrumentation. At only 3.08 it has the fewest parts, written for concrète layer, violin, viola, double bass and piano. The uncluttered simple instrument parts are contrasted by only a few long, drawn out, sound-objects. There is mediant chromaticism between the violin and left hand piano line, while the piano line only uses one note lines per hand. Changes in timbre between sections promote a sense of motion which contrasts tonal-banding of sustained sound-objects. Further mediant chromaticism was used by shifting the viola part for the minor section to the left hand piano part. I wanted to try minor seconds in the sound-objects, inspired by Schnittke's *Concerto Grosso, no. 1*, where clearly tonal lines of a duet are joined by strings that imitate the line in a minor second.[242] This was used initially but then left out in favour of tonal banding. I intuited MMN in the instrumental lines to slightly offset expectation and break symmetry. I rolled dice to determine duration-class sets, but this did not work well as the instrument layer was so coherent with tonal banding of sound-objects starting at the first count of each section. Like most of the other pieces, low sound-object banding was not used as I found it weighted the lightness of the piece down. I wanted the sound-object lines to match the simplicity and starkness of the piece, with long sustained sound-objects mixed very low. Fig. 16.1 shows the contrast of the slow high violin and static sound-object at bars 41-56.

Fig. 16.1



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[242] Bruno Moschini Alcalde, 'Patterns of Hybridity: An Analytical Framework for Pluralist Music' (unpublished doctoral thesis, Northwestern University, 2017), p. 16.

Conclusion

Techniques may be used to strengthen similarities and differences between concrete and instrumental layers in music for orchestra and tape. The techniques can work syncretically to varying degrees. An example could be repetition, foreshadowing or recapitulation of a repeating or variant sound-object phrase which embellishes or interrupts, coheres or decoheres. Coarticulate sound-object phrases may also embellish or interrupt instrumental phrases, through rhythm, tone and pitch. Pitch information in sound-objects can fill out harmonies and dissonances, provide a backdrop or vocalise a sonic motif. Techniques that are used in the layers form links and disparities, whether they are subtle or sweeping, and these processes give rise to structure and design. Rhythm is essential as a mediation between the two genres of music, as a fundamental force that precedes pitch and timbre. That perspective, for example on a creative work or piece of art, is not necessarily a simple thing. That music is not about sound at all but about perception, and is perhaps not easily pinpointed. That its parts can confound to bring about a greater gestalt with qualities that are not easily described as a whole, but only described through its constituent parts. Concrète layers can act like lead voicings, background textures, adjacent dialogues, subtexts, tensions, counterpoints, accompaniments, monophonic lines, multiple voices, sound clusters, gestures, syncopated rhythms, anticipations, recapitulations, embellishments, interventions and synchronic reinforcements. A third element or subtext is created through dialogue between instrumental lines and sound-object phrases. The techniques I used, like note knockout, stochastics, aleatory, serialism, MMN, quintal symmetry, mediant relations and palindromes between instruments to create textural space can create gaps in the instrumental layer where sound-objects may gain clarity without need for increased dynamics. By lengthening or drawing out the instrumental notes or sound-objects, a sense of immediacy is withdrawn, and that immediacy can be regained through diminution. Higher pitches and densities in instruments and sound-objects brought them forward, especially against static, slower or less dense lower pitches. These techniques were used to create decoherence of sound-objects, gaps for the sound-objects to come forward, continuity and discontinuity,[243] harsher and softer sounds that created tension and harmony, rhythmic anticipation and recapitulation, for example through MMN, coarticulation, aleatory, and densities, patterning and rhythmic offsetting—for example through palindromes between lines causing creation of gaps in the instrumental layer that create less subordination of sound-objects. This immediacy and distance in balance is like different forms of gestalt, where dots and dashes may be connected to form a perceived shape. These various techniques may syncretically form context and balance in novel ways. Varying densities through expansion and diminution, using varying techniques to do this, is a good way of structuring and forming passages of material which can be complemented by aleatory.[244] The sound-objects can behave like a voice, background texture, secondary line, subtext, tension or disruption, harmonization, counterpoint, accompaniment or embellishment. Sound-objects may be composed through timbral colouring with relation to the instruments, or randomly for later ordering. Timbre in both layers could have expression at deeper levels that contrast with deeper pitch processes. There are possibly endless processes and techniques that can be used to successfully create mediations in music for orchestra and tape, with fewer base processes, and I consider many of the techniques outlined in the writing as fundamental. The contribution to knowledge is the pieces themselves, with the theory being secondary, which can be described as relating to how the synthesis of techniques create original works, the different ways of creating dialogue between sound-objects and instruments. I found that equal balance between the concrète and instrumental layer was impossible to achieve and that compositional techniques play a role in this balance. With each reduced listening the perspective of context can shift, especially when linking material and thinking creatively. The use of outside-time structures, as theoretical pitch-sets,[245] was important, especially when considering tonal and modal relations during creation. Motivic patterns embellished with harmonic control were essential.[246] I thought that Nono's view of homogenisation of serialism can ring true for concrète music if certain processes are applied liberally. Unless there is complexity there won't be much diagesis between or within the layers. For example, a sustained sound-object will create an analogous oblique motion against complex instrumentation, with less diagesis than complex sound-objects would. I found that a balance between coherence and decoherence in the concrète and instrumental layers must be attended to and ordered, even if seemingly unordered, arrhythmic or chaotic. Balance seemed to be vital, and is especially tied to coherence. Coherence happens between instrumental and sound-object phrases with rhythmic and pattern syncing, often on the main beats, and sound-object embellishment through ordering of higher and lower harmonic ratio relations.[247] Variation helped to keep things interesting and I found that balance was needed between similarities and variations, similar to Barthes' neutral or the idea of eastern centrality.[248] Writer John Banville says that the order artists impose on the world is different from the order imposed by scientists, though it springs from the same urge to make sense of incoherence.[249] To create balance there had to be rhythmic connections and degrees of symmetrical and asymmetrical patterning to create a sense of coherence and dialogue between the layers. Mediations and disparities between the concrète and instrumental layers are shown in Fig. 1. While composing sound-rows against tone rows or atonal passages the composition of the sound-objects was often done by composing timbral colouring rhythmically with attention to harmonic effect through reduced listening. Change in coherence and decoherence between the sound-objects and instruments seemed to directly affect balance. Complexity of contrast, which affects flow, has to be balanced and refined through mediations. During the writing of *Human realm (Manuṣya) part 1*, when I had the main theme, piano part and some acousmatic structures written, I found that omitting instrumental notes and replacing them with sound-objects was difficult to get sounding right without considering phrasing context and patterning, and even harder to bring pitch out of the sound-objects without losing timbral subtlety.[250] This balance and coherence is bound up in context and continuity, and it is tied up with cultural and intellectual perceptions. Slippages of instrumental lines and sound-object phrases can affect the balance and narrative quality between the layers.[251] Some concrète sound-objects seem more important contextually, just as some notes have more contextual potential in instrumental passages,[252] and I found that the most exciting part of composing revolves around arranging these pivotal contextual moments that everything hinges on, which directly relates to gestalt.[253] Instrumental and acousmatic layers contain varying amounts of worked reduction. Researcher Chenguang Lu said that one must distance oneself from an object to appreciate it, as objects that are thought of as good, and close at hand, will not motivate due to their nature, which is related to survival—they can be taken for granted as there is no contrast. Lu states we must have the image to be able to approach it.[254] Greater contrast created higher levels of order while lower contrasting orders may also form aesthetic order, which creates balance, order, depth and gestalt.[255]

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[243] Phrases and segments might become discontinuous but have coherence between the layers. Harmonic continuity resulted from lower-ratio pitches while serialism produced higher-ratio pitches. Discontinuity was produced through MMN and sectional cuts. Continuity was produced through mediant chromaticism. Neutral techniques were tonal-banding, coarticulation, synthetic chords, extreme orthography, relations by quints and democratic instrumental lines, which could go either way.

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[244] Removing the artists hand to varying degrees.

[245] Dimitris Exarchos and Yannis Stamos, 'Iannis Xenakis’s writing and outside-time musical structures', Proceedings of the fourth Conference on Interdisciplinary Musicology (CIM08) Thessaloniki, Greece, 3-6 July 2008, <http://cim08.web.auth.gr/cim08_papers/Exarchos-Stamos/Exarchos-Stamos.pdf>, [accessed 24.08.19].

[246] Krenek conditioned a twelve-tone technique which used two six-tone scales with selective transposition to invoke a modal context in *Lamentatio Jeremiae Prophetae*. After hearing this I started doing similar things with varying tone rows.

[247] Coherence and balance could be seen as relations closer to small ratio pitches and closer to the main rhythmic pulses.

[248] The neutral and eastern centrality are like Nono's 'enclosed sound' and gestalt, similar to reduced listening and use of negative dialectics to chip away at art and text to reveal potentiality.

[249] Copernicus Center for Interdisciplinary Studies, *John Banville on the relationships between literature and science | Copernicus Festival*, online video recording, YouTube, 1 August 2016, <https://www.youtube.com/watch?v=seoGSNr0EcQ> [accessed 26.09.20].

The writing of the instrumental layer directly affects the writing of the concrète layer, and vice versa, and inevitably strengths become stronger or weaker in places, even if the instrumental layer is stronger. Often the concrète layer can be subordinate unless the instruments are very soft or techniques are used to bring sound-objects forward. In a sea of complex and chaotic sound information simple lower ratio instrumental tones can stand out if they are varied, though this can work the other way around, for example with the dense complexities of human voice subordinating instruments. Urgency may be created when sound-objects are clustered together tightly in rhythmic sequences, perhaps drawing attention to them even if the instrumental layer is loud, especially if they are high pitched. Dynamics, rhythms and pitches will never be completely balanced from a musical point of view, as some change is usually required and symmetry often exists with asymmetry due to fragmentation and imaginative reduction. The layers use similar and different musically

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[250] Using MMN to randomly knockout a note and replace it with a sound-object would rarely work unless done contextually, unless the object is to create simulated chaos and unbalance, or to create to remove.

[251] 'Phrases' and 'lines' are taken as the same thing.

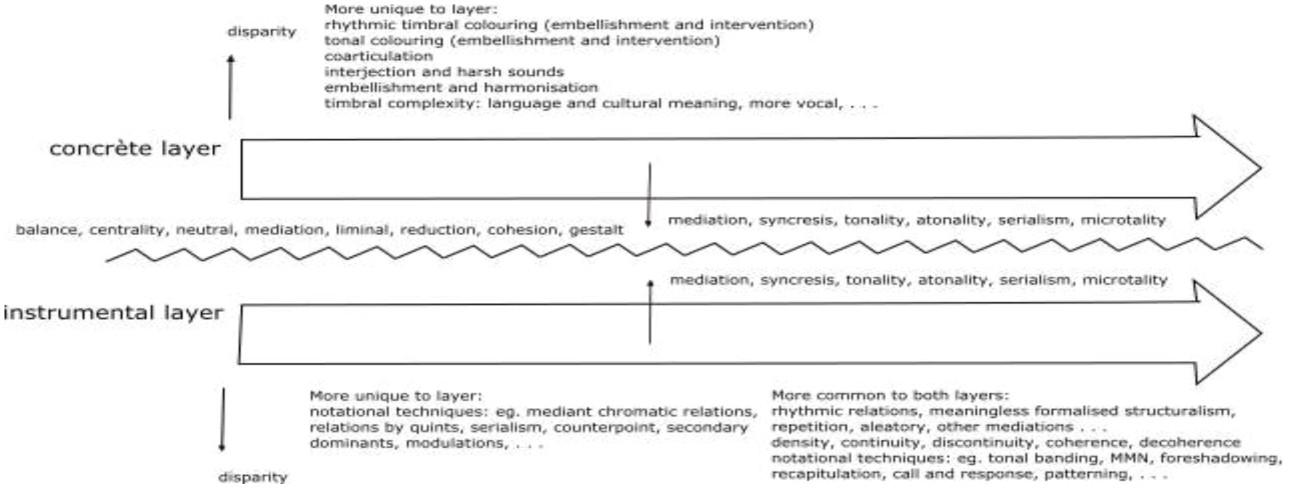
[252] This is why I feel negative dialectics can analogously be applied to music, through musical reduction of clipping away non-essentials and non-relevance.

[253] I view motifs as micro-domains of the larger structuring of these pivotal points.

[254] Chenguang Lu, 'A New Interpretation of Natural Beauty and Sexual Selection', <http://www.thegreatdebate.org.uk/ESexualSeln.html>.

[255] Order includes discontinuity, continuity, coherence and decoherence.

Fig. 1


disparity
More unique to layer:
rhythmic timbral colouring (embellishment and intervention)
tonal colouring (embellishment and intervention)
coarticulation
interjection and harsh sounds
embellishment and harmonisation
timbral complexity: language and cultural meaning, more vocal, . . .
concrète layer
balance, centrality, neutral, mediation, liminal, reduction, cohesion, gestalt
mediation, syncresis, tonality, atonality, serialism, microtality
mediation, syncresis, tonality, atonality, serialism, microtality
instrumental layer
More unique to layer:
notational techniques: eg. mediant chromatic relations, relations by quints, serialism, counterpoint, secondary dominants, modulations, . . .
More common to both layers:
rhythmic relations, meaningless formalised structuralism, repetition, aleatory, other mediations . . .
density, continuity, discontinuity, coherence, decoherence
notational techniques: eg. tonal banding, MMN, foreshadowing, recapitulation, call and response, patterning, . . .
disparity

reductive techniques, though techniques overlap, and balance and gestalt must be affected. Timbre and rhythmic qualities of sound-objects can often be more subtle than in instruments. The one layer is written with the constraints of real instruments in mind, the other is more free. The instruments seemed to come to the fore and stand out more than the sound-objects, and it took varying techniques to offset this, for example by using lower elongated instrumental notes, higher sound-object pitch, density and dynamics, fewer or more changes, and equalisation and filtering of the sound-objects to make them blend in, stand out, embellish, interject, contrast or disrupt. Sound-objects and instruments that exactly synced, at the beginning of phrases, sections and cuts, were less interesting if repeated continually without variation or without continuity and evolution of patterning, analogous to motivic development. In my opinion, two separate compositions that are not composed as a single composition will likely not form consistent coherence that contains harmonic, rhythmic and timbral ordering and cross-layer dialogue to a good degree. This is the long range balance of gestalt between the layers. Even in my pieces where there is tenuous coherence between layers there is usually a dialogical thread, adding consistency that makes it beyond chance that the layers were thrown together without thought.[256] Build-up of tiny sounds can imply spaces whilst abstract sounds that aren't associated with real-world phenomena can create spatial contexts difficult for the listener to discern, which creates distinction between the layers—thus the difference of layers may be viewed in the architectural sound sense, psycho-acoustically. Without reverb there is no spatial context, but with motion and relation of many sound-objects space is implied.[257] I found it challenging to create disorder, which was always highly ordered.

Perhaps the most novel process I explored was use of recapitulation of identical or similar material in one layer contrasting new material in the other layer within the context of sustained layers, where sound-object themes juxtapose new instrumental segments or vice versa, especially at length, though I did not develop this technique much.

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[256] If two processes were used in each layer without alteration, this too would effect balance even if appearing more random.

[257] Felipe Otondo and Natasha Barrett, 'Creating Sonic Spaces: An Interview with Natasha Barrett', *Computer Music Journal*, 31/2 (2007), 10-19 (p 13).

I found it hard to reconcile impressionistic techniques (Debussy) with serialism (Schoenberg, Nono, Xenakis) except perhaps as a lead or bass serialist line contrasting impressionistic repetitive harmonizing, and it was hard to use even very short lines of whole-tone scales amongst serial lines. Impressionism was possible with synthetic chords (Roslavets) which are synonymous with pitch-sets as horizontal pitches in rising and falling lines. Use of Roslavets's idea of extreme orthography by cycles of quints, where triple sharps and flats are used that give certain perspectives of tonicization or modal shading, worked well with other techniques like Debussy's mediant chromatic relations, where there is harmonization and movement by third that gives unresolved non-dominant forward motion. Mediant chromatic relations did not conflict with other techniques much. Roslavets's synthetic chords that flow in ascending and descending motions were similar to Xenakis's outside-time structures, or sets, and could be used for balance or tension/confliction. Increased harmonic repetition could veer towards impressionism due to harmonic effects overriding melodies. Harmonizing the strings in thirds (mediant chromaticism), and by extension sixths, worked well with some serialism. Note-banding (Nono) worked well with all techniques and could work in favour of mixing techniques, for example in trying to merge whole-tone scales with serialism. Nono's idea of democratic lines, where there is no virtuosic instrument, is compatible with serialism and impressionism. Coarticulate sound-objects (Barrett), where sounds are blurred together into phrases, could complement or offset instrumentation in various contextual ways and did not conflict with any techniques. The techniques can be used to create conflict, stress and decoherence between sound-objects and instrumentation or used to create cohesion. The timbre of a sound-object, or coarticulate group of sound-objects, may become familiar through homogeneity, repetition and patterning, causing a recession to the background, especially if instrumental material changes more. Mediant relations and quintal relations were difficult to implement in sound-objects, and I did not explore this much. MMN, tonal banding, serialism as tone-rows and sound-rows, serialism of time and duration through aleatoric die casting, democratic lines and a sense of an enclosed sound could be applied to both layers. Roslavets's relation by quints and extreme orthography was an effective way to create and view complex orders or consistencies, especially combined with other ordering techniques like serialism, tonal banding, mediant relations, MMN and coarticulation. Sound-rows, sound-object transformations, coarticulation, and timbral and rhythmic variation in sound-objects worked well with all the techniques. Tonal banding and pitch knock-out techniques like MMN would potentially work well in both layers, though I only just started using it acousmatically. It was interesting trying at times to use all instruments to convey motion without a solo instrument, which Nono practised. Mediant chromatic relations helped to give a high degree of order and consistency, and this really worked well with other techniques in some of the pieces like *Tadvanalila, Part II*, as the mediant chromaticism decayed serialism and atonality towards tonal centres. In *Human realm (Manuṣya) part 2* Debussy's mediant chromatic relations are used, as well as Roslavets's near-symmetry by quints, forging distinct counterpoint, harmonic textures and forms, and I bore in mind Nono's idea of sound-bands around collections of limited pitch sets.

This banding idea, though not used in *Human realm (Manuṣya) part 2*, is used in other works and extended to include banding of sound-objects, for example where the sound-objects are brought forward by using higher frequencies with longer suspensions of lower pitches within the instrumental layer, or by using gaps. This sound-banding includes equalisation, filtering and spectral gating of sound-objects. One example is how atonality in the instruments works with mediant chromaticism and synthetic chords or sets. Mediant chromaticism also adds homogenisation, like many other techniques, and is built on thirds and compatible with synthetic chord modulation of sets . . . sound-objects can either embellish or cause distress when in dialogue with instrumental arrangements, passages and lines. Tonal-banding inspired by Nono can be used extensively between the layers. Rhythmic serialism can be used in the concrète layer without affecting other techniques. I thought that hyperreal repeating sound-objects, as similar textures that subordinate interfering textures, were analogous to the impressionist idea of harmonic effects subordinating melodic lines, where the melodies imbue a degree of dissonance through passing tones. Pitch and rhythmic information can be very compact and dense in sound-objects, although if too dense, without changes on a larger scale, it may be perceived as a texture and quite homogenous.

I did not explore the use of mediant chromaticism or synthetic chords within the concrète layer, which would be difficult but possible, although use of sets may be quite difficult to construct and pitch to timbre strength could be explored. Within the score directions like 'denser' or 'sparser' sound-objects could be combined with graphic symbols like crescendos and decrescendos. 'Higher-pitched sound-objects' or 'lower-pitched sound-objects' could be a valuable direction but I never implemented this. Very low sound-object banding could be explored further. Research could be conducted into scoring levels of determinacy and indeterminacy between the instruments and sound-objects, through text-based open scores mixed with graphic scores and notation. Works that contrast the densities, coherence and continuity between the layers could be explored much more with various techniques. Things that could be explored further include contrast of foregrounding and mixing the concrète and instrumental layers, using narrative devices like sound-objects that foreshadow or recapitulate instruments, instrumental material that foreshadows or recapitulates sound-objects, recapitulation of sound-objects over similar and different instrumental themes and sections, recapitulation of instrumental material over similar and different sound-objects, exploration of tenuousness and densities, use of sound-object ostinatos over varying instrumental material, contrasting various compositional techniques between the layers to form structure and narrative, experimentation with devices that affect rhythmic and tonal structures and patterning between the layers, low sound-objects against higher pitched instrumentation at length, and investigation into the strength of pitch within sound-objects and coarticulate sound-object lines with relation to the instrumental layer. More research could be done on unions (intersections) and differences of sets, aleatoric sound-rows, quintal relations or MMN for sound-objects, die casting to get gaps and gap lengths to create patterning, exploration of dissonant, serial instrumental note lengths contrasting sound-object ostinatos, mixing aleatory, and lower and less shifting pitches used rhythmically in the instruments to create space for sound-object phrases. Also, rolling die to determine, reduce and mediate contrasting sequences that use various processes and techniques, including MMN, tone banding, coarticulation, mediant chromatic relations, synthetic chord relations by quints, use of aleatory to fuse serialism and whole-tone phrases to create patterning, or use of aleatory to fuse sound-object length with pitch banding of sound-objects. Synthetic chords could be approximated in the concrète layer with rising and falling pitches of coarticulate sound-object phrases. It would be interesting to explore serialism accompanied by tonality in both layers more. Further investigation could be done that engages the mediations between referent-signifier and referent-sign, between notated and pre-recorded sound and live improvised works, or the merging of music for orchestra and tape with live improvisation. Contrast of text and graphic scores may be explored, as well as varying open and notated scores. Perhaps alternations between joined random pieces and ordered composition in the layers could be further researched in practice. There is possible scope to investigate use of multiple monophonic coarticulate sound-object phrases used at length. Another possibility to explore is inversion of the layer roles, where the instrumental layer is made to sound more real, more from the phenomenal world, but is not, for example by mimicking technology and manmade or other phenomena with more emphasis on timbre and rhythm than pitch, while the concrète layer is made to sound unreal and abstract, for example through more emphasis on the pitches. Changes of speed and density between the layers can also be explored, like contrast of frenetic and drawn-out material, and rate change. Perhaps more investigation can be done into sustained relations of instruments and sound-objects treated spectrally, perhaps even in real-time in certain sections, and indeed future exploration and work will hopefully result in very interesting and eclectic works that incorporate various syntheses. One idea is to contrast rates of homogenisation between the layers in different ways, for example amounts of concrète homogenisation through spectralism contrasting instrumental homogenisation through serialism and atonality, and techniques like homogenisation through mediant relations or tonal and pitch banding are ideas amongst many. Intersection and union of sets could be applied to both layers though I only used it in the instrumental layer. Coarticulation of sound-objects could analogously be applied to notes in various ways to bring them together more, though I did not explore this, for example through compositional techniques that create mediations between note groups, or by adding in mediated notes between notes, or by adding real-time effects to live instruments. There is also room to research and develop new strategies, programs and technologies to sync fixed-medium playback with instrumental musics, which may also be applicable to live-electronics, for example through methods of live coarticulate blurring of sound-objects. Perhaps a program could give a visual queue, like a scrolling cursor or line, to notation instead of a click track, and no headphones would be necessary, with speakers used for the sound-objects—perhaps something that could import and read musicxml and PDF formats, a simple program that could link to other laptops or tablets. Perhaps music for orchestra and tape has value socially, politically, academically and aesthetically. Like sonic art and acousmatic music it has the ability to move into the connotative realm of semantics, as sound-objects can portray real-world phenomena and language in more detail than instruments, through complex timbre morphologies. The art of instrumental music and acousmatic tape music unfolding simultaneously and relationally at length, not existing independently, could be explored more. I hope that some of the ideas and techniques used in the research and compositions can illustrate the potentials for this mixed-mode music.

Glossary

Acousmatic music—started post late-40s from Pierre Schaeffer's work and is an acousmatic form of electroacoustic tape music. Acousmatic derives from Pythagoras who would stand obscured behind a curtain when lecturing, and is applied to sound-objects, or source sounds, by overlaying effects to mask their original identity. The term acousmatic may be applied to music where the source material is not discernible, regardless of if the source sound is synthesised or recorded. According to Herodotus, Pythagoras's disciples split into acousmatics (practitioners of the mystic doctrine) and mathematics (remarkable scientists). Certain types of synthesis may be used in filters to mask the sound-objects. Natasha Barrett was a student of Jonty Harrison and Denis Smalley, both important in the electroacoustic school. *Isostasie*, for example, is poetic with impressionistic pictures and disconcerting environments.[258]

Acousmatic and art music diegesis - The essential difference between acousmatic music and western art music is a difference of note and timbre classifications, strategies, techniques and aesthetics; western art music can be abstract like acousmatic music in that it is confined to notational pitch and rhythm, while acousmatic music can contain rich timbral information and may refer to the real world and phenomenology, through allusion, subversion or representation similar to western art music and other notational musics. This chain of intentional causality is clearer in traditional instrumental music, and far more complex in acousmatic music: instruments are the same and strategies are codified. Links may be left out in acousmatic music, for example sources may be partially eclipsed or completely hidden.

Aesthetic—a personal preference or liking for a thing, being drawn to a thing for its qualities, for example whether it is an idea, mode of speech or physical object. An aesthetic may be personal or cultural, specific or more general, and it may evoke positive thoughts and emotions from a person or group. An aesthetic can often be difficult to quantify or explain. Aesthetic pleasure associates familiarity with representational form, independent of content, and this problem was addressed by Aristotle.[259] Indeed content can be melancholic, horrific, or shocking, while the presented form may be aesthetically pleasing, and this may happen in lyrics set to music, or in high ratio dissonant music set to balanced rhythmic forms, whereby high ratio dissonance is counterbalanced with resolving and forward-driving low ratio tone structures. The aesthetic pleasure derives teleologically, causally and organically in an object from its inherent organised form. Theoretician Ortega y Gasset states, 'art is contemplation, not pushing', where contemplative posturing is necessary to positively judge and appreciate art. Kant points this pure form out as 'conformity to ends',[260] in itself a teleological concept of aesthetic form. I do not agree with Ortega's view that the new music of Stravinsky and Debussy required spiritual distance, where we relinquish the sonic echo of the music within ourselves and are made to listen to the timbres, or even that there is dehumanisation in modernism. In my view, dehumanisation of modernism and post-modernism in music is a tendency to use more scales and more dissonances, which are higher frequency ratios, and although the major and minor western modes are lower frequency ratios and spring from the harmonic series and pentatonic scales, it does not follow that the lower ratios on the harmonic series convert to humanism automatically, although Ortega's analogy is an apt one. For Ortega, form and content were easily separable in traditional painting, less so in dehumanised painting, and most illusively of all in music. By this logic, one might think that society would like to perpetuate acousmatic music that contains more cultural symbols, but it is too obscured and unclear while pure abstract instrumental music is more approachable and cultural images may be easily overlaid imaginatively. Thus we see another factor in how the two forms seem disparate. Indeed, asemanticity makes music an ideal form in expression of natural or other phenomenon, because anthropocentric trappings and features are far less apparent than in other art forms.[261] It is interesting to note that Aristotle thought that the voice is far more closely related to sign/symbol than the physical referent in the world: 'If, for Aristotle, for example, "spoken words (ta en te phone) are the symbols of mental experience (pathemata tes psyches) and written words are the symbols of spoken words (De interpretatione, 1, 16a 3) it is because the voice, producer of the first symbols, has a relationship of essential and immediate proximity with the mind."'[262][263] William James thought that phonetic suggestion was a strong emotional trigger for example,[264] and citing the Viennese essayist Karl Kraus, Webern saw the shapes of words as analogous to the musical idea.[265] Aesthetics dictates survival patterns as needs-based aesthetics—genetic health and selection are related to aesthetic outlook, which is cultural. For example, just as in birds that imitate nature and physically manifest preferred foods and environments in their outward appearance, on their patterned feathers, needs-based aesthetics in humans is formed through needs, safety and survival.[266] Scientists have linked the complexity and aesthetic nuance of male nightingale song to its fitness and immune system, motivation for raising young, where it was raised, which reflects its ability to learn. The male nightingale's needs-based patterns of behaviour are aesthetic and complex, but also reflect the deeper evolutionary meaning behind the ornate symbolism, with its 180 motifs taken from the species' 250 whistles, trills and buzzes, which are learned like a language from a young age.[267] In humans these needs-based aesthetics were formed with means-to-ends thought, with preference for final goals such as foods that reflected increased survival or expressed selected-for traits pertaining to better survival methods. Thus, from one scientific perspective, aesthetic appreciation is the attractiveness to our survival needs-based aesthetics. From another perspective Lewis Hyde said 'where there is no gift there is no art.'. Whatever the real reasons for the perpetuation of human art, bird-song, whale-song and other cultural trappings, it seems that disparate forms may possibly not propagate well, for they would be at the forefront and open to an array of differing interpretations. Current theory views source sonic material as closer to reality, which contains survival-based connotation and information. It is this survival tendency which prompts listeners to educe the original sound source and method of creation.[268] Barthes calls sounds that are worked on and socially convey signs mythologies, such as sirens that signify danger, and thought that we don't question these origins and have learnt to implicitly trust information provided to us as survival strategies have become less important; this has implications for survival theory, and perhaps aesthetic theory linked to environmental and social theory, as survival strategies become less important and we automatically trust encoded material.[269] For sound, needs-based aesthetics would be sounds that reflect preferred natural or technological environments, sounds that we do not fear, from familiar generic sounds of cooking, cutlery and crockery to more specific colloquial sonic material like the wind and vehicles. The unknown may signify to us a positive or negative, as for example feared war weapons and sounds associated with death, violence, grief, suffering and loss, and combinations of familiar sonic material may result in unknown associative qualities that can contain interesting aesthetic qualities. We find beauty in something done well, like a performance, inherently implicated in past emotional memory and culture.[270] I feel that if we start from a sine tone and expand out into increasingly complex ordering there are narrow bands of what humans would consider aesthetically pleasing, with the more challenging aesthetics outside those bands. With many things, like the goldilocks phenomena, I feel that what we perceive as acceptably understandable and palatable lies within these narrow bands and requires ingredients that are 'just right', not too hot or cold, and hinges on what we're used to as we ultimately gauge new things comparatively against our perceived memories, and this is why thematic and motivic development is important. Debussy thought that there should be no fixed rules in art—rules are made by art, not for art,[271] a sentiment later echoed Dutilleux who thought that analysis and self-commentary may destroy the 'mystery at the heart of the music'.[272] While Debussy shied away from analysis, Cook and Everest assert in *Rethinking Music* ‘that analysis is fictive, and its substance lies in metaphor’, an idea akin to researcher Philip Tagg's semiology.[273] 'Music is silence of words as poetry is silence of prose', an idea propounded by philosopher Vladimir Jankélévitch towards the end of his life: music is indicible and ineffable with mirrors saturated with expression and implications leading the mind towards an unattainable vanishing point.[274] Goethe thought that beauty can never really understand itself and Plotinus tells us that things become beautiful by communion with or participation in . . . it communicates itself to the parts as well as the whole, and. reaches unity.[275] Aesthetic means to perceive, the antithesis of anaesthetic.

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[258] Isostasie Natasha Barrett, <https://www.electrocd.com/en/album/2322/Natasha_Barrett/Isostasie> [accessed 02.08.18].

[259] Maria João Neves, 'The Dehumanization of Art. Ortega y Gasset's Vision of New Music', I*nternational Review of the Aesthetics and Sociology of Music*, 43/2 (2012), 365-376 (p. 368).

[260] Maria João Neves, 'The Dehumanization of Art. Ortega y Gasset's Vision of New Music', I*nternational Review of the Aesthetics and Sociology of Music*, 43/2 (2012), 365-376 (p. 369).

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[261] Maria João Neves, 'The Dehumanization of Art. Ortega y Gasset's Vision of New Music', I*nternational Review of the Aesthetics and Sociology of Music*, 43/2 (2012), 365-376 (p. 374).

[262] Jacque Derrida, *of Gramatology*, trans. by Gayatri Chakravorty Spivak (Baltimore and London: The Johns Hopkins University Press: 1976), p. 11.

[263] Wittgenstein thought that molecular facts can change when deeper atomic facts change, but that underneath facts are symbols.

[264] Alfred Cramer, 'Schoenberg's Klangfarbenmelodie: A Principle of Early Atonal Harmony', *Music Theory Spectrum*, 24/1 (2002), 1-34 (p. 19).

[265] Alfred Cramer, 'Schoenberg's Klangfarbenmelodie: A Principle of Early Atonal Harmony', *Music Theory Spectrum*, 24/1 (2002), 1-34 (p. 17).

[266] Aesthetics dictates survival patterns in needs-based aesthetics, for example in birds that imitate preferred foods. Many ducks have snail shapes on their heads, while the mandarin duck has a clam shape on its head and yellow feathers imitate the outside of the clam. The same beauty tastes are reflected through the sexual selection of the female ducks that prefer males with the preferred food imitations, and thus those genes were selected for. Needs-based aesthetics and scent, taste and visual attraction in humans are formed through needs, whilst flowers that are more nourishing attract animals and spread the seeds, increasing survival rates, and the beauty and aesthetics of the environment is also reflected and mimicked such as in some migratory male bird-heads that mimic lakes and islands; and the females will select for traits that reflect these environmental aesthetic preferences that signify places of safety and survival.

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[267] Tom Bawden, 'Male nightingales sing complex songs to show females they will be good fathers, say scientists', *Independent*, 18 June 2015.

[268] Ambrose Field, 'Simulation and reality: the new sonic objects', in *Music, Electronic Media and Culture*, ed. by Simon Emmerson, (Ashgate: Ashgate Publishing Limited, 2000), 36-55 (p. 38).

[269] Ambrose Field, 'Simulation and reality: the new sonic objects', in *Music, Electronic Media and Culture*, ed. by Simon Emmerson, (Ashgate: Ashgate Publishing Limited, 2000), 36-55 (p. 39).

[270] TED, A Darwinian theory of beauty | Denis Dutton, online video recording, YouTube, 16 November 2010, <https://www.youtube.com/watch?v=PktUzdnBqWI> [accessed 13.03.18].

Aleatory—depending on chance or die.

Allegory, musical—Messiaen's use of allegory through researching birdsong in composition. Messiaen's narrative techniques conveyed natural phenomenon through abstract musical allegory, for example the rising of the sun depicted by slow and 'misty' modal chord ascents, the slow ascent of a looping passage that depicts a circling buzzard, while unmoving objects like cliffs are represented by clashing dissonant chords.[276][277] The piece contains a lot of semitone and tone root motion.

Ambisonics—creation of 3-dimensional full-sphere surround sound format with multiple speakers through various techniques, including soundfield recording and wave synthesis, where spatial information using math alters the wave form in the horizontal plane, as well as above and below. Natasha Barrett strips sound-objects into frequency layers to position them in the ambisonic soundfield.[278] Note that wave field synthesis, which renders spatial environments with virtual acoustic environments, differs from wavetable synthesis which is sound synthesis using periodic waveforms to create tones—while additive synthesis creates timbre through added sine waves. Barrett liked to work with many speakers—in an ideal world 16 speakers with a further 16 for elevation to create a good sound field—and she thought that music in the mid-00s was beginning to use better reverberation, but she still didn't use spatialisation programs that were available.[279]

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[271] M. D. Calvocoressi, 'Claude Debussy', *The Musical Time*s, 49/80 (1908), pp. 81-82 (p. 82).

[272] Judy Lochhead, 'Review of Henri Dutilleux: His Life and Works by Caroline Potter', *Notes, Second Series*, 55/3 (1999), 678-679 (p. 678).

[273] I helped Philip unload and load his vehicle at a lecture in Cambridge and found him very amiable.

[274] Carolyn Abbate, 'Debussy's Phantom Sounds', *Cambridge Opera Journal*, 10/1 (1998), pp. 67-96 (p. 67).

[275] DAJORIVISION, *Enneads by Plotinus - Neoplatonic Philosophy*, online video recording, YouTube, 18 Jun 2018, <https://www.youtube.com/watch?v=nYOIXgH4Z1U> [accessed 05.11.20].

[276] Paul Griffiths, 'Visions and Meditations: A Messiaen Festival', *The Musical Times*, Vol. 114/1564 (1973), 592-594 (p. 593).

[277] Yet Messiaen endeavoured depicting the birdsong itself through notation which became non-objective and non-anonymous sounding.

[278] Felipe Otondo and Natasha Barrett, 'Creating Sonic Spaces: An Interview with Natasha Barrett', *Computer Music Journal*, 31/2 (2007), 10-19 (p. 12).

[279] Felipe Otondo and Natasha Barrett, 'Creating Sonic Spaces: An Interview with Natasha Barrett', *Computer Music Journal*, 31/2 (2007), 10-19 (p. 17).

Attention zones—used by Parmegiani to shape zones between harmony, melody, rhythm and sound-objects, often by reduction of variations to a minimum of sonic phenomena, either plural or singular, for example variations of rhythm and melody, moving the listener towards developing timbre or other sonic dimensions. Parmegiani highlights certain events with characteristic properties that make them stand out.[280]

Caret—indicates fundamental structure in Schenkerian analysis.

Coarticulation—the process or occurrence of information units smeared together to create a whole.[281]

Compound melody—where a melody is embedded within a single monophonic melody that uses harmonic effects or material co-embedded horizontally within the melody.

Cross-referencing intertext—Berg, for example, was influenced by Debussy, and in a later edition of Berg's *Op. 2*, not present in the original, two passages are identical and at the same pitch to Debussy's *Pour la danseuse aux crotales,* and perhaps Debussy knew Berg's song or saw the *Blaue Reiter* publication.[282][283]

Electroacoustic—generally, tape music, electroacoustic music, acousmatic music, electronic music, computer music, kinetic music, sonic art and plastic music are all taken as the same thing. Representation of reality is a major part of many electroacoustic works.

Envelope—defined by sound intensity over time, the envelope is non-static, changing with duration, envelope is the shape of amplitude over time. For example, attack, decay or release of a intensity of sound is not instantaneous and requires time. While envelope signifies macro-level behaviour in time, waveform signifies micro-level variations in pressure.[284]

Form—It is thought that form is never more than an extension of content and vice versa. Perhaps form is an extension or even revelation of *θeopeiv*, meaning 'to see through' or 'to contemplate', *or Anschauung*, a mode of watching not just using the eyes but capacities of spirit, whereby the phenomenon or object can be reconstructed by the spirit apart from physical appearance. By sustained *Anschauen* an *aperçu* (intuitive insight) into the law behind a phenomenon may be evinced or educed. These ideas are somewhat pragmatically expressed by Goethe, Debussy, Schenker and Schoenberg, for example, yet the nature of form is bound to time and the idea reminds me of Wheeler's 'it from bit' where information gives rise to phenomena which are formed in existence by observation. Poet and literary critic Charles Bernstein thinks that form is 'how any one of us interprets what's swirling so often incomprehensibly about us . . .',[285] an idea analogous to reduced listening. Indeed, an idea expounded in so many mystical texts, from the *Tao Tse Ching* to Omar Kayam's *Rubayat*. I found insightful ontological philosophies which gave me insights into aesthetics and form while investigating some meditational aspects of music, reading the *Yoga sutras of Patanjali*, *The Visuddimaga*, *The Bradaranyaka Upanisad*, many suttas and even the the Nazarene transliteration of the Lord's Prayer translated directly from the ancient Aramaic with further translation in small text into modern English by Jon Marc Hammer from phonetic Aramaic, which is a delight to sing. In *The Bradaranyaka Upanisad*, for example, it states that 'whenever a cause produces an effect, it does so by destroying another effect it produced just before, for the same cause cannot produce more than one effect at a time',[286] and that 'this (universe) indeed consists of three things : name, form and action.'[287] This is similar to the ripple affect of the inserted references in a work, where surrounding material becomes decayed, or like the union of two objects destroying the original material. However, while new forms replace old forms, memory is made up of past events, including the timbral, rhythmic and pitched, which is critical in music. The cause of destruction of past material is the present, but we may influence how it is destroyed through imagining form. Potential of what is with what could be can create a third imaginative entity—much like science fiction combines what could be with what is, which requires imaginative qualities of the mind where a third dimension arises.[288][289] Plotinus believed that only beautiful parts can make up a beautiful whole.[290]

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[280] Thom Blum, 'Reviewed Work(s): Parmegiani: De Natura Sonorum by Bernard Parmegiani', *Computer Music Journal,* 5/2 (1981), 68-70 (p. 68).

[281] Ccrmalite1, *Natasha Barrett - Spatial Sonification of Performance Gestures*, online video recording, YouTube, 4 May 2017, <https://www.youtube.com/watch?v=bEkDTrQznBI> [accessed 07.11.18].

[282] Robert Henderson, 'Portrait of Debussy. 3: Debussy and Schoenberg', *The Musical Times*, 108/1489 (1967), pp. 222-226 (p. 226).

[283] This may be an example of uncanny similarity mistaken for copying, or unconscious or conscious memory.

[284] 'Envelope', <http://www.sfu.ca/sonic-studio/handbook/Envelope.html> [accessed 09.04.18].

Impressionism—clarity of structure and theme are subordinate at times to harmonic effects. It is interesting that due to heavy harmonic repetition of developing variation, Schoenberg places Debussy with composers like Schumann, Mendelssohn and Gounod, and thought that Debussy's work naturally and logically extended on from Wagnerian sequences.[291][292]

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[285] Thomas DeLio, 'Xenakis's, *Perspectives of New Music*, 39/1 (2001), 231-243 (p. 233).

[286] *The Bhradaranyaka Upanisad with the commentary of Sankaracarya,* tr. by Swami Madhavananda, (Advaita Ashrama, Almora, Himalayas, 1950), p. 17.

[287] *The Bhradaranyaka Upanisad with the commentary of Sankaracarya,* tr. by Swami Madhavananda, (Advaita Ashrama, Almora, Himalayas, 1950), p. 6-7.

[288] Kim Stanley Robinson, *Kim Stanley Robinson: Science Fiction Is the Realism of Our Time*, online video recording, YouTube, 6 March 2018, <https://www.youtube.com/watch?v=ApA0_OyV0XE> [accessed 13.06.18].

[289] Realism after the 19th century was for the elite, while science fiction was for the lower class.

[290] Plotinus, Enneads, trans. by Kenneth Guthrie, (204-270), p. 40.

[291] Robert Henderson, 'Portrait of Debussy. 3: Debussy and Schoenberg', *The Musical Times*, 108/1489 (1967), pp. 222-226 (p. 224).

[292] Nationalism also was prevalent in both Debussy's and Schoenberg's thought. Schoenberg, for instance, thought that the French works were externally influenced and that he upheld logical German structuralism. Also, when Stravinsky mentioned his enthusiasm for Schoenberg's *Pierrot*, Debussy stared and was silent, later writing, ' . . . Stravinsky himself is dangerously leaning in the direction of Schoenberg.' Debussy's distrust and shock of Schoenberg's radicalism was likely driven by fervent nationalism rather than from direct examination of Schoenberg's work. Schoenberg, though bitter, acknowledges 'the great development in orchestration which took place through the achievements of Mahler, Strauss, Debussy and their successors.' Schoenberg saw Debussy as the primary exponent of impressionism and was critically harsh towards his modification of Wagneriam harmony;

Liminality—transitional, in-between, at or on both sides of a threshold, the area that occurs of a perceived boundary between two distinct appearing entities or phenomena, ideas, information or qualia. The demarcation point or cross-over where two boundaries meat. Liminality is analogous to intertextuality and potentiality.

Meaning—conscious interpretation of temporal forms or order—the antithesis of chaos and non-meaning. In science meaning focuses on reproducibility and cross-referencing and in art meaning focuses on the communication of emotion. Thus it is an irony to use any form to hint at chaos, to hint at the infinite potential primordial source. Logically, more order and complexity is linked to more meaning. Gödel's incompleteness theorems outline paradoxes in creating types of proving meaning and order, which revolutionised mathematics and logic. Alan Turing's halting problem also shows that incompleteness is natural and a program cannot determine if it will halt. These theories have implications for undecidability, reduction, collapse, measurement, potentiality, the general and specific and meaning through ordering.

Mediant relations—Heavy and impressionistic use of third relations. Stravinsky's nontriadic style would contrast this.

Modernism—Ussachevsky said in an interview that it is difficult to come to terms with modern music if one looks for beautiful melodies, and describes Varèse's music as having 'powerful sonorities, accompanied always, and punctuated by, extremely interesting and intricate rhythmic combinations . . . there is not much linear engagement . . . and you hear certain motives time and again . . . motives that will come throughout the piece and hold them together. Otherwise, it's always kind of a block'.[293]

Motif—a repeating idea within patterned structures. Stravinsky's height of neoclassical recompositions before he turned to serialism, considered by early 20th century critics as antithetical to Schoenberg, display motivic structural concern.[294] Schenker objected to Bach's idea of developing variation.[295]

Musical meaning—for the philosopher Ortega, each piece of art was de-realised and broke off from the realised whole of reality.[296] New objectivity annihilates real-world objects,[297] illustrating the power and

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indeed, Debussy used functional harmony unique to Germany.

[293] Richard Bayly, Varèse and Louise Ussachevsky, ' Ussachevsky on Varèse: An Interview April 24, 1979 at Goucher College', *Perspectives of New Music*, 21/1/2 (1982/83), 145-151 (p. 147).

[294] Joseph N. Straus, ' Recompositions by Schoenberg, Stravinsky, and Webern', *The Musical Quarterly*, 72/3 (1986), 301-328 (p. 313).

[295] Kristof Boucquet, 'Schenker and Schoenberg Revisited', *Revue belge de Musicologie / Belgisch Tijdschrift voor Muziekwetenschap*, 59, (2005), 193-203 (p. 197).

[296] Maria João Neves, 'The Dehumanization of Art. Ortega y Gasset's Vision of New Music', I*nternational Review of the Aesthetics and Sociology of Music*, 43/2 (2012), 365-376 (p. 371).

[297] Maria João Neves, 'The Dehumanization of Art. Ortega y Gasset's Vision of New Music', I*nternational Review of the Aesthetics and Sociology of Music*, 43/2 (2012), 365-376 (p. 372).

applicability of theory and perception to real-world form and embodiment, yet the humanism and emotional subjective coherence could be lost, what I associate with yin, with overemphasis on the object details themselves. Language for example may be defined as communication, but there is no satisfactory definition as to what art and music are,[298] though it is my contention that it can convey musical meaning and emotion. We may have a tendency to look for qualities closest to us to recognise art. Aesthetic function is also rooted in genetic health and linked to understanding, as evinced by needs-based aesthetics which can produce run-away physical characteristics through selection.[299] Writer Ursula Le Guin predicted that an art may exist for plants that is reactive and receptive, not active and communicative.[300] Science is explanation that predicts phenomenology, yet musical ideas seem to me like mathematics of unending abstraction, and that inspires and shapes my art. Meaning is an essential part in answering the final question. What is music? Is it a social construct? What is art music and acoumatic music? We may taxonomically break things down but it is interesting to note the ongoing *livingness* of music, art, aesthetics and meaning. It is something that we engage with, through art, myth and ritual, as listeners, writers, critics and practitioners. It is a feeling, undefinable, a performance never played twice the same, central to thought, evocative qualities and forms which link and mingle with our sensibilities, ever changing. Music, like fiction, can take us to abstract places which enable us to detach from mundane thinking, or it can be rooted in the ordinary. The practitioner engages with materials, a small part of a link in a chain, part of that aliveness. Questions, knowledge, intricate and general thoughts may blend in novel ways, displaying pragmatic uniqueness which is so comforting to humans. No art is too readily defined or explained away, yet objective categorising, reduction and thought play essential parts not just after art is made, but during creation in a *living* sense. We ask questions qualitatively and quantitatively, subjectively and objectively, and are fascinated by the interaction between the two, illustrating their inextricable interrelatedness, and this is reflected in art. Adorno wrote that '. . . quantification is nothing but the means'.[301] We compare and contrast, seeking new nuances, returning to old things as much as looking forward. We have a need to question, create meaningful or meaningless things, and contrast and explore. Art is genetic; art is myth, science and the intangible—it is us.

Negative Dialectics—revealing potentialities of negative dialectics can be arrived at through the clipping away of art or commentary on the art, and I find it fascinating in applying this theory to non-textual music, as I am especially interested in musical potentials and the pivotal points that potentials create. Allegorical meaning is created through negatives and oppositions semantically, and according to Boudrillard *something is* because it is *not other things*. Adorno's *Negative Dialektik* deems 'a nothing, subtractable supplement . . .

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[298] Ursula K. Le Guin, *The Unreal and the Real,* (London, Sydney, New York, Toronto, New Delhi: Saga Press, n.d.), p. 473.

[299] Chenguang Lu, 'Explaining Birds Colorful Plumages and Beauty Preferences by Demand Relationships with Information and Confirmation Measure Analyses', Crimson Publishers, (2018), 1-8.

[300] Ursula K. Le Guin, *The Unreal and the Real,* (London, Sydney, New York, Toronto, New Delhi: Saga Press, n.d.), p. 475.

[301] Theodor Adorno, *Negative Dialectics*, (Taylor & Francis e-Library, 2004), p. 44

[which] . . . goes far beyond [the] facts . . . of the positivistic scientific enterprise and pre-scientific consciousness . . . [and] shatters the belief in facticity'.[302][303] Though the negative dialectic may be seen as similar to reduced listening there is a level-of-meaning semantic difference in the art of language and music, but I couldn't help but feel that I was engaging in a musical negative dialectic, crossing out redundant musical ideas and phrases that seemed like cancelling in algebraic equations or practising classical Greek logic. Yet there is always the opposition of essential unity and expression of forms—Webern's monogenesis syntax derives from Schoenberg's grundgestalt theory where everything derives from a single idea, with its essence retained in manifestations of appearance forms used syntactically.[304] A motivic expression may be relational harmonically, timbrally, melodically, oppositionally or cohesively, as a fragment of quanta stochastically within the whole, and perspective is brought about through reduced listening. While a shadow may not be reduced to a negative entity,[305] just as silences cannot be reduced, it may be used positively or negatively as an additive or subtractive procedure during the creational process, and this applies to foreshadowing and recapitulation.

Outside-time—Pitch-sets, pitch-scales and modes are outside-time architectures as no vertical or horizontal restructuring alters it. Inside time is the aural experience of hearing sounding notes. Patterns of pitch-sets pattern time, known as the temporal category, in between outside-time and inside-time,[306] one may conceptualise in this in-between state but it may not exist yet. Xenakis noted that outside-time structures degraded progressively after the late mediaeval times—the most characteristic fact pertaining to western European music's evolution.[307] Xenakis admitted that it was in France that outside-time structure emerged, in France that it gravitated toward the neutral 12-semitone modern scale, for example in Debussy's use of the whole-tone scale and Messiaen's modes of limited transposition and non-retrogradable rhythms.[308]

Plunderphonics—plundering previously existing material and tracing or referencing its contents, often directly but sometimes sweepingly or loosely, and often reconstructed to form new original art.

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[302] Piet Strydom, 'Critical Theory's Negative or Subtractive Ontology: Seminar Theses', Presented at the Critical Theory and Cognitive Sociology Seminar, Harbour View, Kilbrittain, Co. Cork, Ireland, 20 December. (n.d.), 1-17 (p. 4).

[303] Art does shatter facticity just as understanding processes by interpreting data does. The idea of mediation, used in my block sectional cuts, is viewed by Adorno as implicit to dynamic relation-concept, rejection of identity thinking of origin, positivity, fixed nature, and immanence, although in my perspective immanence is inherent. In part two the shifting permutational and variant lines could represent immanence. I feel that the idea that the opposite thing, the non-thought and non-identity, must be sought in order to gain insight into something is not completely foreign to music as I feel that something more mathematic and abstract filters down to semantic language.

[304] Gundaris Poné, ' Webern and Luigi Nono: The Genesis of a New Compositional Morphology and Syntax', *Perspectives of New Music*, 10/2 (1972), 111-119 (p. 114).

[305] Aya Kasai, *Nothing Matters: Answering the Question 'Where's the Art?' through Ma and Gen,* Volume One, (School of Arts, Faculty of Technology, Design and Environment, Oxford Brookes University, 2016), p. 44.

[306] Eugene Montague, 'The Limits of Logic: Structure and Aesthetics in Xenakis's Herma', <http://www.ex-tempore.org/montague/index.htm>, [accessed 24.08.19].

[307] Dimitrios Exarchos, 'Iannis Xenakis and Sieve Theory An Analysis of the Late Music (1984-1993)', (2007), 1-221 (p. 40).

[308] Dimitrios Exarchos, 'Iannis Xenakis and Sieve Theory An Analysis of the Late Music (1984-1993)', (2007), 1-221 (p. 41-2).

Post-modern—Cultural perspective is bound up in music, art, poetry and aesthetics, and the shift from modern to postmodern has many definitions, two of which are re-enchantment and a shift away from reduction of meanings. Digital sampling is also part of postmodernism and gives rise to problems such as a large merging, or hybridisation, of cultural, musical and artistic perspectives, modes of thought and disciplines, and is also connected to changes in other fields such as writing and film.[309] Luigi Nono could not think of a piece as anything other than a living artwork, a work in progress or in motion. The idea of work as something intangible, ongoing, mobile and unfixed was essential to Nono, a postmodern shift away from set 'facticity'. Many postmodern composers veered away from rhetorical and communicative qualities in their works, instead focusing on how abstract processes form coherence, with the focus away from melody, harmony and rhythmic manipulations,[310] and there is removal of the artists hand.

Prime form—prime form is a compact set order form. Other orders include retrograde, inverse and retrograde inverse. Permutations of a prime form are called derived sets. Normal form is the most compact form of set —using the smallest interval, for example the set (11, 0) is the compact form, while (0, 11), a seventh, is not. For example, the set [0, 1, 2, 6, 8] is tonic, b2, 2, #4, b6 respectively and [0, 3, 6, 8] is tonic, b3, #4, b6 respectively.

Reduced listening—sound description or objective discernment processes of sonic material; a process in acousmatic music, originally where extra-musical associations with reality are bracketed out, or meaning is stripped from the source; it is the process whereby music is found within extra-musical material. Schaeffer's reduced listening focuses on the characteristics and traits of the sound, not its source identification or semantic meaning; thus it is an object and not communicative vehicle. Chronometers and spectral analysis as descriptive containers only and do not designate actual perception. In subjective relativism it is thought that the sound is unknowable, even when considering shared perception and experience; and Schaeffer feels reduced listening lies in this field of objectivity from inter-subjectivity. Reduced listening is not done in a single hearing, and inventory of details of a sound require multiple listens to the fixed sound-objects. Performance traces melodic and harmonic outlines and not multi-faceted sound events as fixed objects, possible only on fixed-medium. Pitch or interval identification is a form of reduced listening, as these are also sound characteristics. Reduced listening is also akin to 'scrubbing', a term used in music production to loop a time segment to uncover, reveal and attenuate detail through production, of which language and musical semiotics are inadequate at describing. Rarely is reduced listening used as the material itself in art, and usually is used figuratively to add meaning, emotion, suggestion, texture, timbre and colour as an effect to film. Acousmatic music is akin to reduced listening as both involve discernment of sonic characteristics; acousmatic music is divorced from causality and thus we may focus on the properties: textures, masses, velocities, vectors; sound enables us to see visuals in a new way and also affects us physically, bodily and directly. Schaeffer's *Traite des objets musicaux* proposes a system of sonic classifications of description without causal description and that go beyond pitch. Reduced listening is perhaps not possible in reality, and is in the perceiver's eye. How the perceiver analyses is beyond control, it is a modality of listening. There are other modes of listening, for example cultural sound separation and perception—contextually cultural modalities. The world view is that analyses quantifies into elements phenomenologically. In reduced listening a sonic thing is received that forms in our consciousness. 'The flow of distanceless uniformity where all things are carried away and mixed up is halted thereby'.[311] For Benjamin, assiduous listening, or reduced listening, was something that you heard hundreds of times that takes on new shape/forms—reduced listening, attention and making sense of poetry all stimulate new neurons. It is unlikely reduced listening can even be accomplished by bracketing out extra-musical material, as there is always extra sonic material within a sound-object and perspective plays a part in apprehending it—thus in my opinion it is more a matter of potentiality within a contextual framework of sounds that reduced listening is a sound theoretical and practical tool. For Barthes “Writing is the destruction of every voice, of every point of origin. Writing is that neutral, composite, oblique space where our subject slips away, the negative where all identity is lost, starting with the very identity of the body writing.”[312]

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[309] Simon Waters, 'Beyond the acousmatic hybrid tendencies in electoacoustic music', in *Music, Electronic Media and Culture*, ed. by Simon Emmerson, (Aldershot, Burlington USA, Singapore, Sydney: Ashgate, 2000), 1-263 (p. 56).

[310] Aleksey Nikolsky, 'Non-communicative Music Grammars of the 20th Century', p. 1

Serialism—syntax of relational tones and harmonic content is slackened and comparatively liberal in atonal music, but is more pronounced in serialism, with unstable harmonic tone-group relation, or melody to harmony relation, with tenuous long-range harmonic functional relations.[313] In a 1941 lecture, Schoenberg explains that, in the reaction against romanticism, dissonances are treated like consonances with no tonal content, and modulation is excluded by avoiding key establishment.[314] Krenek proportioned shorter (faster) and longer (slower) serial combinations in different ways, and I experimented with contrasting speed within the layers. Krenek thought that serialism provided solid methodological cues for atonal unpredictability and chance operations.[315][316] Schenker's idea of tonicization was refuted by Schoenberg in favour of secondary dominant analysis which could educe more complex nuance compositionally.[317][318] Number generators, or even dice, are not truly random as there is no evidence for true chaos. Cage, a student of Schoenberg, stated in *Modern Music* that future music would contain 'sound rows' of contrasting elements, whereby duration would replace pitch,[319] Nono's late compositions used fermata of various lengths extensively and frequently, which last between two and seventeen seconds. Rhythm is indicated in the works and the fermatas are wildly at odds with the rhythms, though perhaps this is a way of moving further into the interior of sound worlds, as Nono had various ways of going inside of objects, The irrational combining of fermata and rhythm creates motiona and suspense and fragility and involotion of sound objects.[320]

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[311] Larry Sitsky, Music of the Twentieth-Century Avant-Garde, Biocritical Sourcebook (Santa Barbara, California: ABC-CLIO, 2002), p. 439.

[312] Eric M. Lachs, 'The Function of Subject as Signified', December 16, 2003 ENG 3010, Section 2403, Fall 2003, p. 10.

[313] Leonard B. Meyer, *Music, the Arts, and Ideas: Patterns and Predictions in Twentieth-Century Culture* (Chicago and London: University of Chicago Press, 1967) p. 241.

[314] *The New Oxford History of Music, X, The Modern Age 1890-1960*, ed. by Martin Cooper, 1974 (London: Oxford University Press), p. 140.

[315] Will Ogdon and Ernst Krenek, 'Conversation with Ernst Krenek', *Perspectives of New Music*, 10/2 (1972), 102-110 (p. 106).

[316] Krenek says, '. . . it is a form of variation which would have been inconceivable without atonality and serialism, atonality being a necessary assumption, because the simultaneities of sounds unpredictably resulting from the chance operations will be acceptable only in atonality, and because serialism offers the cues for those operations'.'

Set music—music that uses collections of unordered pitch-classes. Dyads are two-element sets and trichords (and less often triads) are three-element sets. Higher cardinality sets comprise tetrads (tetrachords), pentads (pentachords), hexads (hexachords), heptads (heptachords, or rarely septachords), octads (octochords), decads (decachords), undecachords and dodecadhords. In serial music Babbitt uses 'set' to denote a tone row, where set music is not specifically set serial music. Babbitt, Lewin and Forte (especially) developed set theory to systematise and identify structures in music, and expand the traditional motivic idea.[321][322]

Sound diffusion—an interpretive performance practice that customises spatiality in sound.[323] Environmentally, diffusion is efficacy of sound energy spread. Perfect diffusional space has isometric properties, while non-diffuse space comprises differing reverberation time at various points. Natasha Barrett was inspired by causation of sounds and abstracting the information, for example its behaviour, to form musical discourse and gestures without removing all real-world properties—that hovers between the real-world, where one thinks of how sound behaves in space and how causation forms sound through instances, abstraction, or imagination. Left and right already indicates a spatial room size. Understanding what an object or phenomenal sound is has direct psychospatial bearing, for example with footsteps approaching. Barrett manipulates mono tracks in a way that preserve the integrity of the spatial information.[324] York Höller, former artistic director of the west German Radio, felt that spacialization qualities in electroacoustic music were attractive superficial—peripheral—qualities that loose their exciting aspects with experienced listeners. Such published comments aided in the elimination of electroacoustic tape music from broadcasts, performances and commissions, and after 1980 people working on technology and new aesthetics at the WDR focused mainly on acoustic instruments, with almost no electroacoustic music in their program from 1999-2001, with exception to the 'studio of acoustic art'.[325] Jean-claude Risset felt that a view of spatialisation aspects as purely cosmetic was not right.[326] Natasha Barrett emphasises creation and contrast of space through depth of field, in the degrees of 'middle-, fore-, and background', because control of composed spaces may collapse in different environments.[327] Clarity of some compositions demand certain performance spaces, while other works may be more interpretive, and there is always chance involved.[328] There can be discrepancy between composed spatial intentions and diffusion interpretation, where spatial structural information is rendered less accurately and differs from original intention. Barrett's attribution of spatial information is variegated.[329] Barrett uses diffusion, not ambisonics, in large halls, preferring stereo diffusion and sometimes simultaneously diffused multichannels of layered pieces.[330]

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[317] Kristof Boucquet, 'Schenker and Schoenberg Revisited', *Revue belge de Musicologie / Belgisch Tijdschrift voor Muziekwetenschap*, 59 (2005), 193-203 (p. 197).

[318] Schoenberg was largely ambivalent towards Schenker over the years and stated in his Harmonielehre: 'a head to be taken seriously, even though nothing correct can be gained from it'.

[319] Michael Hicks, 'John Cage's Studies with Schoenberg', *American Music*, 8/2 (1990), 125-140 (p. 130).

[320] Peter Ivan Edwards, 'Object, Space, and Fragility in Luigi Nono's "Das atmende Klarsein"', *Perspectives of New Music*, Vol. 46/1 (2008), pp. 225-243 (p. 240).

[321] Joseph N. Straus, 'Recompositions by Schoenberg, Stravinsky, and Webern', *The Musical Quarterly*, 72/3 (1986), 301-328 (p. 305).

[322] Set theory holds that a musical phrase is only one permutation of notes in an unordered pitch-class set.

[323] Felipe Otondo and Natasha Barrett, 'Creating Sonic Spaces: An Interview with Natasha Barrett', *Computer Music Journal*, 31/2 (2007), 10-19 (p. 12).

[324] Ccrmalite1, *Natasha Barrett - Spatial Sonification of Performance Gestures*, online video recording, YouTube, 27 April, 2017, <https://www.youtube.com/watch?v=bEkDTrQznBI> [accessed 02.12.17].

Sound-object - Sound-objects are abstracted from non-musical material, and can create spatial counterpoint with space as an element of musical discourse.[331] Real-world sounds are abstracted musically using reduced listening. Natasha Barrett, for example, was inspired by causation of sounds and abstracting the information, for example its behaviour, to form musical discourse and gestures without removing all real-world properties —that hovers between the real-world, where one thinks of how sound behaves in space and how causation forms sound through instances, abstraction, or imagination. Understanding what an object or phenomenal sound is has direct psychospatial bearing, for example with footsteps approaching.[332] Nono used technology with natural concert hall spaces, where various processing tools and amplification are used instead of the real space of the concert hall. These tools are used to create imagined spaces for certain sections, with the thickening of a choir's sound surfaces, for example, and harmonizers to thicken the bass flute and choir in a third space, which is applied in various works by Nono and can be traced through much of his work.[333]

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325 Ludger Brümmer, Guenther Rabl, Konrad Boehmer, Jean-Claude Risset, Jonty Harrison, François Bayle, Johannes Goebel, Francis Dhomont and Karlheinz Stockhausen, 'Is Tape Music Obsolete? Is Spatialization Superficial?', *Computer Music Journal*, 25/4 (2001), 5-11 (p. 5).

326 Goebel, Francis Dhomont and Karlheinz Stockhausen, 'Is Tape Music Obsolete? Is Spatialization Superficial?', *Computer Music Journal*, 25/4 (2001), 5-11 (p. 7).

327 Felipe Otondo and Natasha Barrett, 'Creating Sonic Spaces: An Interview with Natasha Barrett', *Computer Music Journal*, 31/2 (2007), 10-19 (p. 10).

328 Felipe Otondo and Natasha Barrett, 'Creating Sonic Spaces: An Interview with Natasha Barrett', *Computer Music Journal*, 31/2 (2007), 10-19 (p. 12).

329 Felipe Otondo and Natasha Barrett, 'Creating Sonic Spaces: An Interview with Natasha Barrett', *Computer Music Journal*, 31/2 (2007), 10-19 (p 14).

330 Felipe Otondo and Natasha Barrett, 'Creating Sonic Spaces: An Interview with Natasha Barrett', *Computer Music Journal*, 31/2 (2007), 10-19 (pp. 15).

331 Ccrmalite1, *Natasha Barrett - Spatial Sonification of Performance Gestures*, online video recording, YouTube, 27 April, 2017, <https://www.youtube.com/watch?v=bEkDTrQznBI> [accessed 02.12.17].

332 Ccrmalite1, *Natasha Barrett - Spatial Sonification of Performance Gestures*, online video recording, YouTube, 27 April, 2017, <https://www.youtube.com/watch?v=bEkDTrQznBI> [accessed 02.12.17].

333 Peter Ivan Edwards, 'Object, Space, and Fragility in Luigi Nono's "Das atmende Klarsein"', *Perspectives of New Music*, Vol. 46/1 (2008), pp. 225-243 (p. 239).

Signs—represent object structures or forms that may either represent or suggest connotated information or be seen as strictly apart from symbols altogether and be purely objective, as in Kublerian analysis and its hermeneutical system of art history.

Space—Natasha Barrett used space difference with cutting and splicing to fragment and adumbrate intelligibility during moments of narrative stress on her CD *Trade Winds*, which uses analogy to illustrate the voyage of the Norwegian vessel Dyrafjeld.[334] Barrett's sonic portrayal of moving in a moving thing is interesting. On *Trade Winds*, track 7, melodies are heard weaving in and out of waves of sound depicting the sinking Dyrafjeld succumbing to storm.[335] Barrett does not like reverberation, which blurs textural information, and prefers realistic room models with ambisonic reflection, which retain the detail that implies spaces: the ambiguous moments of implication where music comes through. Sound identity is connected to spatial identity, for example footsteps getting louder are interpreted as someone approaching. Bits of information may be given to the listener over time to build a picture.[336] John Cage wanted to control the amplitude and frequency of 'the sound of a truck at 50 m.p.h. Static between stations. Rain.'[337] Debussy imitates bells, which contain harmonics outside the harmonic spectrum, in *Cloches à travers les feuilles.*[338]

Synthetic chords—synthetic chords, synonymous with sets which are tone series of six to eight fixed successive sequences of tones and semitones, yet also preserve the extreme orthographic spellings of note relations, were used by Roslavets to create harmonic distance through transposed synthetic chords, creating extreme orthography, with use of extreme spellings like triple sharps. Roslavets's two sonatas for cello and piano start and end on an E hexachord, and this hexachordal sonority progresses through transpositions throughout.[339][340] The Russian Modernist experimental period was marked by some lessening of traditional tonality through varying techniques[341] This music stemmed from Prokofiev, Skriabin and Russian folk music.[342]

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[334] Patricia L. Dirks, ' Reviewed Work(s): Trade Winds by Natasha Barrett' *Computer Music Journal*, 34/1 (2010), 114-115 (p. 115).

[335] Patricia L. Dirks, ' Reviewed Work(s): Trade Winds by Natasha Barrett' *Computer Music Journal*, 34/1 (2010), 114-115 (p. 115).

[336] Ccrmalite1, *Natasha Barrett - Spatial Sonification of Performance Gestures*, online video recording, YouTube, 27 April, 2017, <https://www.youtube.com/watch?v=bEkDTrQznBI> [accessed 02.12.17].

[337] Julio d'Escriván, 'Electronic Music and the Moving Image', in *The Cambridge Companion to Electronic* Music, ed. By Nick Collins and Julio d'Escriván (Cambridge University Press, 2007), pp. 156-170 (p. 158).

[338] Alfred Cramer, 'Schoenberg's Klangfarbenmelodie: A Principle of Early Atonal Harmony', *Music Theory Spectrum*, 24/1 (2002), 1-34 (p. 2).

[339] Anna Ferenc, 'Reviewed Work(s): Tanez belych dew (Dance of White Maidens) für Violoncello und Klavier (1912) by Nikolai Roslavets; 1. Sonate für Violoncello und Klavier (1921) by Nikolai Roslavets; 2. Sonate für Violoncello und Klavier (1922) by Nikolai Roslavets', *Notes*, Second Series, 52/2 (1995), 639-641(p. 640).

[340] It is important to note that Schott published Dance of the White Maidens and the first and second sonatas for cello and piano unaltered to preserve information of compositional intention, although this extreme orthography may deter performers.

[341] Patricia Stowell, 'Reviewed Work(s): Modernism in Russian Piano Music; Skriabin, Prokofiev, and Their Russian Contemporaries by Peter Deane Roberts', *Notes*, Second Series, 51/1 (1994), 155-157 (p. 156).

[342] Patricia Stowell, 'Reviewed Work(s): Modernism in Russian Piano Music; Skriabin, Prokofiev, and Their Russian

Urlinie—protoline or source line that captures the essence of a work.

Ursatz—fundamental structural line of bass arpeggiation.

Variation—Cage felt that preserving elements in variations cancelled potential for contrast,[343][344] and while this can be true, I believe that identifying connections can also be a powerful compositional tool.

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[343] However, Cage's teacher Schoenberg, taught at the USC summer sessions that things can only be contrasted which are related, something Cage opposed, feeling that sound and sound properties where enough of connection.

[344] Michael Hicks, 'John Cage's Studies with Schoenberg', *American Music*, 8/2 (1990), 125-140 /(p. 132).

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Appendix

How the techniques progressed throughout the writing of Tadvanalila, The Broken Oracle, A Desolate Market and Through the Six Worlds

With *Hungry ghost realm (Preta)* I tried to use 7ths, 9ths, 13ths, upper structures and mediant relations. I found it difficult to implement serialism at length though I tried to vary the tones in the piano line. I did not add a dissonant interventional section, which I started doing after *Human realm (Manuṣya) part 2* and researching Nono's music, although I went back in the end to rearrange many of the early pieces. The concrète layer behaved a lot like a monophonic line. The first three pieces could have benefitted from interventions or some form of break, and this is why they are highly repetitive. In *Animal realm (Tiryagyoni)* there was exploration of atonality, serialism and unions and intersections inspired by Xenakis, and I tried to balance harmony of thirds in the strings, for example from b. 25 onwards, with an atonal piano part. The concrète layer was scattered and variegated, and was an early attempt at fluctuating densities over instrumentation, though the instruments did not break from the cyclical into decoherence, and the piano does not vary much. I used sound-objects that were dissonant or consonant harmonically and timbrally with the instruments, that were arrhythmic or rhythmic, creating surprising or mundane results. Beethoven allegedly said that music must be surprising and expected at the same time.[345] In *Human realm (Manuṣya) part 1* I implemented Roslavet's synthetic chords and quintal relations, and the concrète layer had a lot of silences and was scattered—and I inserted long sustained sound-objects at the end. I shortened the dissonant ending section that broke from the rhythmic piano ostinato, and it could have benefitted from more variation or interventions. The preliminary score shows that bars 64-89 are cut, as the rhythm was not varied and the harmonic structuring was weak with lines that do not develop melodically or harmonically. While *Human realm (Manuṣya) part 2* does show some breaks in density between the instrumental and concrète layers, for example sparse to dense at bars 61-79, there are no instrumental interventions which break the rhythmic flow, although the tempo increases suddenly at b. 84. In *Hell realm (Naraka)* I explore floating non-cyclical based motifs, melodies and harmonies that hint at coherence of larger rhythmic structures. There are rhythmical lines in thirds that are not serialist, though often there are serialist-like lines. The phrases cross over each other a lot and there is often coherence of instrumental lines through harmonization—there is coherence and decoherence within and between the layers. In a piece like *Hell realm (Naraka)* the instruments 'slide' and 'give' a lot, with the sense of rhythmic cycles stripped out sometimes and where the broken contiguity leaves gaps that the sound-objects can fill. I felt that variation between tenuousness and density created strong contrasts that enabled unique forms, and that form by its nature needs complexity, contrast and variation.[346][347] In *Demi-god realm (Asura)* there is an intervention from bars 19-26 and 43-49 with lower notes, enabling the sound-objects to come forward more, though I did this unintentionally, while b. 50 is silent instrumentally. The sound-objects become dense at bars 59-66 while the fast piano ostinato theme switches to a slow theme. From b. 75 till the end the piano stops, the pulse is slowed and some of the lines become somewhat atonal. With *God realm (Deva) part 1* the sound-objects are sparse with some brief densities contrasting mediant relations, for example in the violins. There is a slow section from bars 89-138 with only wind sound, but this is not a cut. Many of the earlier pieces did not develop coherence and decoherence or much density change between the two layers, which forms dialogue between the layers and creates contrast, context, change, potential and motion. The cuts are found mainly in the works written after *Tadvanalila* and *A Desolate Market*. In *God realm (Deva) part 2* sectional cuts happen at bars 25 where the theme changes abruptly as a piano comes in and the violins are harmonised in sync. This is the piece I thought of using sectional cuts to fragment a piece in a post-modernist style. Nono created an 'enclosed sound' that affects time conception in the work. This approach to time results in freedom of constructive dispersal of musical parameters, and with Hegel's and Adorno's mediations it inspired me to think about coherence and non-contiguity, resulting in use of various types of abrupt cuts through negation of mediations, or creating mediation and patterning to be removed or fractured. The idea of an enclosed sound made me think of a way to break it, and I could only think of the obvious temporal breakage, a schism or slice between A and B where mediations are weakened. That potential state of unbalance towards coherence and decoherence appears at all points of the creative process, smaller forms of 'enclosed sound' that vector toward unity or gestalt. Another cut is at bars 49-64, where slower block piano chords are played and the other instruments hint at tonality and atonality. At b. 65 there is recapitulation of the opening theme finishing with a cut at b. 89 till the end, which uses hints of quintal relations of synthetic chords and atonality and the violins meander tightly while crossing each other. In *Tadvanalila* I began by exploring how sections could be joined to form a longer piece with interventions. I explored a lengthy dissonant mid-section. In *Tadvanalila* there is blockish syncing between the layers whilst also using a scattering of sound-objects, while in *A Desolate Market* the sound-objects start out as supportive to the instruments, then midway they begin to become more pronounced as the instruments play lower sustained notes at the first intervention, and in the last section they are chaotically and frenetically intertwining with the instruments. In *Tadvanalila, Part II* I expanded motifs and sought ways to embellish and subtly contrast the instruments with sound-objects. The mediant chromatics worked well with dissonance and I spent more time attending to the sound-objects than the other pieces. It is the only piece I did not go back to to touch up the sound-objects. Although I tried to have equality of instrumental lines I began exploring interweaving dialogue between the the strings, flute, bassoon and piano more. In *Tadvanalila*, *A Desolate Market* and *The Broken Oracle* I stopped taking specific reference fragments that would be altered contextually. *Tadvanalila, Part III* was an attempt at aleatory, mixing of previous motifs, abrupt cuts with harsher sound-objects embellishing tempestuousness, though the piece is weaker than the first parts, perhaps due to less time spent on it. In *A Desolate Market* I took more time to have clear sections and provide clarity of the relationship between the layers and what they were doing. I did not use aleatory but I began patterning the instruments in ways to create breaks for the sound-objects to surface, for example through palindromes across lines. Towards the end of composing *A Desolate Market* I realised that the concrète layer could be brought to the fore by greater rates of change, higher densities, higher pitches, diminutions of sound-objects and expansions of instrumental notes, especially with fewer high notes. I became intrigued by the functionality and dissonance of modernism and post-modernism as regards earlier styles like early modernism and late-romanticism with its rounded melodies and leitmotifs. Modernism treated dissonance in an analogous fashion to functioning major and minor modal harmony, for example through chromaticism, serialism and pitch-sets, like Roslavets's synthetic chords or Xenakian outside-time pitch-sets as abstractions that may be used horizontally or vertically in time. This functional harmony extends to both layers, though it was more an extension in the concrète layer. The short altered references used in *Through the Six Worlds* were interesting, and I found this process a good exercise in transcription, ear training, applying Schenkerian reductions and reducing musically into surrounding material creatively. While *Tadvanalila* uses recurring variants of motifs, *Tadvanalila, Part II* uses film music style lieitmotif structures, and the tone poem *A Desolate Market* uses more classical angular melodies contrasted with fuzzy impressionistic harmony and rising and falling piano lines superseding melody towards the end-section, where stable modernist dissonance results in cut-up post-modernism with repeating motifs. In *The Broken Oracle* the melodies are emotionally saturated amongst impressionistic, classical and modern characteristics and the motifs are always changing with only one main motif that repeats in *Part 1* and heard only at the beginning of *Part II*. However, in these fleeting sections there is musical repetition and variation, though it is more confined within sections. In *The Broken Oracle* there are no cuts per se because they happen relentlessly, and the whole piece cycles quickly between varying themes and modulation. The instrumental arrangement is clear in *The Broken Oracle, Part I* and the sound-objects are arranged to embellish and give slight anticipations and recapitulations, and I explored broken whole tone scales amidst dissonance. At this point I was using many of the devices I had honed in *Tadvanalila* and *A Desolate Market* like mismatch negativity (MMN) which I used in *The Broken Oracle, Part II*, as well as tonal banding, low sustained instrumental notes with higher pitch and denser sound-objects, rolling of dice to remove the artists hand somewhat, repeating sound-object phrases over new instrumentation and vice-versa, using sound-objects to interject and embellish instrumental consonance and dissonance. I also became more familiar with the ideas of coherence and decoherence and continuity and discontinuity. This can also relate to the thinness or thickness of interpretation of areas, or their ambiguous and precise natures—if areas where thin then determinacy was thin with more qualities evinced in the interpretation or performance, predominantly in the concrète layer in my pieces, and if areas were thick then determinacy was thick in the performance,[348] mainly in the instruments of my works. The interpretive and determinate juxtapose one another, thus interpretively thick would be thin determinacy. For the determinacy and indeterminacy of thick and thin ontologically in these works I would have liked to explore more change, with the sound-object text becoming more precise and the instrumental notation becoming more ambiguous and open to interpretation, thus becoming thicker and thinner, although this does happen to some extent in the sound-object text and this contrasts with instrumental densities. The main reason I did not explore thinner determinacy in the instruments is due to having to create a real performance of it. After completing the works though I realised that I could have had indeterminacy in the instruments and realised them electronically, with the intent to make samples sound like improvising instruments as much as possible. For *The Broken Oracle, Part I* I found that when structural ideas begin to develop they begin to pull the creator in certain directions, so it is not always preferable to adhere to earlier ideas, and a lot of work lies in reflection and continuing to develop subtlety and order, even if seemingly chaotic. In *The Broken Oracle, Part II* I applied some instances of MMN, mismatch negativity, where patterns are broken with out-of-place notes, and I found that this forced me to compose in certain iconoclastic image-breaking ways. There are non-traditional motivic units used to link measures that break with traditional functional harmony, for example throughout *Hell realm (Naraka),* excepting the diatonic motifs, in the piano at bars 14-15 of *Human realm (Manuṣya) part 1*, and also in varied phrases like the jagged lines of bars 237-255 of *Tadvanalila, Part II.*[349] However, the majority of material and motifs in the work exist within cyclic parameters and ostinatos, with interventions and areas of higher dissonance containing more non-traditional motivic units and non-cyclic rhythms. Contrast of mediant relations, synthetic chords, palindromes, outside time structures, tonal banding and coarticulation could produce consistency amongst decoherence, and these techniques came together more clearly in the later works. I would like to have explored rolling dice with regard to the sound-objects more, which I rarely did. I was wary to use mediant chromaticism like Debussy, with repetitive parallel stacking of shifting chords, because I didn't want the material to be too similar and because I would have needed to write more parts—I wanted quite condensed instrumentation to begin with that had potential for expansion later on.

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[345] James J. Gibson, I. Sow, J. M. Oughourlian and Donald Brook, 'On Hallucination and Perception', *Leonardo*, 4/4 (1971), 405-407 (p. 407).

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[346] I view form like intention, where intention exists in the present which destroys or mediates past cumulative intentions, a mediation between how and what.

[347] Eugene Montague, 'The Limits of Logic: Structure and Aesthetics in Xenakis's Herma', <http://www.ex-tempore.org/montague/index.htm>, [accessed 24.08.19].

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[348] Adam Stansbie, 'Through Thick and Thin: The Ontology of Tape Music', J*MM: The Journal of Music and Meaning*, vol. 9 (2010), pp. 67-87 (p. 82).

[349] Joseph N. Straus, 'Recompositions by Schoenberg, Stravinsky, and Webern', *The Musical Quarterly*, 72/3 (1986), 301-328 (p. 317).

Insights, philosophy and influences for Tadvanalila, The Broken Oracle, A Desolate Market and Through the Six Worlds

Besides sound-rows, serialist techniques, synthetic chords, chromatic mediant relations, equality of instruments, and coarticulate sound-objects, other more esoteric ideas influenced me like Kant's ideas of abstract mediations, the Schoenberg-Schenker *θeopeiv* model of 'seeing through', *Anschauung* as a means of seeing beyond sight, *aperçu* (intuitive insight), Keats' negative capability, whereby artistic vision and beauty is sought even during moments of entangled intellectual confusion, rather than philosophical, epistemological, phenomenological, ontological or any other certainty, which extends beyond the sum of predetermined capacities. Schenker and Schoenberg, as anti-theorists, objected to theorising for its own sake, preferring a model of *θeopeiv*, meaning 'to see through' or 'to contemplate', a word-meaning corroborated by Goethe. The base for this was *Anschauung*, a mode of watching not just using the eyes but capacities of spirit, whereby the phenomenon or object can be reconstructed by the spirit. By sustained *Anschauen* an *aperçu* (intuitive insight) or law behind a phenomenon may be evinced or educed.[350] This objection to theorising reminded me of Debussy's stance on not worrying about analysis so much. It reminded me of Edith Stein's notion of empathy—Stein rejected that we know others' states through logical inference and argued we know these things by empathy, an irreducible intentional state where other persons and their mental states are given to us . . . they are not theoretical posits or unobservable entities but are objects similar to perceptions,[351][352] similar to *Anschauung (*seeing beyond sight) and *aperçu* (intuitive insight). Schoenberg guarded this aspect of his composing, which I believe is due to its complex and personal nature, but it is fascinating and got me rolling dice to various methodologies and strategies.[353] However, I feel that analysis, though considered fictive by some, holds an important place for understanding music. I think that all music, stressing the pitch, rhythm and timbral orders, may be viewed as an allegory. They use semiotics, signs and symbols to elicit experiential data that exists in the mind's eye, connoting and denoting general and specific intertexts, while meaning is perhaps pliable and subjective, and is something art plays with and explores. I had been looking at comparative studies of Valentinian gnosticism and Indian classical Sāṃkhya, two systems close to my heart, and yet I also embraced scientific viewpoints as non-absolutes—which hints at post-modernism. I felt that in terms of potentiality of becoming with regard to form, that change and time-patterning are important to apprehend, like immanence, in that the links of becoming are as important as seemingly fixed contrasting things. It is this abstract contrast that we latch onto and apprehend, the ability to apprehend a static score, like text in a novel where all words effect each other. I used the idea of potential of becomingness, of potentiality outside of 'facticity', while writing *Tadvanalila*, where themes are touched on before departing again and hardly graspable. The intangible and undefinable aspects of art are reflected similarly in the *Lankavatara Sutra*, that although knowledge cannot exist without names, samyagjnana (right knowledge) is not found here—it is 'expressionless, unnameable, it is the meaning (artha) not to be grasped by words.'[354][355] It is the non-definable whole of a piece that eludes and confounds its constituent parts, much like Keats's negative capability. Jean Bachelard puts this connection eloquently, touching on the elements of dream within our memories in *The Poetics of Space*, on the life of form and space in architecture within our consciousness, that form can breath winds into other times, within the structures we create and fill our environment with.[356] Composer Wolfgang Rihm, for example, thought that 'Like no other art form, music fights the battle between dispersion and cohesion. Balance may be the result.'[357] While I composed *Hell realm (Naraka)* to depict windows with views into hell realms, mainly based on Vedic and Buddhist scripture, Nono's *Ricorda cosa ti hanno fatto in Auschwitz* deals with its own subject of hell on earth—it is schismatic and fragmented, with fleeting disjunct choral melodies, and it uses untreated, reversed and cut-up instruments in the concrète layer. I first heard it after writing *Hell realm*. For *Hungry ghost realm (Preta)* I wanted to depict liminal spaces between the real and imagined, prose and poetry, machines and the ethereal, the ancient belief that birds are the shamans, the mediumistic psychopomps between worlds,[358] representing the souls of the departed.[359][360][361] A passage from the twelfth-century Ancrene Riwle follows this contemplative vision: 'True anchoresses are called birds because they leave the earth, that is, the love of all worldly things and because of the longing of their hearts they fly upwards towards heaven . . . '[362] Writer Simone Weil similarly thought that 'the image of water is like a cry from our whole being', [363] and the writer Nan Shepherd talks of forces giving rise to form, transcendent and ancient, which I translate into a take on content and form, the intrinsic and extrinsic: 'Mankind is sated with noise; but up here, this naked, this

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[350] Kristof Boucquet, 'Schenker and Schoenberg Revisited', *Revue belge de Musicologie / Belgisch Tijdschrift voor Muziekwetenschap*, 59 (2005), 193-203 (p. 200).

[351] Kris McDaniel, 'Edith Stein: On the Problem of Empathy' (2014), p. 2-3.

[352] Instead of the usual logical deductive means of determining the problem of other minds, where through bodily self-awareness and perception of outward motions of others, it is known that there are other persons other than oneself, it is known that they have various psychological states and experiences, and these things are known through inference since one's own motions are caused by internal states, therefore so must others' motions be caused by their internal states.

[353] Modality, counterpoint, harmony and music theory play a part in musical form that portrays colours that can invoke emotion, and I feel that vibration and rhythm is universal and immanent, as within so without—that internal conscious states can reflect, interpret, absorb, and create and communicate into the environment.

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[354] *The Lankavatara Sutra, A Mahayana Text*, tr. by Daisetz Teitaro Suzuki, (London, 1932), p. 19.

[355] Chapter 44 of *The Yoga Sutras of Patanjali* explains, 'It has been said that all true art is contagion of feeling.'

[356] Gaston Bachelard, *The Poetics of Space*, (Beacon Press: Boston, 1994), ch.2.

[357] Carola Nielinger-Vakil, 'Quiet Revolutions: Hölderlin Fragments by Luigi Nono and Wolfgang Rihm', *Music & Letters*, Vol. 81/2 (May, 2000), pp. 245-274 (p. 259).

[358] An idea also inspired by T. S. Eliot's *Four Quartets*.

[359] Geoff Sample, *Sound I'm Particular: Geoff Sample*, Arts At The Old Fire Station in Oxford, 22 May 2018.

[360] Trained nightingales fetched more money than slaves in ancient Italy, the nightingale's amazing timing lacks rhythm as humans know it, and the marsh warbler's song is made up of mimicry of over 100 other bird songs. Also, the augury of birds was interpreted extremely in Homer.

[361] Interacting with the form the content of electric birdsong and flapping-like sounds could signify flight and emancipation, the shard-like attacks of dissonant sound may signify a senset of breaking out, sublimation or emancipation. From another perspective it may seem that the instrumental section is the form and the acousmatic section is the content, and their interaction may also illicit ideas of meaning though symbolic interaction.

[362] Neville Braybrooke, 'Two Spiritual Heroes of Our Century, Edith Stein: Simone Weil', Studies: An Irish Quarterly Review, 59/234 (1970), 149-154. (p. 149).

[363] Neville Braybrooke, 'Two Spiritual Heroes of Our Century, Edith Stein: Simone Weil', Studies: An Irish Quarterly Review, 59/234 (1970), 149-154. (p. 151).

elemental savagery, this infinitesimal cross-section of sound, from the energies that have been at work for aeons in the universe, exhilarates rather than destroys.'[364] I was inspired by the birds in T. S. Eliot's *Four Quartets* that appear and guide the character through shifts in time. Wittgenstein said, 'the limits of my language are the limits of my world', and I can't help but think of the spaces between words of any language, even a musical one. The critique of language was philosophically essential to Viennese modernism and Schoenberg later decided to do away with traditional musical rhetoric.[365] I wanted *Tadvanaila* to be about getting away from meaning, although it uses musical meaning-building and narrative to attempt this.[366] I felt that negative dialectics was both right and wrong, and that it could be a tool of balance for the observer. In *A Desolate Market* I was seeking tranquility within sections of change and stasis. The Lieh-tzu text from the 4th century BC states, 'The perfect discourse is wordless, the perfect act is not to act', and Barthes stated, 'We must above all aim at fissuring the meaning system itself . . .'[367][368] Due to composers like Xenakis we realise the fallacy of any single, optimal, concept for musical design, and materials may have multiple uses and implications in a work.[369] A plurality or multiplicity of perspectives is distinctly post-modern—we learn to distrust any sense of coherent unity formed through our reductive perceptions, and begin to accept the contradictions of existence. The poet William Carlos Williams wrote, 'by multiplication a reduction to one.'[370] Composers that influenced the work included Otto Luening and Vladimir Ussachevsky for their rare orchestral tape music, Ravel for his extreme delicate compactness, Delia Derbyshire for early experimentalism in sound, and Barnard Parmegiani for acousmatic subtlety and clarity. I was inspired by aniconic grecque design that is non-representational and without meaning, which I thought was similar to Kant's notion of meaningless pastoral design and aural wallpapers.[371][372] Natasha Barrett talks about ways of segmenting data into smaller bits,[373] something I felt can be overlooked often in reduced listening, like reduction or stochastics. Barrett's use of coarticulation, where information units are smeared together to create a whole,[374] is another concept that I felt was important, especially regarding temporal relations of context that form perceived musical meaning. It is the subtle similarities and changes that make music.

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[364] Nan Shepherd, *The Living Mountain*, (Edinburgh: Canongate, 2011), p. 97.

[365] Allegrofilms, The Language Of The New Music - Documentary about Wittgenstein and Schoenberg, 1985, online video recording, YouTube,, 25 August 2016 <https://www.youtube.com/watch?v=DRI_ZSh6iF4> [19.12.17].

[366] Padmasambhava thought that one should cultivate detachment from the desire to name things. If we think of 20th century critical theory and negative dialectical shifts away from 'facticity' or the Buddha's assertion in neither existence or non-existence, neither perception or non-perception, neither god or no god, then we see art's unique place as an expressive form. I interpret 'meaning' as conscious interpretation of temporal forms or order.

[367] Larry Sitsky, Music of the Twentieth-Century Avant-Garde, Biocritical Sourcebook (Santa Barbara, California: ABC-CLIO, 2002), p. 440.

[368] In the end I thought that it was not about a balance between order and chaos, that there could be meta or para-qualities beyond these concepts which would tie in with postmodernism . . . .that the inspiration could be anything, any language or viewpoint, to spark musical analogy . . . that order and non-orders may be used as descriptions.

[369] Thomas DeLio, 'Xenakis's, *Perspectives of New Music*, 39/1 (2001), 231-243 (p. 233).

[370] Thomas DeLio, 'Xenakis's, *Perspectives of New Music*, 39/1 (2001), 231-243 (p. 234).

[371] Rodney Stenning Edgecombe, 'Some instances of 'ornithomorphism' in 18th- and 19th-century music', *The Musical Times*, 152/1915 (2011), 71-94 (p. 73).

[372] For Kant, birdsong was below art.

[373] Ccrmalite1, *Natasha Barrett - Spatial Sonification of Performance Gestures*, online video recording, YouTube, 4 May 2017, <https://www.youtube.com/watch?v=bEkDTrQznBI> [accessed 07.11.18].

[374] Ccrmalite1, *Natasha Barrett - Spatial Sonification of Performance Gestures*, online video recording, YouTube, 4 May 2017, <https://www.youtube.com/watch?v=bEkDTrQznBI> [accessed 07.11.18].

List of samples considered or used

Hungry ghost realm (Preta). Hungry ghost realm (Preta)(prologue)

Claude Debussy, *Danses (Danse sacrée et danse profane)* 2'32.19 – 2'44.18;[375] *Le sommeil de Lear 0'02.06 – 0'25.13 ;[376] Fanfare d'ouverture 0'43.70 – 0'51.51 [1], 0'50.49 – 0'58.02 [2];[377] Clair de lune* [stark contrast of long phrases interrupted with short rhythmic attack phrases; static and shock from outside; could use slowed down harmonic fragments];[378] *Le Mer* 19'23-19'51*;[379] Préludes (complete 24) - Claude Debussy - Krystian Zimerman* 19'26-19'55;[380] *Suite Bergamasque* 1'58.44 – 2'07.01 [1], 2'25.63 – 2'27.33 [2], 4'05.16 – 4'08.16 [3], 15'18.47 – 15'22.78 [4]; *Première rhapsodie* 1'25.47 – 1'36.73.[381]

Maurice Ravel, *Si morne!* 0'31.19 – 0'44.20 [1] 2'02.93 – 2'15.24 [2] 2'16.57 – 2'27.93 [3] 2'32.45 – 2'36.89 [4]; *Sainte* 0'04.83 – 0'17.03 [1] 0'16.98 – 0'32.18 [2];[382] *Ballade de la Reine Morte d'Aimer* 0'21.55 – 0'34.14 [1], 3'22.34 – 3'36.95 [2];[383] *Miroirs*, *Piano Trio in A Minor, Daphnis et Chloé* 3'59-5'07*;[384] Menuet Antique* 3'09-3'33;[385] *Manteau des Fleurs* 2'40.55 - 2'51.05, 2'51.05 – 2'56.35;[386] *String Quartet in F, Allegro Moderato. Très Doux* and *Assez Vif, Très Rhythmé - Lent - Tempo I;[387] String Quartet in F Major* 13'16-13'26.

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[375] Musicanth, *Debussy - Danse sacrée et danse profane, for harp and strings (1904)*, online video recording, YouTube, 21 May 2012, <https://www.youtube.com/watch?v=rMRzGjqXChs> [accessed 24.02.17].

[376] Claude Debussy, *Le sommeil de Lear, BBC Music, Debussy La Mer, King Lear, Children's Corner, Premiére rapsodie, Six épisgraphes antiques*, BBC National Orchestra of Wales / Tadaaki Otaka, (BBC MM209, 2001).

[377] Claude Debussy, *Fanfare d'ouverture, BBC Music, Debussy La Mer, King Lear, Children's Corner, Premiére rapsodie, Six épisgraphes antiques*, BBC National Orchestra of Wales / Tadaaki Otaka, (BBC MM209, 2001).

[378] Timothy B. Cochran , '"The Pebble in the Water": Messiaen, Debussy and the Meaning of Rhythmic Contrast', *The Journal of Musicology*, 31/4 (2014), 503-540 (p. 503).

[379] The reference I provided in *Clare de lune* is too well known and I will reference more obscure sections of other works.

[380] Claude Debussy,, *Préludes (complete 24) - Claude Debussy - Krystian Zimerman,* online video recording, YouTube, 19 May 2013, <https://www.youtube.com/watch?v=q4q5769HWCI> [accessed 06.01.17].

[381] CBC Music, Claude Debussy: Première rhapsodie. Eric Abramovitz, clarinet, online video recording, YouTube, 8 March 2003, <https://www.youtube.com/watch?v=rO5PxbbB1Rk> [accessed 24.02.17].

[382] Mourice Ravel, *Ravel: Mélodies*, Orchestre du Capitole de Toulouse and Ensemble de Chambres de l'Orchestre de Parls/Michel Plasson (EMI, 1984).

[383] BEST OF CLASSICAL MUSIC, *Ravel - BALLADE DE LA REINE MORTE D`AIMER*, online video recording, YouTube, 24 December 2016, <https://www.youtube.com/watch?v=MTceaEzIPdY> [accessed 24.02.17].

[384] Alejandro Vidal, Daphnis et Chloé - Ravel – Dutoit, online video recording, YouTube, 6 October 2012, <https://www.youtube.com/watch?v=YHrstmOPKBQ> [accessed 08.01.17].

[385] P elodelperro, *Maurice Ravel - Menuet antique*, online video recording, YouTube, 4 October 2013, <https://www.youtube.com/watch?v=l9ziwd9q9E0> [accessed 15.01.17].

[386] Nadia Zanotello, *Nádia Zanotello - Manteau des Fleurs – Ravel*, online video recording, YouTuibe, 11 September 2014, <https://www.youtube.com/watch?v=aOxZGcu8V9s> [accessed 08.03.17].

[387] Mourice Rave, Debussy* • Ravel* • Quartetto Italiano – String Quartet In G Minor • String Quartet In F Major, Quartetto Italiano (Philips – SAL 3643, Philips – 835 361, 1975).

Bernard Parmegiani Lumière noire (edited);[388] *Premiers signes 1'06.87 – 1'48.04;*[389] *Jazzex 0'04.41 - 0'15.02 [1], 0'42.16 – 0'52.79 [2], 6'16.92 – 6'34.06 [3 (stretched)], 10'10.66 – 10'21.95 [4];*[390] *Faire 0'57.78 – 1'10.95;*[391] *Outremer;*[392] *Accidents/Harmoniques;*[393] *Violostries : Jeu De Cellules;*[394] *Immer/sound;*[395] *Outremmer [intro];*[396] *L'instant mobile;*[397] *Lointain-proche 3'10.17 – 3'15.66 [1] 2'47.84 – 2'54.89 [2];*[398] *Kaléidoscope II* 3'15.63 – 4'16.03;[399] *De Natura Sonorum 0'41.20 – 1'01.31 [1], 1'35.35 – 1'44.67 [2];*[400] *L'écran transparent at about 7:39-8:39 (heavy reverberation for blurring effect).*[401]

Animal realm (Tiryagyoni). Animal realm (Tiryagyoni)

List of samples considered or used:

Arnold Schoenberg, (1908) *String Quartet N.o. 2, Op. 10 , Op. 10* 4'14.41 – 4'20.15 [1], 5'24.28 – 5'31.81 [2]. 7'40.07 - 7'46.65 [3], 10'58.16 - 11'05.47 [4], 13'14.36 – 13'19.58 [5], 14'40.25 – 14'51.59 [6], 17'37.70 – 17'47.99 [7], 19'42.72 – 19'49.98 [8], 21'01.79 – 21'17.42 [9], 21'38.34 – 21'53.28 [10], 27'41.18 – 27'47.66 [11], 28'40.38 – 28'59.55 [12]*; Chamber Symphony No. 1* 2'33 – 2'44 [1], 2'58.99 – 3'33 Du [2], 12'29.59 – 12'45.94 [3C], 12'57.77 – 13'13.03 [4], 13'27.13 – 13'38.97 [5], 14'22.09 – 14'43.52 [6]*),* 17'12.05 – 17'17.27 [7], 20'45.00 – 21'11.72 [8], *Tot Opus 48 n 2* 0'00.00 – 0'25.21;[402] *Four Pieces for Mixed Chorus,*

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[388] Sebastian H. M. Murdock, *Bernard Parmegiani - La création du monde - 1 Lumière noire (edited)*, online video recording, YoutTube, 20 April 2015 <https://www.youtube.com/watch?v=nLkBbbCZMx0> [accessed 06.10.17].

[389] Bernard Parmegiani, *Rouge-Mort : Thanatos, Exercisme 3, Le Présent composé,* (INA/GRM, C 1013, 1997).

[390] Wellesz Theatre., *Bernard Parmegiani: Jazzex (1966)*, online video recording, YouTube, 3 June 2012, <https://www.youtube.com/watch?v=R70XhXyDDuY> [accessed 05.04.17].

[391] Bernard Parmegiani, *Violostries, Pour en finir avec le pouvoir d'Orphée, Dedans-dehors*, (INA/GRM, C 1012, 1997).

[392] TrilobiteJuice, *Bernard Parmegiani – Outremer*, online video recording, YouTube, 30 December 2011, <https://www.youtube.com/watch?v=5GPWUuWtLUE> [accessed 24.03.17].

[393] GiovanniTancrediChannel, *Bernard Parmegiani – Accidents/Harmoniques*, online video recordings, YouTube, 21 January 2015, <https://www.youtube.com/watch?v=7xQ207EBXH4&list=PLktttlchkNKEx04ggs2D38hzI6_LVzXz6> [accessed 31.03.17].

[394] Guru Langmanstein, *Aisha Orazbayeva at V22, Bernard Parmegiani Violostries : Jeu De Cellules*, online video recording, YouTube, February 7 2013, <https://www.youtube.com/watch?v=8f2-XhNGgd0> [accesed 31.03.17].

[395] Minima Moralia, Bernard Parmegiani – Immer/sound, online video recording, YouTube, 1 September 2016, <https://www.youtube.com/watch?v=M3OO9duLweI> [accessed 05.04.17].

[396] TrilobiteJuice, *Bernard Parmegiani – Outremer*, online video recording, YouTube, 30 December 2011, <https://www.youtube.com/watch?v=5GPWUuWtLUE> [accessed 05.04.17].

[397] Gaduamar, *Bernard Parmegiani - L'instant mobile*, online video recording, YouTube, March 20 2012, <https://www.youtube.com/watch?v=x7Y16s0zDvM> [accessed 31.03.17].

[398] Bernard Parmegiani, Violostries, Pour en finir avec le pouvoir d'Orphée, Dedans-dehors, (INA/GRM, C 1012, 1997).

[399] Bernard Parmegiani, Violostries, Pour en finir avec le pouvoir d'Orphée, Dedans-dehors, (INA/GRM, C 1012, 1997).

[400] Wellesz Theatre., *Bernard Parmegiani: De Natura Sonorum (1975)*, online video recording, YouTube, 3 June 2012, <https://www.youtube.com/watch?v=c_JHjUFfOs8> [accessed 24.03.17].

[401] Grigoriy Belov , L'écran transparent-The Transparent Screen video by Bernard Parmegiani 1973, online video recording, YouTube, October 22 2009, <https://www.youtube.com/watch?v=HgwQn0O1-QU> [accessed 31.03.17].

[402] Wolfgang Cage, *Arnold Schoenberg - Tot - Opus 48 n. 2*, online video recording, YouTube, 26 January 2013,

Op. 27 7'00.36 – 7'24.97.[403]

Ruth Crawford Seeger, *Preludes (1924-1928), No.6-7* 0'00-0'09;[404] *Five Songs - Home Thoughts, White Moon, Joy, Loam and Sunsets;*[405] *The Music for Small Orchestra* 0'50.57 – 1'23.64, 7'33.17 - ~7'54 and 8'34.35 – 8'42.27.[406]

Ernst Krenek, *Dream Sequence op.224* 0'00 – 0'14l;[407] *Wechselrahmen, op.189* 14'34.89 – 14'50.49 [1], 2'14.95 – 2'23.07 [2], 5'05.42 – 5'13.10 [3], 2'14.50 – 2'23.49 [4], 13'55.55 – 14'00.44 [5]*; Piano Sonata* No.2 (1928) 4'52.52 – 5'00.04 [1], 6'10.42 – 6'26.22 [2], 14'48.58 – 14'57.39.

Karlheinz Stockhausen, *Kathinkas Gesang als Luzifers Requiem.*[408]

Alfred *Schnittke - Concerto Grosso No. 1;*[409] *Serenade; Piano Quintet* (1976).

Otto Luening's *Concerted Piece for Tape Recorder and Orchestra,* 4'05.70 – 4'54.44.[410]

Human realm (Manuṣya) part 1

Nikolai Roslavets, *In the hours of the New Moon*, 6'36.12 – 6'46.05; 3'48.62 – 4'10.57; 9'58.44 – 10'11.82; 11'08.40 – 11'22.66; 12'27.13 – 12'53.46;[411] *Trois danses/Three dances; Nocturne*;[412] *Three Dances for*

<https://www.youtube.com/watch?v=Z9zzSaci91k> [accessed 08.09.17].

[403] Silicua hibrido, *Arnold Schoenberg 4 Pieces, for chorus and ensemble, Op.27*, online video recording, YouTube, 12 October 2015, <https://www.youtube.com/watch?v=uCvZsCz3OU4> [accessed 08.09.17].

[404] TheWelleszCompany, *Ruth Crawford Seeger: Preludes (1924-1928) No.6-7* [*Andante Mystico*], online video recording, YouTibe, 6 January 2011, <https://www.youtube.com/watch?v=lKGjhE1AUig> [accessed 16.01.17].

[405] PlaygroundEnsemble, *from Five Songs (Ruth Crawford Seeger) - The Playground Ensemble*, online video recording, YouTube, <https://www.youtube.com/watch?v=SfjrDPR4lnw> [accessed 16.01.17].

[406] Sussurrando1, *Ruth Crawford Seeger - The music for small Orchestra*, online video recording, YouTube, 30 March 2011, <https://www.youtube.com/watch?v=qVwhEC4BKPQ> [accessed 16.01.17].

[407] TheWelleszCompany, *Ernst Krenek: Dream Sequence op.224* (1975/1976), online video recording, YouTube, 3 June 2011, <https://www.youtube.com/watch?v=V-4IhhWYejU> [accessed 21.01.17].

[408] Victor Alexander, *Karlheinz Stockhausen - Kathinkas Gesang als Luzifers Requiem*, online video recording, YouTube, 22 August 2012, <https://www.youtube.com/watch?v=__b-ML9foGc> [accessed 26.06.17].

[409] Olla-vogala, *Alfred Schnittke - Concerto Grosso No. 1*, online video recording, YouTube, 1 December 2015, <https://www.youtube.com/watch?v=yaaRk0c-780> [accessed 26.06.17].

[410] ARCHIVOS BOESMI - ARTE Y CULTURA, CONCERTED PIECE FOR TAPE RECORDER & ORCHESTRA - LEONARD BERNSTEIN & NEW YORK PHILARMONIC – 1960, YouTube, 25 April 2017, <https://www.youtube.com/watch?v=WiJzC9Jnn-4> [accessed 29.10.17].

[411] Adgo2, *Nikolai Roslavets - In the hours of the New Moon - live 2011*, online video recording, YouTube, 20 January 2017, <https://www.youtube.com/watch?v=PDaA9Mz_diY> [accessed 11.08.17].

[412] MUSIC?, *Nikolai Roslavets ~ Nocturne*, YouTube, 14 November 2016, <https://www.youtube.com/watch?v=0KUWQW2khZQ> [accessed 28.11.17].

Violin and Piano 0'05.00 – 0'31.00;[413] *5 Preludes*;[414] 3 *Etudes*;[415] *Piano Sonata no.2*;[416] *Meditation for cello and piano*;[417] *String Quartet No 3*;[418] *String Quartet No 1*;[419] *Chamber Symphony No. 1.*[420]

Vladimir Ussachevsky and Otto Leuning *Rhapsodic Variations for Tape Recorder and Orchestra* 4'24.02 – 4'54.43*;*[421] Otto Luening & Vladimir Ussachevsky, *Tape Recorder Music* 7'25.44 – 7'49.00;[422] Vladimir Ussachevsky *Sonic Contours*;[423] *Suite from "No exit".*[424]

Igor Stravinsky, *The Rite of Spring*, 5'28, 9'03, 15'55, *Petrushka*; *Cadenza Finala* from *Serenade in A*; 9:36 (bitonality,[425] octatonics).

John Barry, *The Beyondness of Things* 0'20.74 – 0'33.91.[426]

Human realm (Manuṣya) part 2

Luigi Nono, *Prometeo Suite;*[427] *La Victoire de Guernica* 1'39.87 – 1'57.94;[428] *Intolleranza 1960* 2'08.84 – 2'30.99, 16'46.40 - 17'17.74;[429] *La Lontananza Nostalgica Utopica Futura* 3'05.73 – 3'23.18 [1], 14'02.76 –

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[413] George N. *Gianopoulos, Nikolai Roslavets - Three Dances for Violin and Piano (1921-23) [Score-Video]*, online video recording, YouTube, 1 April 2016, <https://www.youtube.com/watch?v=BsoLttWixvk> [accessed 01.11.17].

[414] Medtnaculus, *Nikolai Roslavets – 5 Preludes*, online video recording, YouTube, 28 January 2016, <https://www.youtube.com/watch?v=qJlxl8Dpbp0> [accessed 28.11.17].

[415] Medtnaculus, *Nikolai Roslavets – 3 Etudes*, online video recording, YouTube, 3 November 2016, <https://www.youtube.com/watch?v=GlpxNRipo_Q> [accessed 28.11.17].

[416] Amphora Rope, *Roslavets - Piano Sonata no.2*, YouTube, 8 January 2017, <https://www.youtube.com/watch?v=lhi-ktxHcJU> [accessed 28.11.17].

[417] Thenameisgsarci, *Nikolai Roslavets - Meditation for cello and piano (audio + sheet music)*, online video recording, YouTube, 28 January 2016, <https://www.youtube.com/watch?v=o4y2iJJQfXI> [accessed 28.11.17].

[418] Russian classical music composers, *Nikolai Roslavets - String Quartet No 3 1920*, online video recording, YouTube, 3 July 2016, <https://www.youtube.com/watch?v=YkFV62iloJY> [accessed 28.11.17].

[419] Russian classical music composers, *Nikolai Roslavets - String Quartet No 1*, online video recording, YouTube, 3 July 2016, <https://www.youtube.com/watch?v=j7APzDcaUOo> [accessed 28.11.17].

[420] Nini Hampo, Nikolai Roslavets "Chamber Symphony No.1", online video recording, YouTube, 23 September 2016, <https://www.youtube.com/watch?v=zyB01jPpE7w> [accessed 28.11.17].

[421] Robt0007, Luening-Ussachevsky: Rhapsodic Variations for Tape Recorder and Orchestra (1954), online video recording, YouTube, <https://www.youtube.com/watch?v=HHvlnR8fLWY> [accessed 18.12.17].

[422] Hieronymus Bosch, *Otto Luening & Vladimir Ussachevsky - Tape Recorder Music (1955)*, online video recording, YouTube, 3 May 2016 <https://www.youtube.com/watch?v=FM9uE-xuFHo> [accessed 19.12.17].

[423] Ussachevsky, *Sonic Contours* on *Otto Luening / Vladimir Ussachevsky – Tape Recorder Music*, (1955) (Cat# 7CACKLP).

[424] TheWelleszCompany, Vladimir Ussachevsky: Suite from "No exit" (1962), online video recording, YouTube, 3 June 2012, <https://www.youtube.com/watch?v=kSdLffy6TqE> [01.11.17].

[425] Bitonality and polytonality may be used, and Lithuanian sutartinės, bitonal chanting, may be considered.

[426] Kgtkbj, john barry: 'the beyondness of things' (1998), online video recording, YouTube, 15 November 2016, <https://www.youtube.com/watch?v=wDq-jpTHnbE> [accessed 06.12.17].

[427] bebe tea, *Luigi Nono, Prometheus Suite, Abbado, Luzerun*, online video recording, YouTube, 29 August 2015, <https://www.youtube.com/watch?v=5n-JuMnzVgA> [accessed 25.12.17].

[428] LeCap, *Luigi Nono: La Victoire de Guernica (1954)*, online video recording, YouTube, 25 April 2014, <https://www.youtube.com/watch?v=vg86DTpeso0> [05.01.2018].

[429] Alejandro Vidal, *Luigi Nono: Intolleranza 1960*, online video recording, YouTube, 23 September 2014,

14'20.74 [2], 15'08.30 – 15'21 [3], 17'05.07 – 17'15.63 [4], 17'55.78 – 18'09.57 [5], 20'22.45 – 20'36.09 [6];[430] *Das atmende Klarsein* 18'22.50 – 18'47.26;[431] *Omaggio a Emilio Vedova.*[432]

Claude Debussy, Trois Nocturnes 16.05–. [433]

Ligeti *Apparitions* 1'04.81 – 1'15.96.

Luciano Berio *Thema (Omaggio a Joyce);*Scelsi, Italy, 1939, *Piano Sonata No. 3: I Lento, rubato*; 1958 *Tre Canti Sacri*; *Aion* 0'00 – 7'42.[434]

Morricone, Italy, 1988 *Secret of the Sahara, Pt. 1 & 3; Love Theme for Nata (From "Cinema Paradiso")* 2'39 – 6'46*; Silvie - Momento d'Amore (From "Via Mala")* 19'45 – 23'13; *Ninna Nanna per Adulteri (From "Cuore di Mamma")* 16'41 – 19'44.[435]

Hell realm (Naraka)

Iannis Xenakis, Track 2;[436] Track 5;[437] *Desintegrations*;[438] *Analogique A Et B;*[439] *Pour la paix;*[440] *La* Légende d'Eer;[441] *Persepolis*;[442] Bohor;[443]; *Achorripsis*; *Diamorphoses*.

<https://www.youtube.com/watch?v=65QPTF5npwQ> [05.01.2018].

[430] TheWelleszCompany, Luigi Nono: La Lontananza Nostalgica Utopica Futura (1988-1989), online video recording, YouTube, 1 February 2011, <https://www.youtube.com/watch?v=X-CKVm8MXxU> [09.01.2018].

[431] MUSIC?, Luigi Nono ~ Das atmende Klarsein, online video recording, YouTube, 27 October 2014, <https://www.youtube.com/watch?v=nV5IE0FBmmM> [10.01.2018].

[432] Luigi Nono, *Complete works for solo tape* (Stradivarius STR57001,2006).

[433] Medtnaculus, Claude Debussy – Trois Nocturnes, online video recording, YouTube, <https://www.youtube.com/watch?v=spXwXLqFLvs> [accessed 04.01.18].

[434] Belanna000, *Giacinto Scelsi - Aion (for orchestra) (1961)*, online video recording, YouTube, 27 April 2014, <https://www.youtube.com/watch?v=Yi5kbDJDZDQ> [01.02.17].

[435] EnnioMorriconeVEVO, *Love Songs Ennio Morricone - Love Music Collection (High Quality Audio) HD*, online video recording, YouTube, 21 July 2016, <https://www.youtube.com/watch?v=NCVyBc7wDWg> [accessed 01.02.17].

[436] Iannis Xenakis, Track 2; CD 2, *Chamber Music 1955-1990*, Claude Heffer, Arditti String Quartete (Montaigne WDRs, 1991).

[437] Iannis Xenakis, Track 5; CD 2, *Chamber Music 1955-1990*, Claude Heffer, Arditti String Quartete (Montaigne WDRs, 1991).

[438] Belanna000, *Tristan Murail - Desintegrations (w/ score) (for 17 instruments and electronic sounds) (1982)*, online video recording, 3 August 2015, <https://www.youtube.com/watch?v=yLYx31ltmlo> [07.03.18].

[439] Vws Vas, Iannis Xenakis-Analogique A Et b.(1958-59) HD, online video recording, YouTube, 17 September 2017, <https://www.youtube.com/watch?v=n2ZEp1pxAOw> [10.03.18].

[440] Ariel González Losada, *Iannis Xenakis - Pour la paix - 1981 / Narrator live + Tape (Choir and UPIC)*, online video recording, YouTube, 18 July 2014, <https://www.youtube.com/watch?v=AKflilo45tk> [accessed 10.04.18].

[441] PolymediaTV, *Iannis XENAKIS -- La Légende d'Eer*, online video recording, YouTube, 14 February 2016, <https://www.youtube.com/watch?v=TNWFITZrvxo> [accessed 22.04.18].

[442] Polyphonie X, *Iannis Xenakis – Persepolis*, online video recording, YouTube, 1 December 2014, <https://www.youtube.com/watch?v=S-GEbbgT5Io> [accessed 07.11.17]. online video recording, YouTube, 4 July 2015 , <https://www.youtube.com/watch?v=-wo8LeaUK94> [accessed 28.10.17].

[443] Pelodelperro, *Iannis Xenakis - Bohor (1/2)*, online video recording, YouTube, 4 July 2015 ,

Luigi Nono, *Ricorda cosa ti hanno fatto in Auschwitz*.[444]

Nikolai Roslavets *3 Etudes*.

Claude Debbusy *Trois Nocturnes*.

Demi-god realm (Asura)

Roslavets's *5 Preludes* at bars 9-10.

Debussy's *Nuages* at bars 14-16, 15-16, 21-24 , 27, 43 and 48.

Natasha Barrett, *Submerged*;[445] Delia Derbyshire, *Pot Au Feu*.

Vangelis, *Le Singe Bleu*, from *L'Apocalypse des Animaux* 0'52.38 – 1'18.97.[446]

God realm (Deva) part 1

Natasha Barrett, *Submerged*.

Aronold Schoenberg, *Litanei*, the third movement of *String Quartet No. 2*.

Nikolai Roslavets, 5 *Preludes*.

Claude Debussy, *Nuages.*

God realm (Deva) part 2

Iannis Xenakis, *Pour la paix*

<https://www.youtube.com/watch?v=-wo8LeaUK94> [accessed 28.10.17].

[444] TheWelleszCompany, *Luigi Nono: Ricorda cosa ti hanno fatto in Auschwitz (1966)*, online video recording, YouTube, 26 August 2011, <https://www.youtube.com/watch?v=-z-IUbwaMC0> [acceessed 24.06.18]/

[445] IGNACIBILIS, *Natasha Barrett – Submerged*, online video recording, YouTube, 17 April 2017, <https://www.youtube.com/watch?v=SFXcu2XfPDg> [accessed 02.12.17].

[446] Alfonso Gutiérrez, Vangelis - L'Apocalypse des Animaux (FULL ALBUM), online video recording, YouTube, 4 July 2015 , <https://www.youtube.com/watch?v=IcosNfFsHQk> [accessed 15.02.17].

Luigi Nono, *Intolleranza 1960*

Nikolai Roslavets, *5 Preludes*

Tadvanalila, Part I

La Lontananza, *Intolleranza 1950* ref 2
Sring Quartet No. 2 mov III b. 50-51 ref

Tadvanalila, Part II

no references

Tadvanalila, Part III

no references

Amounts of musical diegesis between an acousmatic and notational part in music for orchestra and tape: dialogical amount, dialogical timing, dialogical transformation and dialogical cohesion.

#	Track	Diegesis, mixture or interaction (between acousmatic/notational) (rhythmic or pitch)	Complexity (timings) (between acousmatic/notational) Rhythmic variety or synchronicity	Transformational amounts (within acousmatic/notational or between)	Notes	concrète layer takes strong narrative	Amount of sound-objects	Other comments (all tracks try to utilise meditative qualities)
1	*Hungry ghost realm (Preta)*	Very low diegesis	Low to average	Low transformational amount	Aousmatics swirl around steady-like, repeating notational; lathargic ostinato	Low acousmatic narrative	low	Acousmatic and notation are almost separate entities; acousmatic is whisp-like, notation is cyclic and flowing.
2	*Animal realm (Tiryagyoni)*	Medium diegesis	High to very high complexity	Low-medium transformational amount	Medium tempo instrumental contrasts medium sound-object complexity, low at times	Lower medium acousmatic narrative mainly complementary	High	Alienation is explored through atonality compounded with diatonicism and an concrète layer that is surreal and otherwordly. Some parataxis of block sections.
3	*Human realm (Manusya) part 1*	Low - medium diegesis	Low to high shifting complexity	Medium transformational amount	Low density of sound-objects contrasting thicker instrumental passages	Medium acousmatic narrative with some foregrounding	Low	Pitch and timbre are blurred between the acousmatic and notational at times; note clusters end where acousmatics pick up and vice-versa. Long acousmatic silences explored

4	*Human realm (Manuṣya) part 2*	High diegesis	Medium-high complexity	High transformtional amount (needs work)	Dense sound-object layers contrast dense instrumental passages	High acousmatic foregrounding with shifting into background at times	Medium	A focus on pitch and timbre contrast. Parataxis of block sections with emphasis on sound-objects.
5	*Hell realm (Naraka)*	Uniformity of shifting diegesis and Radical shifting from high to low diegesis; subtext; continuity and discontinuity; High to Very high diegesis of layers	Antiphoal, with silences	medium-high transformations	At times only one instrument taking the lead with longer notes over block sections of sound, and low to medium acousmatics playing through instrumental phrases	To be confirmed	Low to high	Notes used more like a rhythm, and acousmatic seems antiphonal Long antiphonal solo segments of contrasting sound-object phrases to instrumental phrases; Acousmatic and notational seem and feel very separate, like *Hungry ghost realm (Preta)* with intersections related to narrative cutting
6	*Demi-god realm (Asura)*	Less harmonizing of acousmatic dialogic than the others	Semi-antiphonal , with note knock-outs	Medium transformational amount	Traditional-type melody contrasts various forms experimentally and narratively	Medium acousmatic narrative with shifting between foreground and background, with solo sections	Medium	Contrast and comparison of barren or void and plenum; antiphony is explore between these states—more emptiness
7	*God realm (Deva) part 1*	Low to high variance/shifting, with silence between the two at times	Simple	Low-medium transformations	Weaving sounds and melodies, longer notes and silences, sweeping pastoral feel	Medium acousmatic narrative	Low	idea of weaving sounds and melodies;
8	*God realm (Deva) part 2*	Low to medium dialogical amount	Medium to high complexity, with fast code-like silences as rhythms embedded in acousmatics	Low to medium transformations	More traditional instrumental blocks are temporaly cut in parataxis, contrasting low to medium recapitulated concrète and instrumental themes	Low to medium acousmatic narrative, with shifting into low narrative acousmatic phrases	Medium	Two previously composed pieces are merged; Quick, precise and condensed, many slivers of silences

Concepts: older, newer and not tried—used to create connection, cohesion and dialogical fabric

Older concepts and materials (post late 20s German sound-film or post late-40s start of acousmatic form of electroacoustic tape music)[447][448]	**Newer concepts and material (post 70s including the most recent)**	**Never tried?**
Acousmatic music with sections of music as samples (e.g. Chion's work); orchestral or other musics that are separate sections from the acousmatic sections with some blended transitions	A range of recorded sounds, transformations of those sounds, and unfolding organic form from the transformation process.[449]	Anything that creates parataxis, hypotaxis, sustained structure, order, musical diegesis and musical dialogue between an concrète layer and a notated music part in a sustained manner throughout a piece (not just fleeting, non-focused, moments as in cinematic effects)

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[447] Thomas Patteson, '“Sonic Handwriting”: Media Instruments and Musical Inscription', in *Instruments for New Music*, (California, University of California Press, 2016), 82-113 (p. 104-106).

[448] Jesse Shapins, 'Walter Ruttann's Weekend: Sound, Sense and the Multiple Senses of an Urban Documentary Imagination', (2008), 1-28 (p. 2).

[449] Adam Stanovic (Stansbie), 'The Mythological Method::reconsidering compositional practice in acousmatic music, Presented at the Sixth International Symposium on Music and Sonic Art: practices and theories (MuSA 2015)', <http://www.academia.edu/14758107/The_Mythological_Method_reconsidering_compositional_practice_in_acousmatic_music> [accessed 20.04.17].

Blended transition types of acousmatic to musical sections (fades or volume crossings, fleeting moments of sound over music without sustained processes over time that create focused dialogic between the tracks at length)	Notes that break apart into multispectral sonic material. One example is Wishart's *Red Bird,* swatting a fly transfigures to a door with other interdependent transformations (transfiguring) and source meaning recognition experimentation)	Any processes or effecting that highlights the nature, musical dialogue and contrast of dual-acousmatic/art music (combination acousmatic art music.)
Artistic expression through the sound medium that is not limited to instrumental and vocal music, experimenting with new mediums of technology and manipulation of sonic materiial and experimentation.	Pitch material that is embedded within experimental acousmatic sound art, but not distinctly of a separate musical idiomatic field. Sound leading into a defined pitch or pitch breaking apart into multispectral timbre, for exmple in Parmegiani's work *Incidences/Resonances*.[450]	Pitch breaking apart into a multispectral timbre while the backing sonic material leads into a defined pitch, or some similar form of dialogical shifting of pitch and sonic material that is structured and contrasting for dual layered combination acousmatic art music.
May be narrative and musical.	Sonic and metaphoric allegory.[451]	Aggregates of unions and intersections of sound-objects, or sieve theory for sound-objects?
Schaeffer's reduced listening as sound description that strips away meaning from sound-objects.	Post-modern perspective of sound sources linked to spaces.[452]	Creation of overlap and musical diegesis between sonic art and notational art music.
	Whilst the source is absent in acousmatic music, signs are not erased from source material, and reduced listening can form new perceptions of sound-as-music, where both source and musical or abstract interpretation may coexist. This would be the middle ground between notation and sonic art.	Parataxis used consistently to produce varied form and contrast between concrète and instrumental layers
	Serialism of sound-objects of different length and timbres?	Shifting of coherence and non-coherence between concrète and instrumental layers? How well the layers blend and come apart.
Acousmatic composers: Schaeffer, Henrey, Chion	Acousmatic composers: Harrison, Smalley, Wishart	

Acousmatic and art music comparisons

Similarities	differences
Both evoke emotion and are aesthetic[453]	western art music, and most traditional world musics, rely on physical instruments
Both contain pitch, durational, rhythmic, dynamic and timbral information.	western art music, and most traditional world musics, revolve primarily around pitch, rhythmic durations and dynamic volume
Both western art music, including most traditional world musics, and acousmatic, electroacoustic music, or sonic art bracket out extra musical material, while the notational musics do so to a far greater degree.	Acousmatic, electroacoustic and sonic art music are computer or machine process based; if live instruments are used they are processed
western art music, and most traditional world musics, contain some extra-musical material and information, usually contained in the vocal material, with some exceptions like Webern's use of timbral shifts through line swapping.	Acousmatic, electroacoustic and sonic art music may contain more extra-musical material and information

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[450] Thom Blum, 'Reviewed Work(s): Parmegiani: De Natura Sonorum by Bernard Parmegiani', *Computer Music Journal,* 5/2 (1981), 68-70 (p. 68).

[451] John Young, *British Acousmatic Music,* Sonic Arts Network , <http://rhoadley.net/courses/seminars/composers/wishart/index.php> [accessed 20.04.17]

[452] Ambrose Field, 'Simulation and reality: the new sonic objects', in *Music, Electronic Media and Culture*, ed. by Simon Emmerson, (Ashgate: Ashgate Publishing Limited, 2000), 36-55 (p. 53).

[453] Thomas Patteson, '"Sonic Handwriting": Media Instruments and Musical Inscription', in *Instruments for New Music*, (California, University of California Press, 2016), 82-113 (p. 101).

Ihab Hassan's Table of Differences, which has some cross-over:[454]

Modernism	Postmodernism
Romanticism/Symbolism	Pataphysics/Dadaism
Form (conjunctive, closed)	Antiform (disjunctive, open)
Purpose	Play
Design	Chance
Hierarchy	Anarchy
Mastery/Logos	Exhaustion/Silence
Art Object/Finished Work	Process/Performance/Happening
Distance	Participation
Creation/Totalization	Decreation/Deconstruction
Synthesis	Antithesis
Presence	Absence
Centring	Dispersal
Genre/Boundary	Text/Intertext
Semantics	Rhetoric
Paradigm	Syntagm
Hypotaxis	Parataxis
Metaphor	Metonymy
Selection	Combination
Root/Depth	Rhizome/Surface
Interpretation/Reading	Against Interpretation/Misreading
Signified	Signifier
Lisible (Readerly)	Scriptable (Writerly)
Narrative/Grande Histoire	Anti-narrative/Petite Histoire
Master Code	Idiolect
Symptom	Desire
Type	Mutant
Genital/Phallic	Polymorphous/Androgynous
Paranoia	Schizophrenia
Origin/Cause	Difference-Difference/Trace
God the Father	The Holy Ghost
Metaphysics	Irony
Determinacy	Indeterminacy
Transcendence	Immanence

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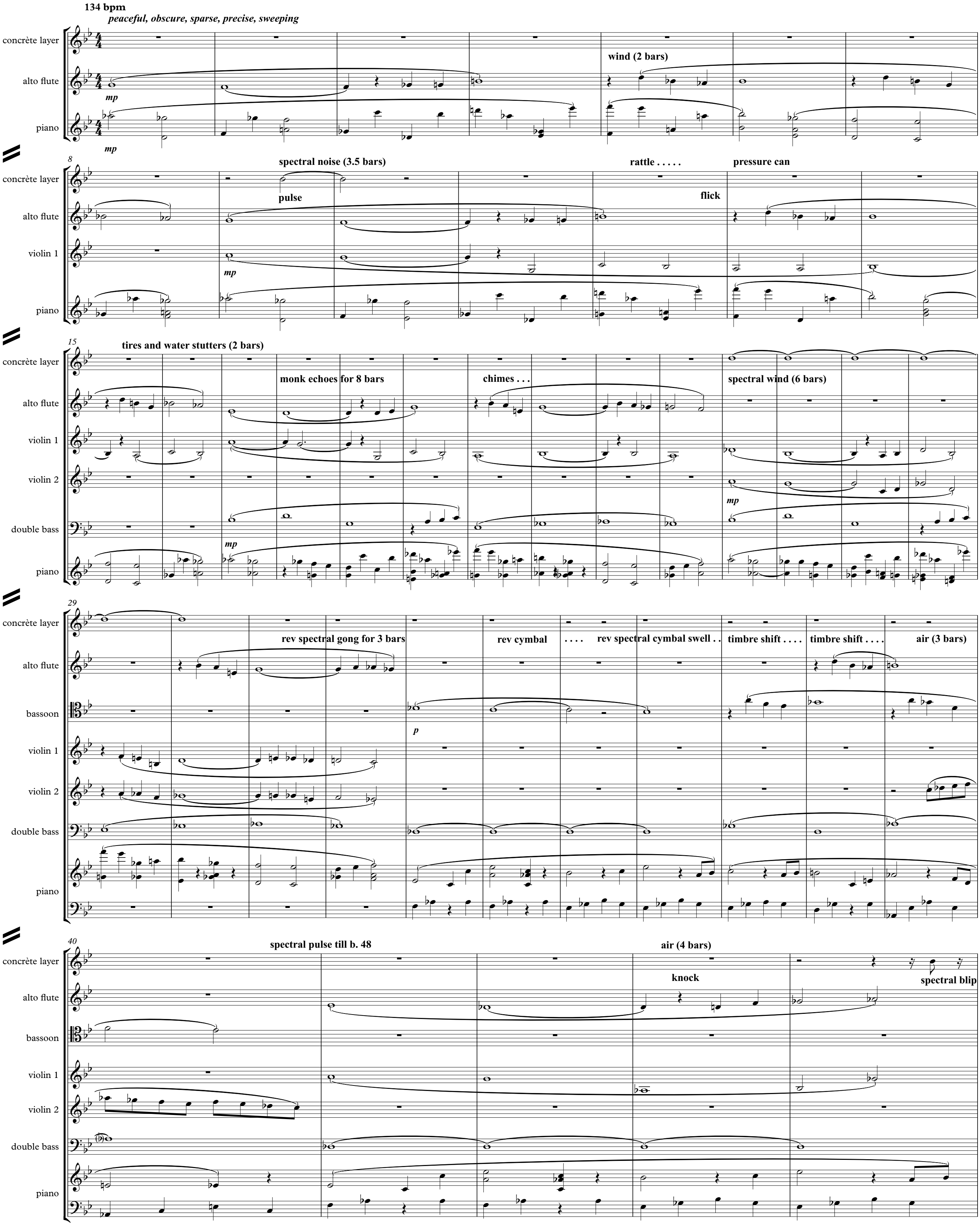
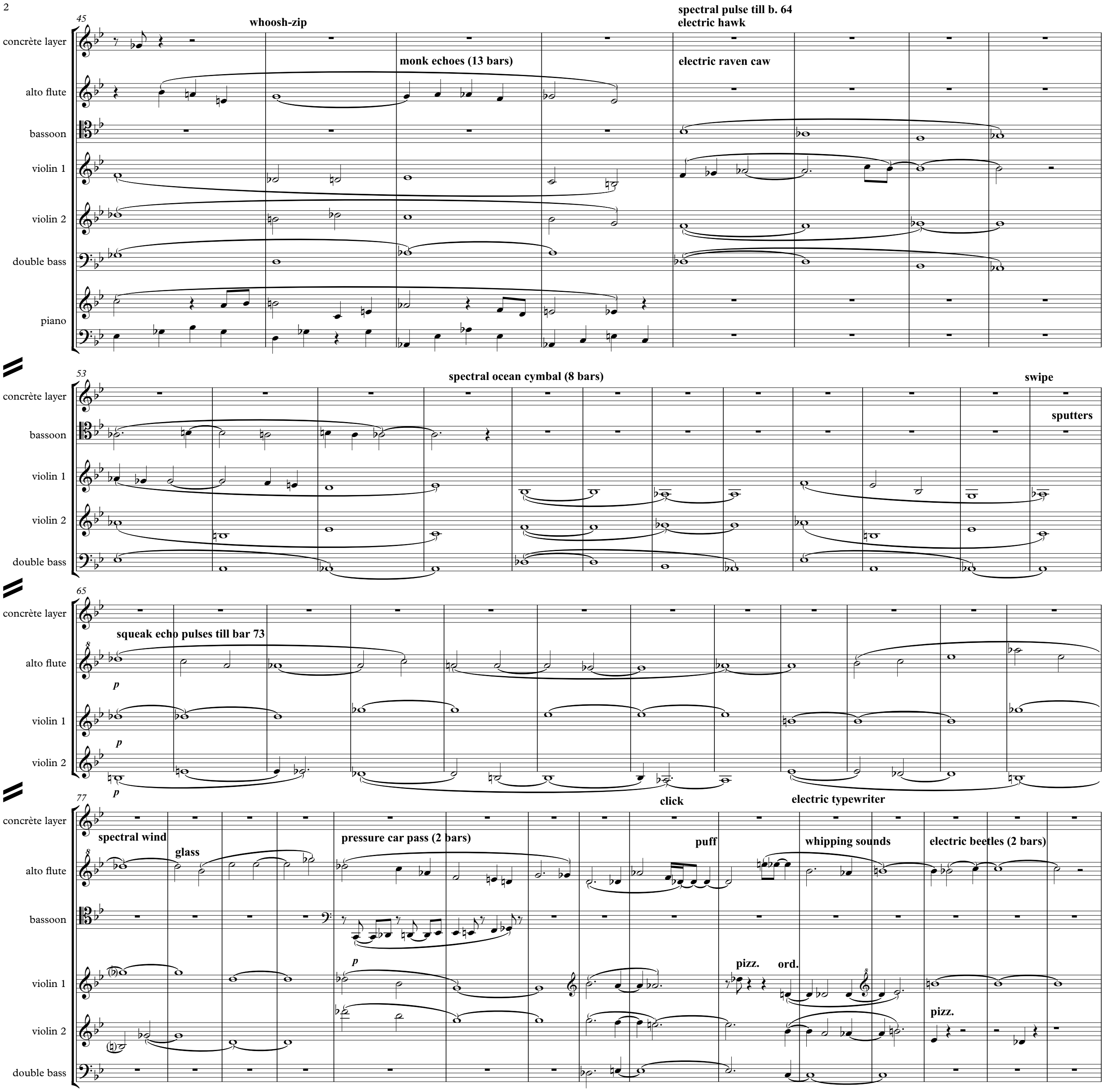
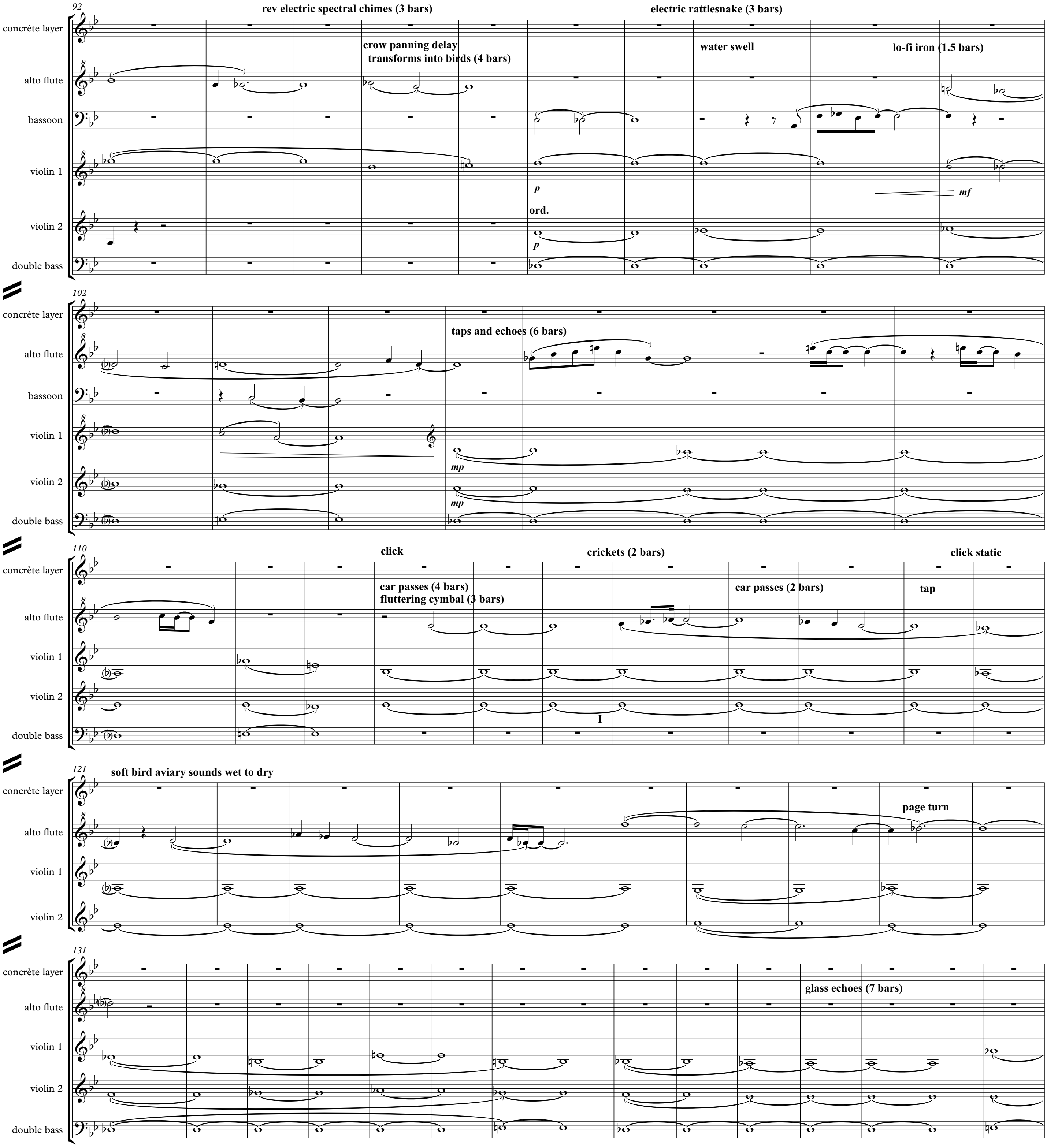
[454] Ihab Hassan, *The Dismemberment of Orpheus, Toward a Postmodern literature*, (The University of Wisconsin Press, 1982), p. 268., 269.

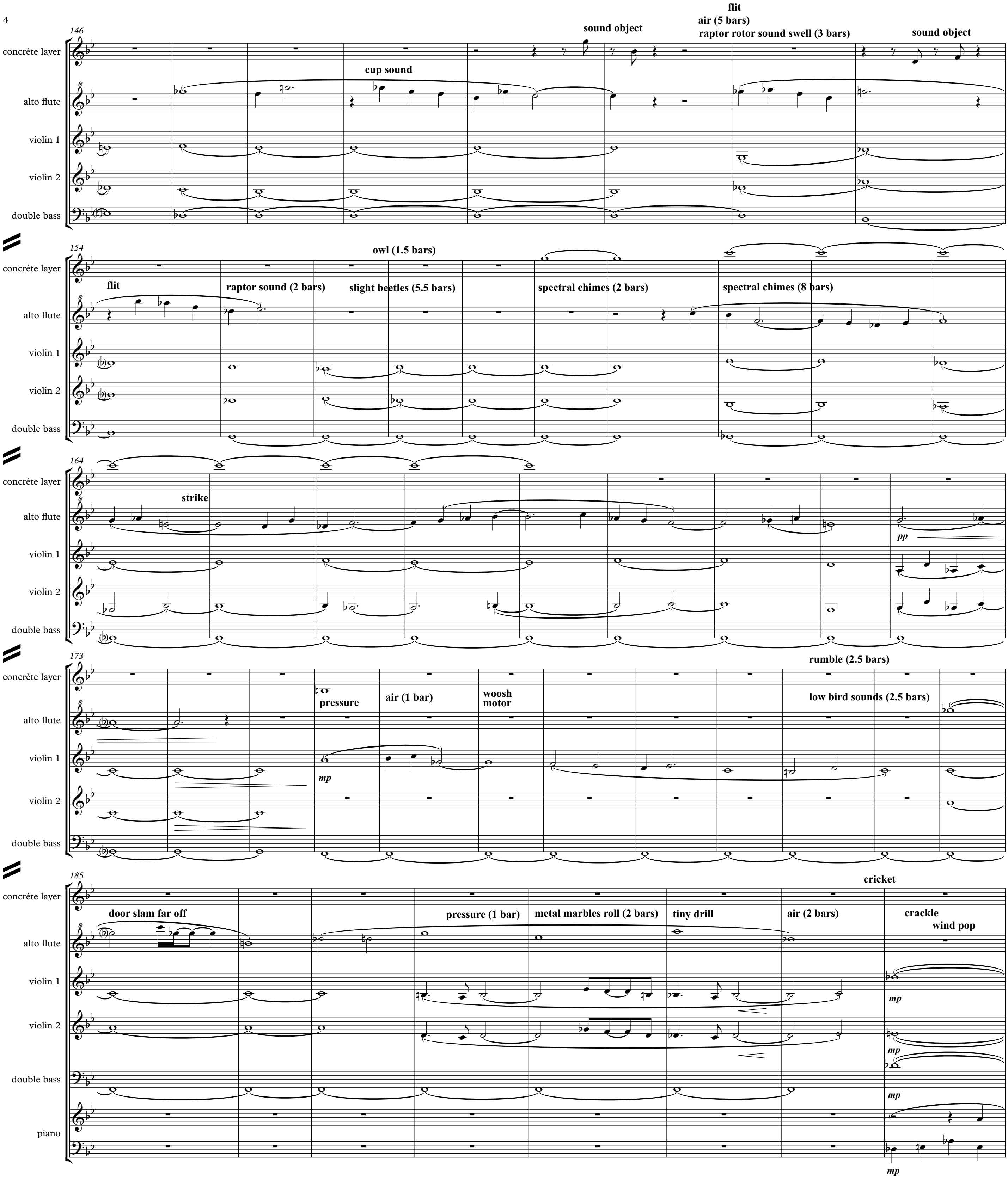
Tadvanalila part 1

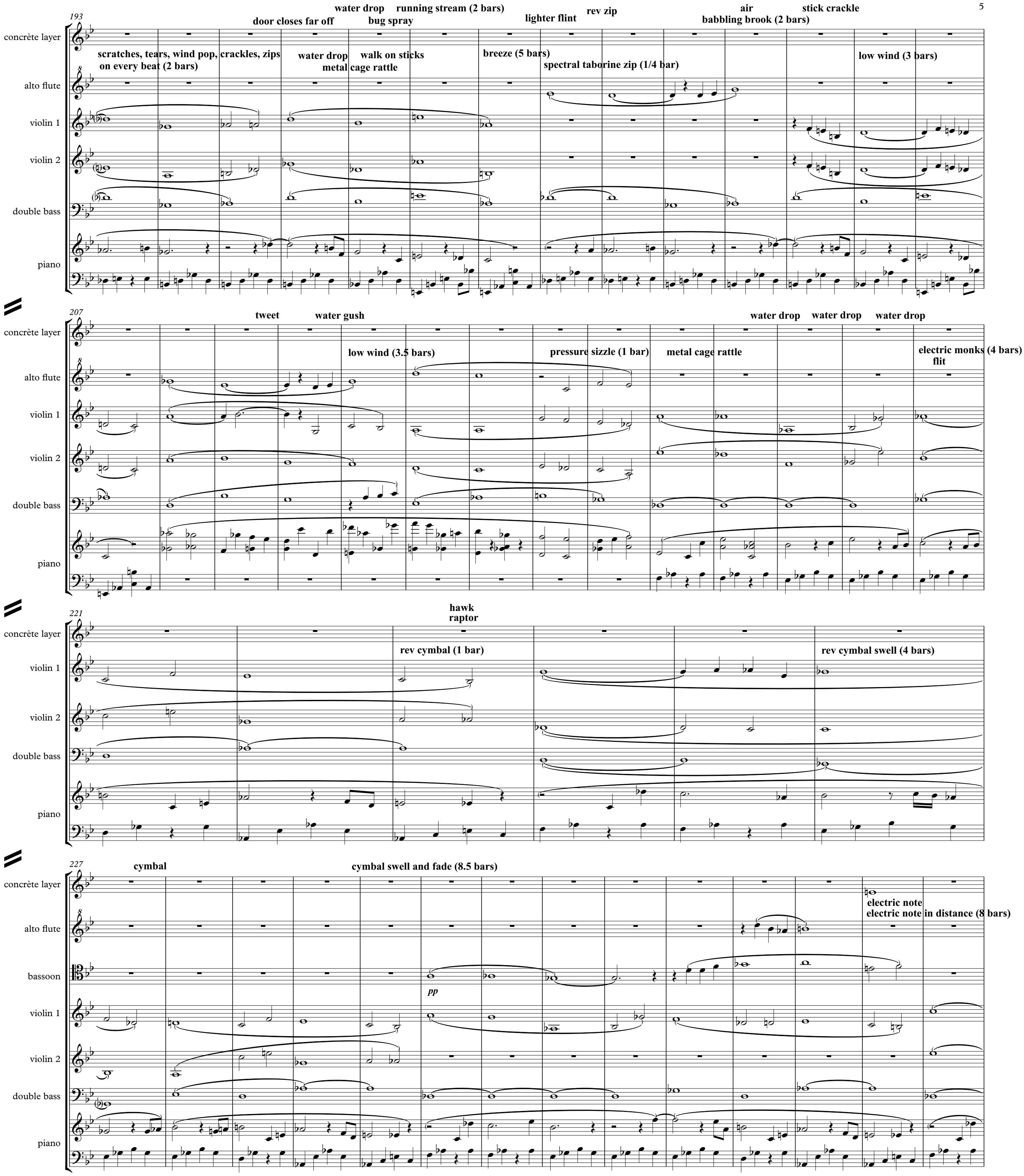
Geoff Geer

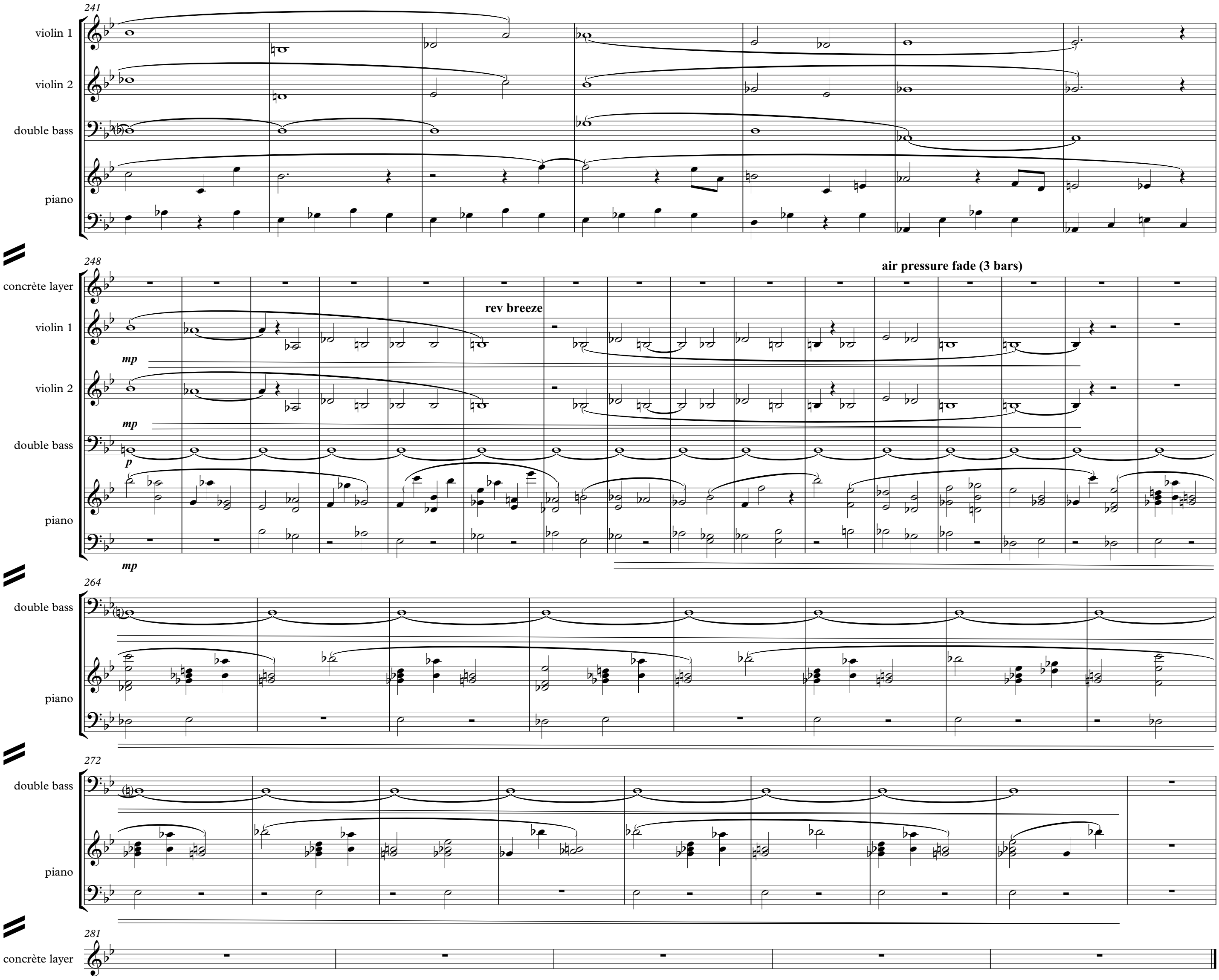

134 bpm
peaceful, obscure, sparse, precise, sweeping
concrète layer
alto flute
piano
mp
mp
wind (2 bars)
8
violin 1
spectral noise (3.5 bars)
pulse
mp
rattle . . . . .
flick
pressure can
15
violin 2
double bass
tires and water stutters (2 bars)
monk echoes for 8 bars
mp
chimes . . .
spectral wind (6 bars)
mp
29
bassoon
rev spectral gong for 3 bars
p
rev cymbal
. . . .
rev spectral cymbal swell . .
timbre shift . . . .
timbre shift . . . .
air (3 bars)
40
spectral pulse till b. 48
air (4 bars)
knock
spectral blip


45
concrète layer
alto flute
bassoon
violin 1
violin 2
double bass
piano
whoosh-zip
monk echoes (13 bars)
spectral pulse till b. 64
electric hawk
electric raven caw
53
concrète layer
bassoon
violin 1
violin 2
double bass
spectral ocean cymbal (8 bars)
swipe
sputters
65
concrète layer
alto flute
violin 1
violin 2
squeak echo pulses till bar 73
8
p
p
p
77
concrète layer
alto flute
bassoon
violin 1
violin 2
double bass
spectral wind
glass
8
pressure car pass (2 bars)
p
click
puff
electric typewriter
whipping sounds
electric beetles (2 bars)
pizz.
ord.
pizz.


92
rev electric spectral chimes (3 bars)
electric rattlesnake (3 bars)
concrète layer
crow panning delay
transforms into birds (4 bars)
water swell
lo-fi iron (1.5 bars)
alto flute
bassoon
violin 1
p
mf
violin 2
ord.
p
double bass
102
concrète layer
taps and echoes (6 bars)
alto flute
bassoon
violin 1
mp
violin 2
mp
double bass
110
click
crickets (2 bars)
click static
concrète layer
car passes (4 bars)
fluttering cymbal (3 bars)
car passes (2 bars)
tap
alto flute
violin 1
violin 2
I
double bass
121
soft bird aviary sounds wet to dry
concrète layer
page turn
alto flute
violin 1
violin 2
131
concrète layer
glass echoes (7 bars)
alto flute
violin 1
violin 2
double bass

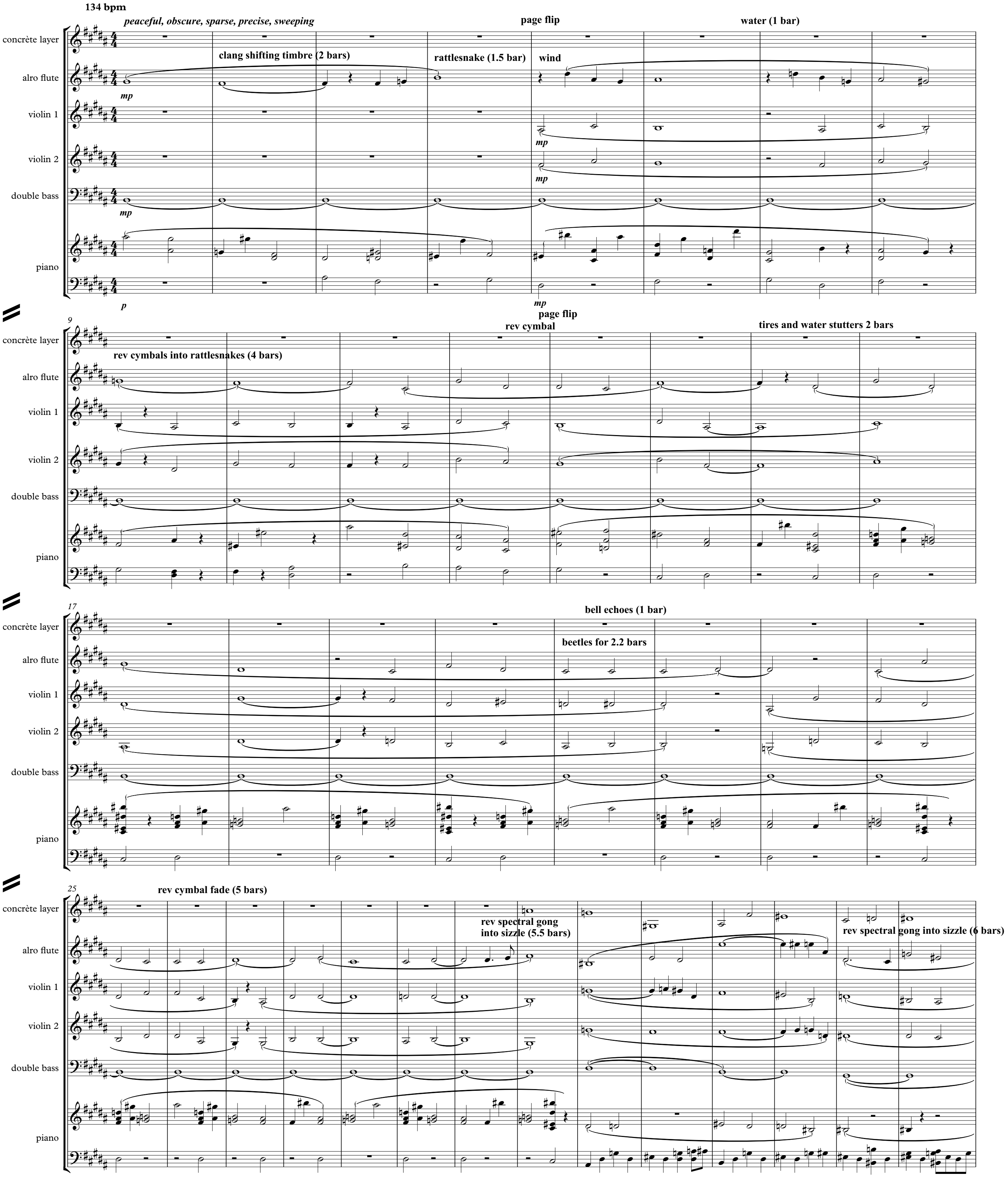

146
concrète layer
alto flute
violin 1
violin 2
double bass
sound object
flit
air (5 bars)
raptor rotor sound swell (3 bars)
sound object
cup sound
154
owl (1.5 bars)
flit
raptor sound (2 bars)
slight beetles (5.5 bars)
spectral chimes (2 bars)
spectral chimes (8 bars)
164
strike
pp
173
pressure
air (1 bar)
woosh
motor
mp
rumble (2.5 bars)
low bird sounds (2.5 bars)
185
piano
door slam far off
pressure (1 bar)
metal marbles roll (2 bars)
tiny drill
air (2 bars)
cricket
crackle
wind pop
mp
mp
mp
mp

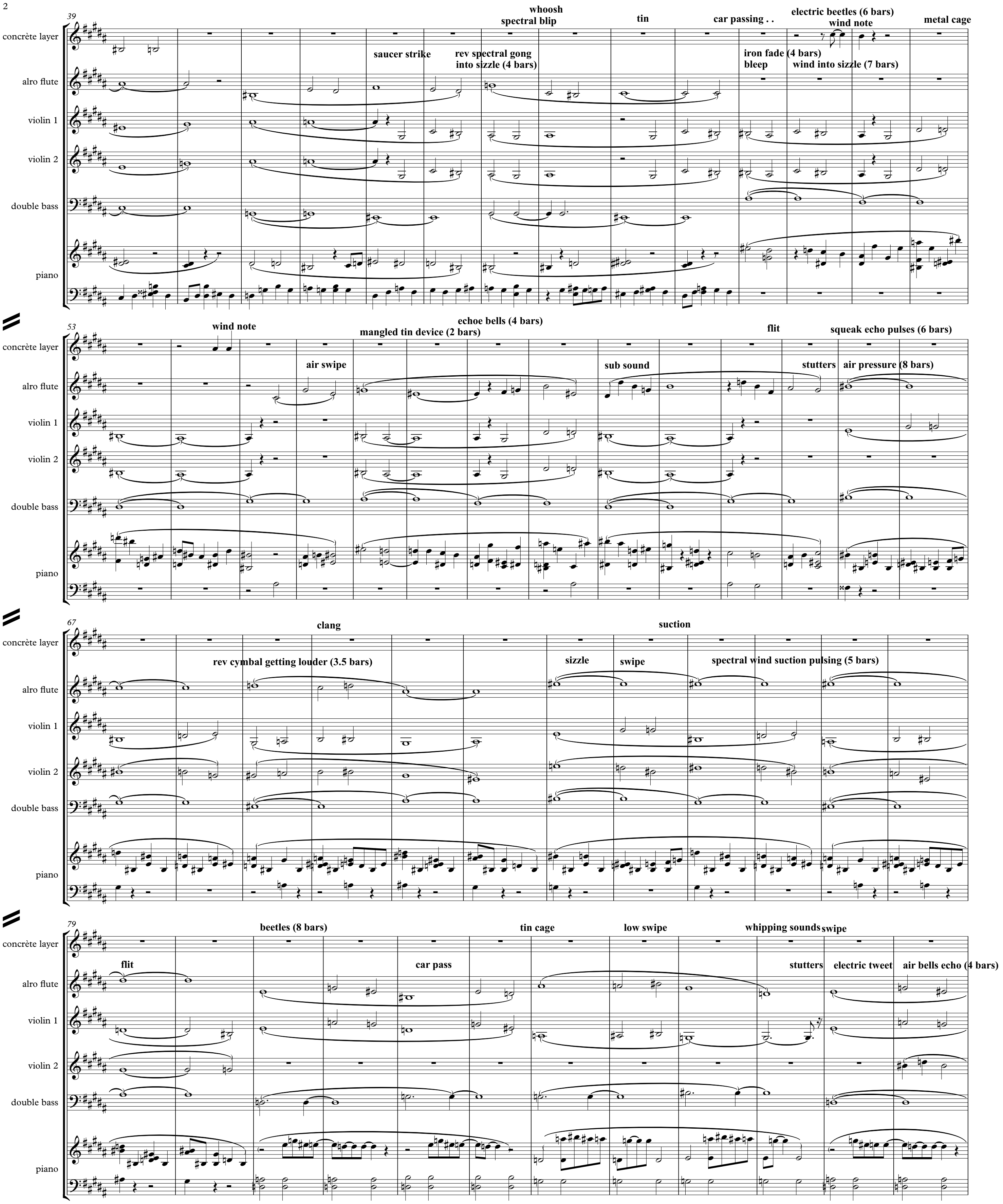

193
concrète layer
alto flute
violin 1
violin 2
double bass
piano
water drop
running stream (2 bars)
door closes far off
bug spray
lighter flint
rev zip
air
babbling brook (2 bars)
stick crackle
scratches, tears, wind pop, crackles, zips
on every beat (2 bars)
water drop
metal cage rattle
walk on sticks
breeze (5 bars)
spectral taborine zip (1/4 bar)
low wind (3 bars)
8
207
concrète layer
alto flute
violin 1
violin 2
double bass
piano
tweet
water gush
low wind (3.5 bars)
pressure sizzle (1 bar)
metal cage rattle
water drop
water drop
water drop
electric monks (4 bars)
flit
8
221
concrète layer
violin 1
violin 2
double bass
piano
hawk
raptor
rev cymbal (1 bar)
rev cymbal swell (4 bars)
227
concrète layer
alto flute
bassoon
violin 1
violin 2
double bass
piano
cymbal
cymbal swell and fade (8.5 bars)
electric note
electric note in distance (8 bars)
8
pp

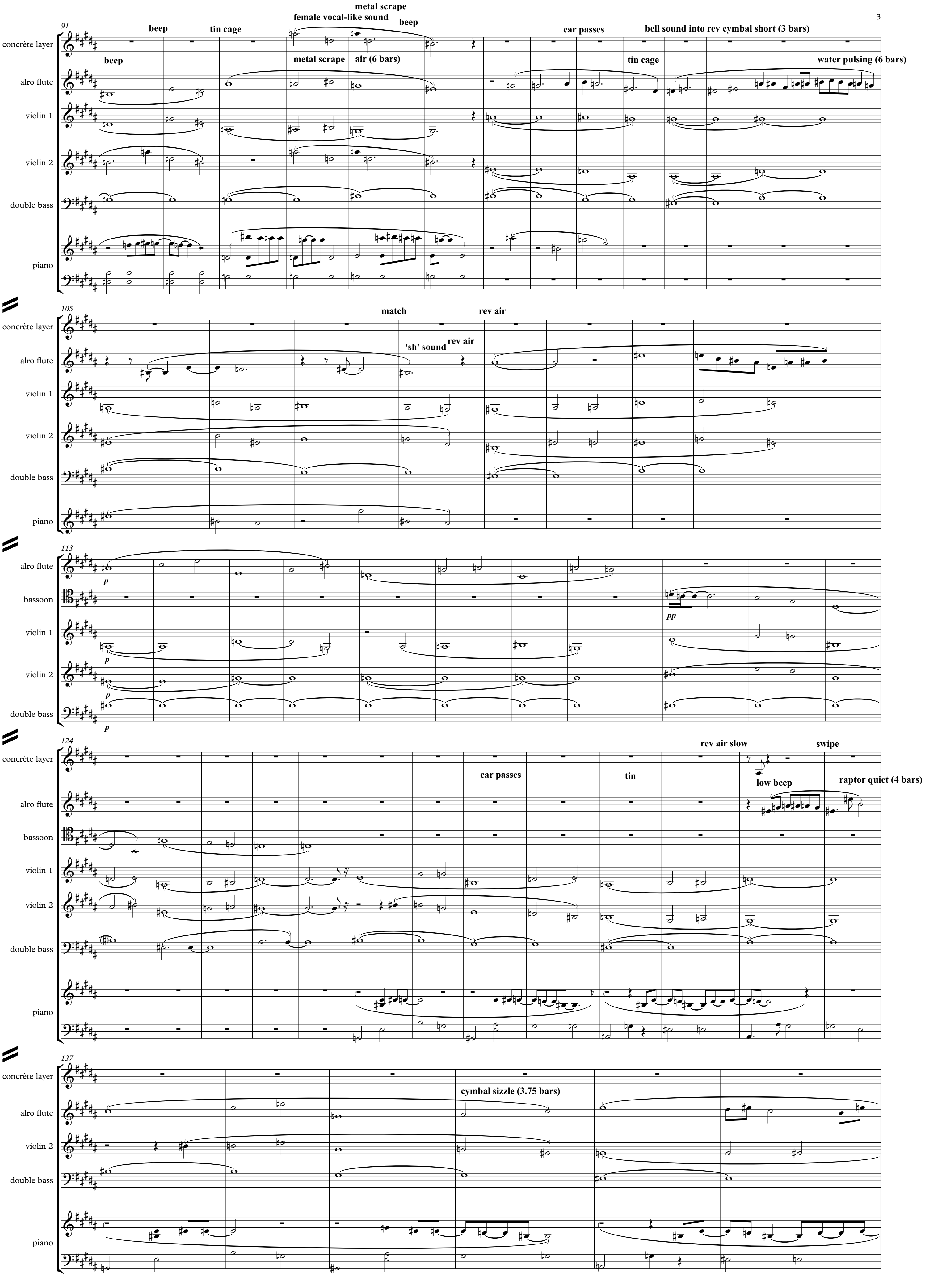

241
violin 1
violin 2
double bass
piano
248
concrète layer
violin 1
violin 2
double bass
piano
mp
mp
p
mp
rev breeze
air pressure fade (3 bars)
264
double bass
piano
272
double bass
piano
281
concrète layer

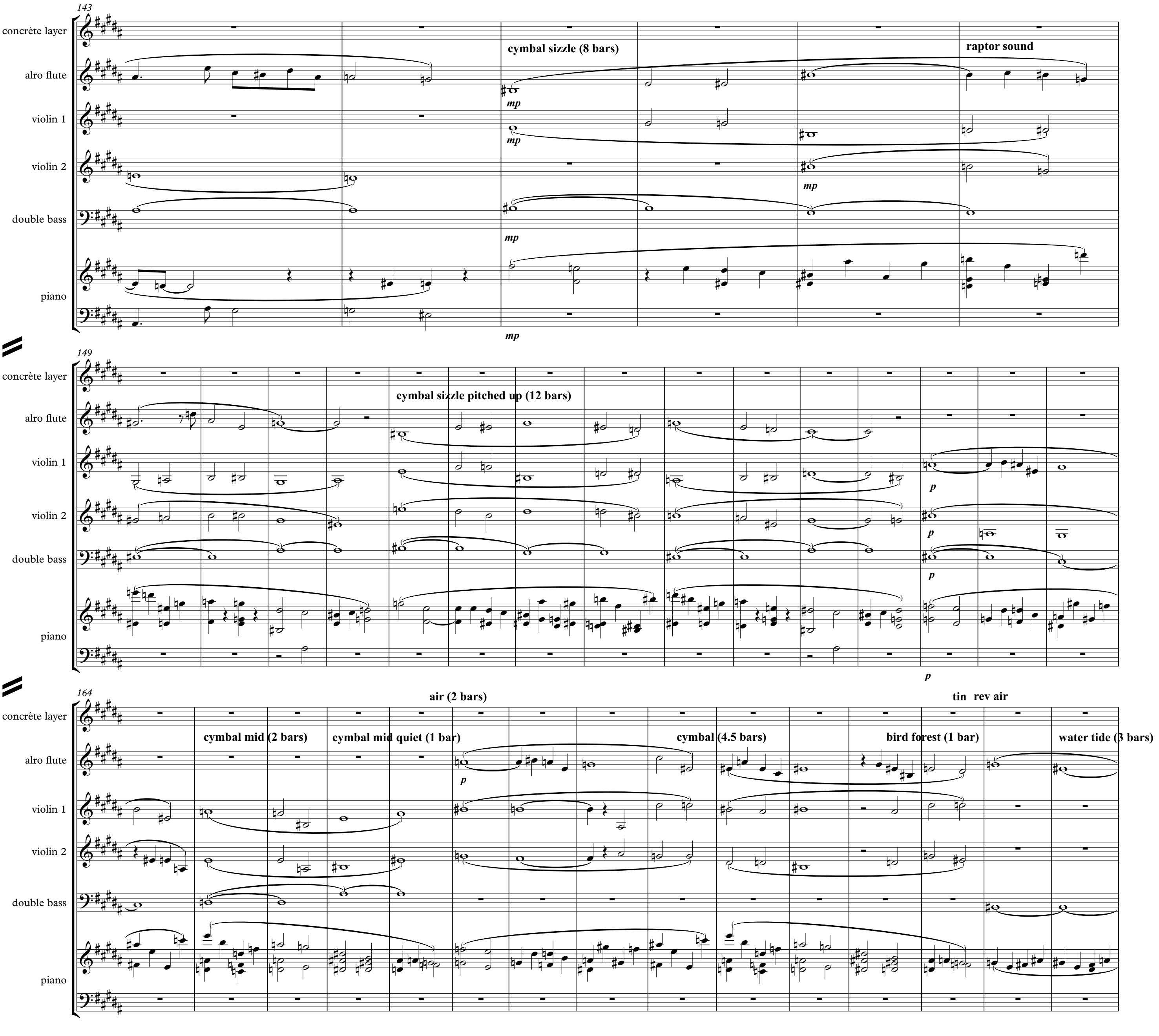
Tadvanalila part 2

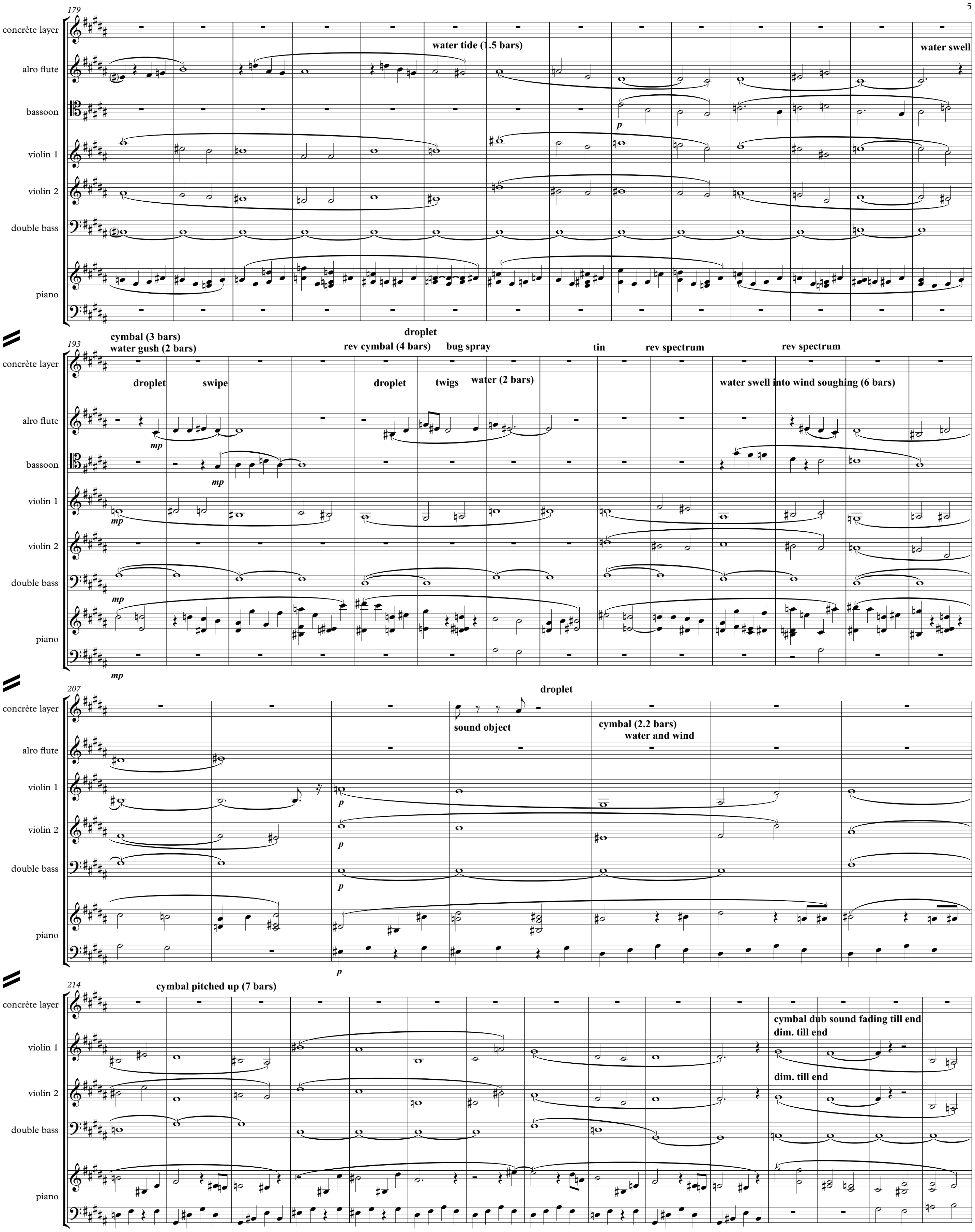
Geoff Geer

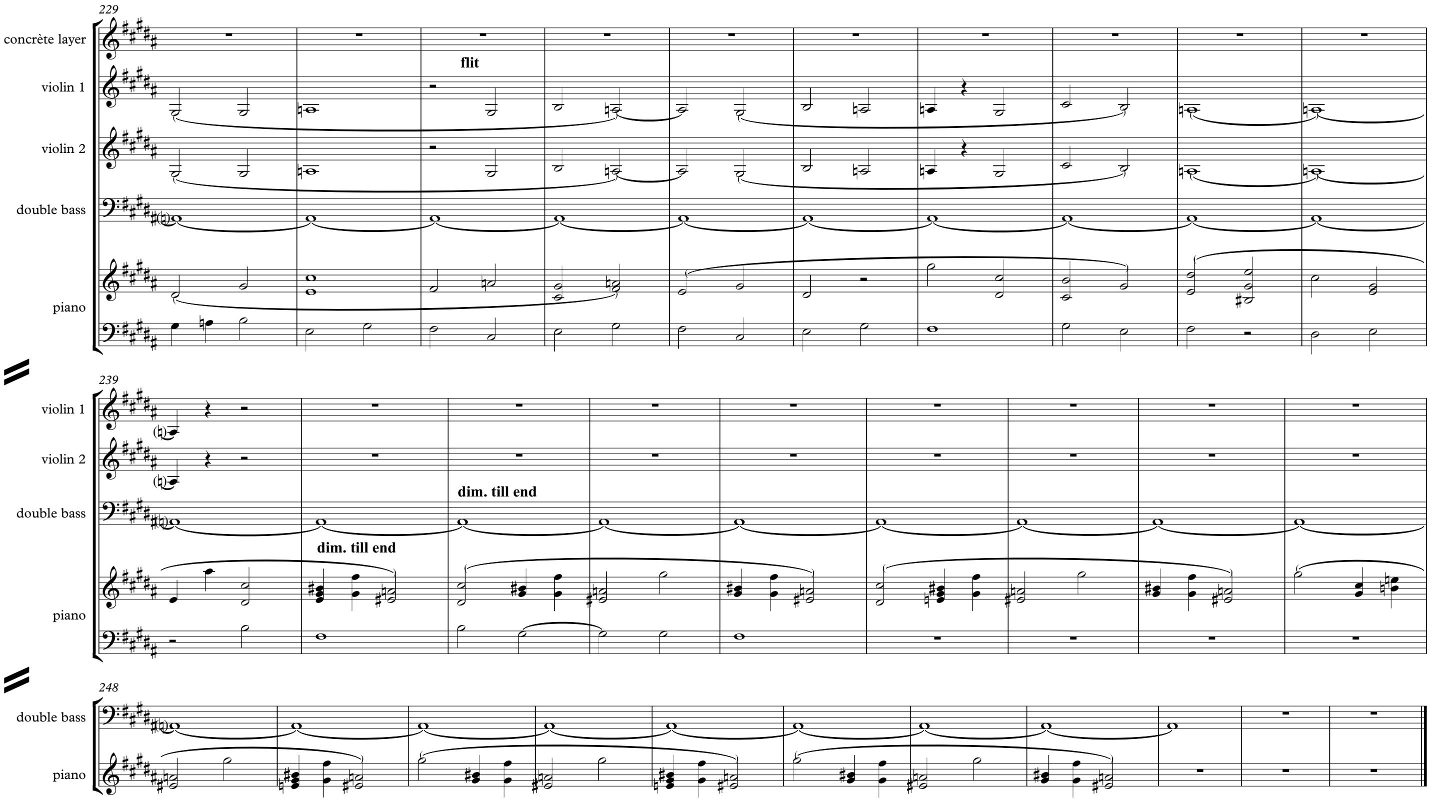

134 bpm
peaceful, obscure, sparse, precise, sweeping
clang shifting timbre (2 bars)
rattlesnake (1.5 bar)
page flip
wind
water (1 bar)
concrète layer
alro flute
violin 1
violin 2
double bass
piano
mp
mp
mp
mp
p
mp
9
page flip
rev cymbal
rev cymbals into rattlesnakes (4 bars)
tires and water stutters 2 bars
17
bell echoes (1 bar)
beetles for 2.2 bars
25
rev cymbal fade (5 bars)
rev spectral gong into sizzle (5.5 bars)
rev spectral gong into sizzle (6 bars)


39
concrète layer
alro flute
violin 1
violin 2
double bass
piano
whoosh
spectral blip
tin
car passing . .
electric beetles (6 bars)
wind note
metal cage
saucer strike
rev spectral gong
into sizzle (4 bars)
iron fade (4 bars)
bleep
wind into sizzle (7 bars)
53
wind note
echoe bells (4 bars)
mangled tin device (2 bars)
flit
squeak echo pulses (6 bars)
air swipe
sub sound
stutters
air pressure (8 bars)
67
clang
suction
rev cymbal getting louder (3.5 bars)
sizzle
swipe
spectral wind suction pulsing (5 bars)
79
beetles (8 bars)
tin cage
low swipe
whipping sounds
swipe
flit
car pass
stutters
electric tweet
air bells echo (4 bars)


metal scrape
female vocal-like sound
beep
beep
tin cage
car passes
bell sound into rev cymbal short (3 bars)
91
concrète layer
alro flute
beep
metal scrape
air (6 bars)
tin cage
water pulsing (6 bars)
violin 1
violin 2
double bass
piano
105
match
rev air
'sh' sound
rev air
113
bassoon
p
pp
124
car passes
tin
rev air slow
swipe
low beep
raptor quiet (4 bars)
137
cymbal sizzle (3.75 bars)

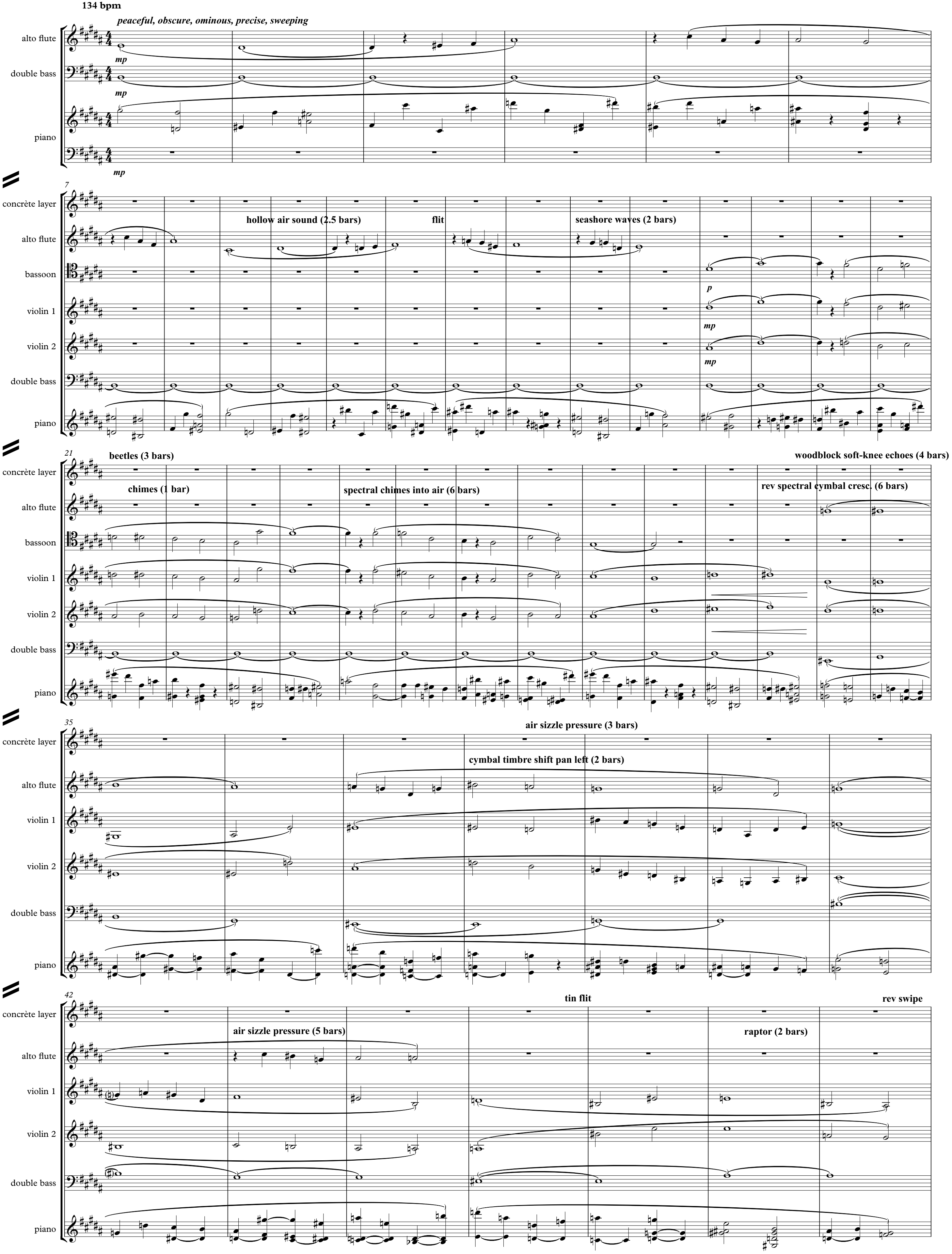

143
concrète layer
alro flute
violin 1
violin 2
double bass
piano
cymbal sizzle (8 bars)
mp
mp
mp
mp
mp
raptor sound
149
cymbal sizzle pitched up (12 bars)
p
p
p
p
164
air (2 bars)
cymbal mid (2 bars)
cymbal mid quiet (1 bar)
p
cymbal (4.5 bars)
bird forest (1 bar)
tin rev air
water tide (3 bars)

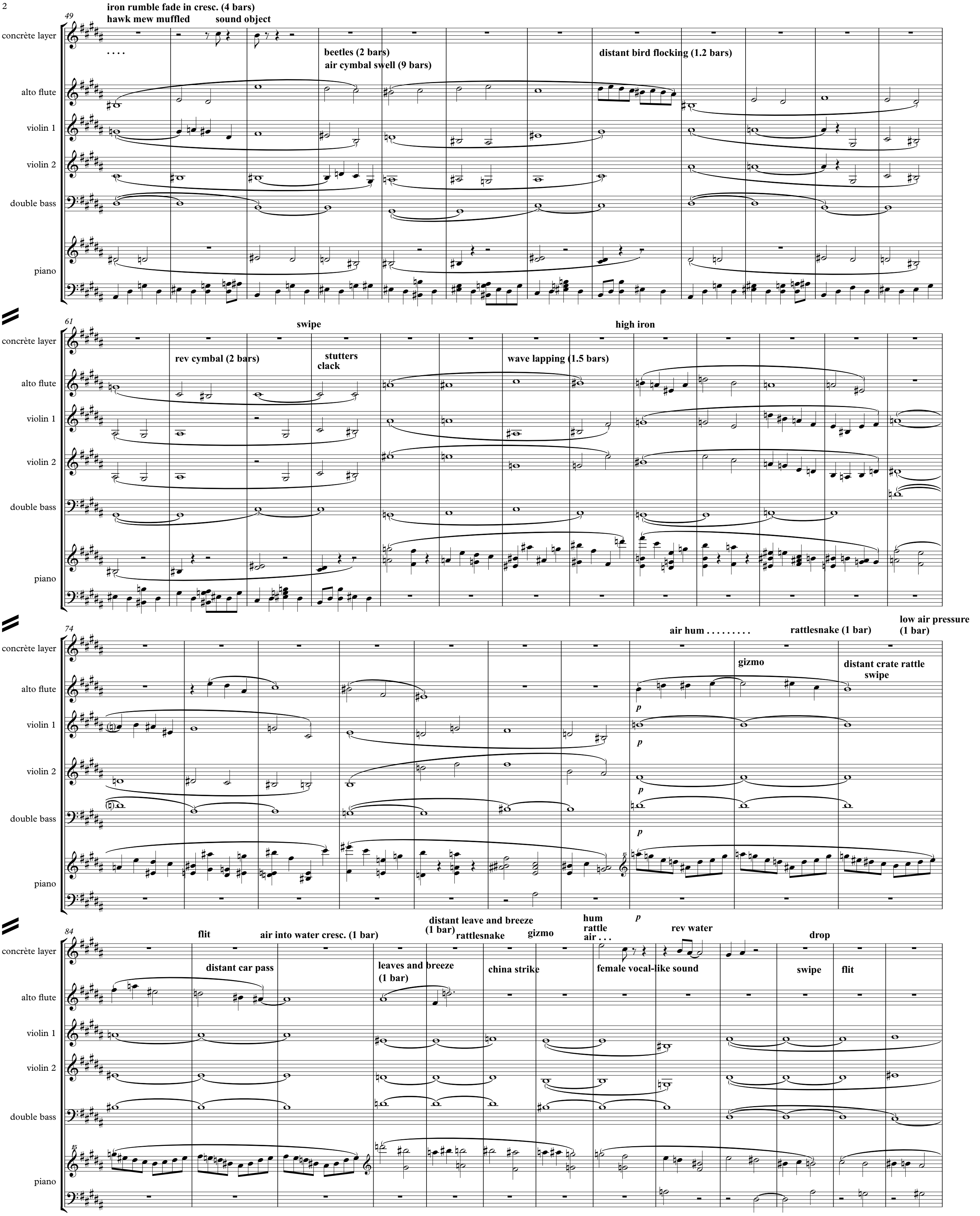

179
concrète layer
alro flute
bassoon
violin 1
violin 2
double bass
piano
water tide (1.5 bars)
water swell
p
193
cymbal (3 bars)
water gush (2 bars)
droplet
swipe
droplet
rev cymbal (4 bars)
bug spray
droplet
twigs
water (2 bars)
tin
rev spectrum
rev spectrum
water swell into wind soughing (6 bars)
mp
mp
mp
mp
mp
207
droplet
sound object
cymbal (2.2 bars)
water and wind
p
p
p
p
214
cymbal pitched up (7 bars)
cymbal dub sound fading till end
dim. till end
dim. till end

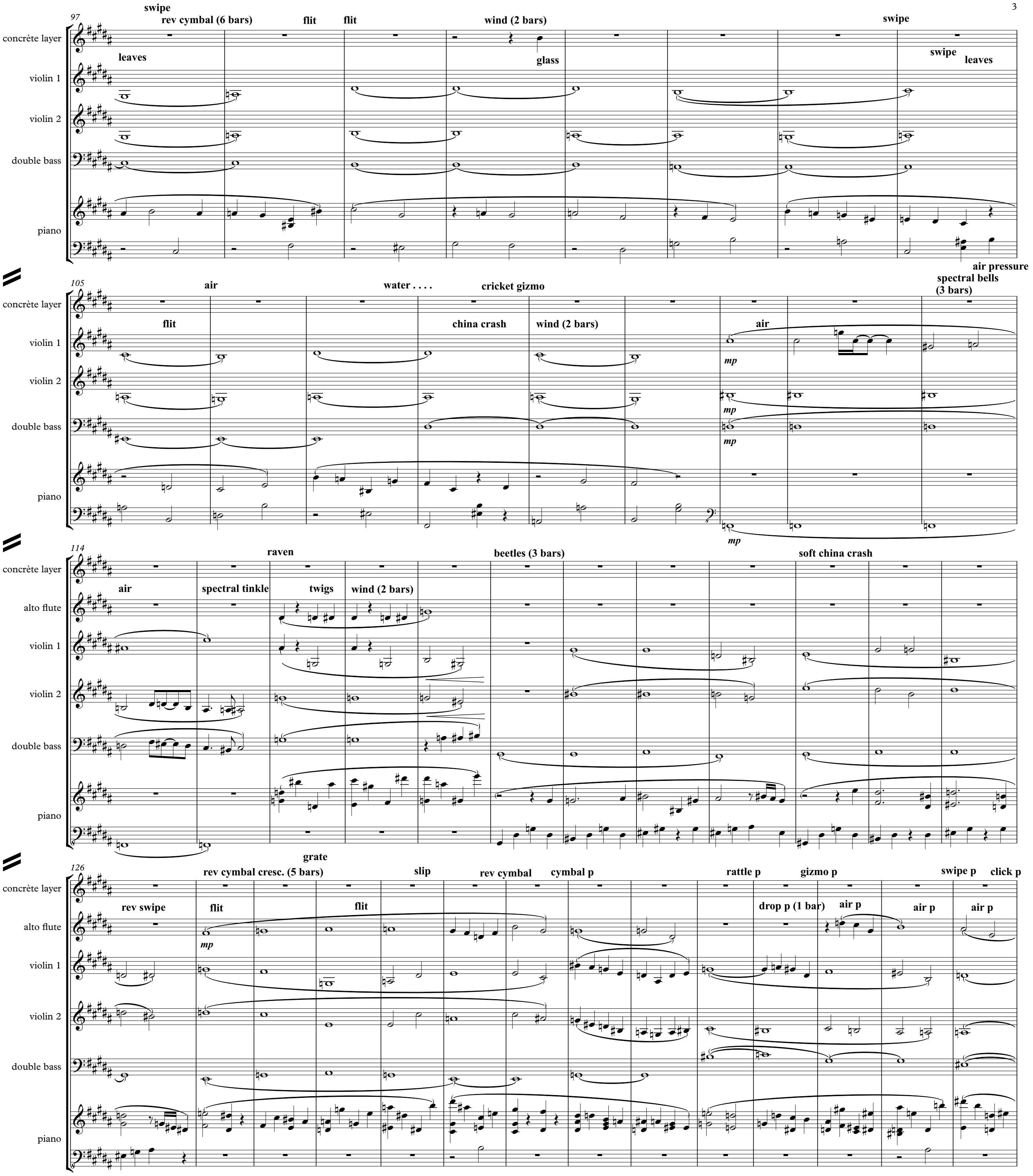

229
concrète layer
violin 1
violin 2
double bass
piano
flit
239
violin 1
violin 2
double bass
piano
dim. till end
dim. till end
248
double bass
piano

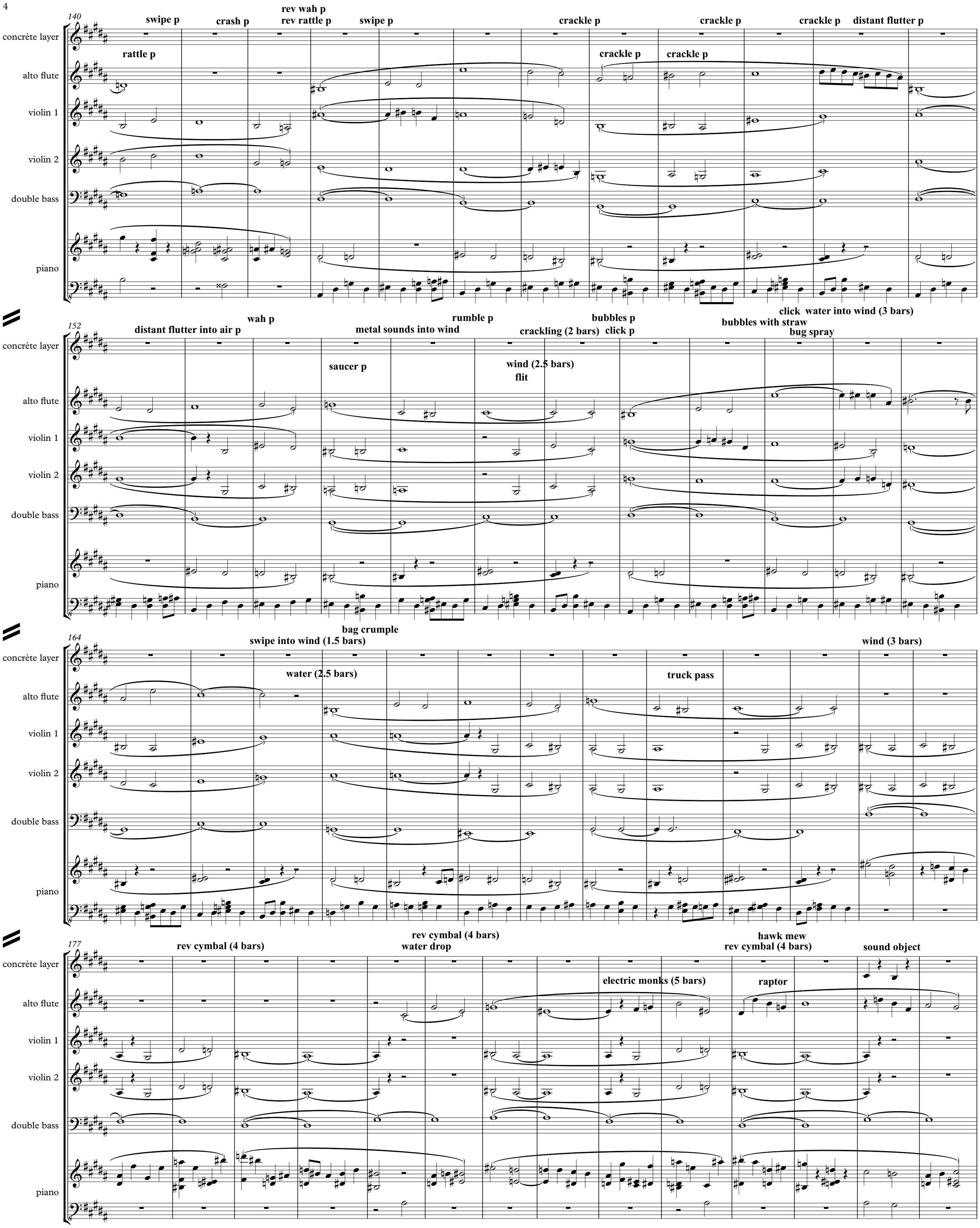
Tadvanalila part 3

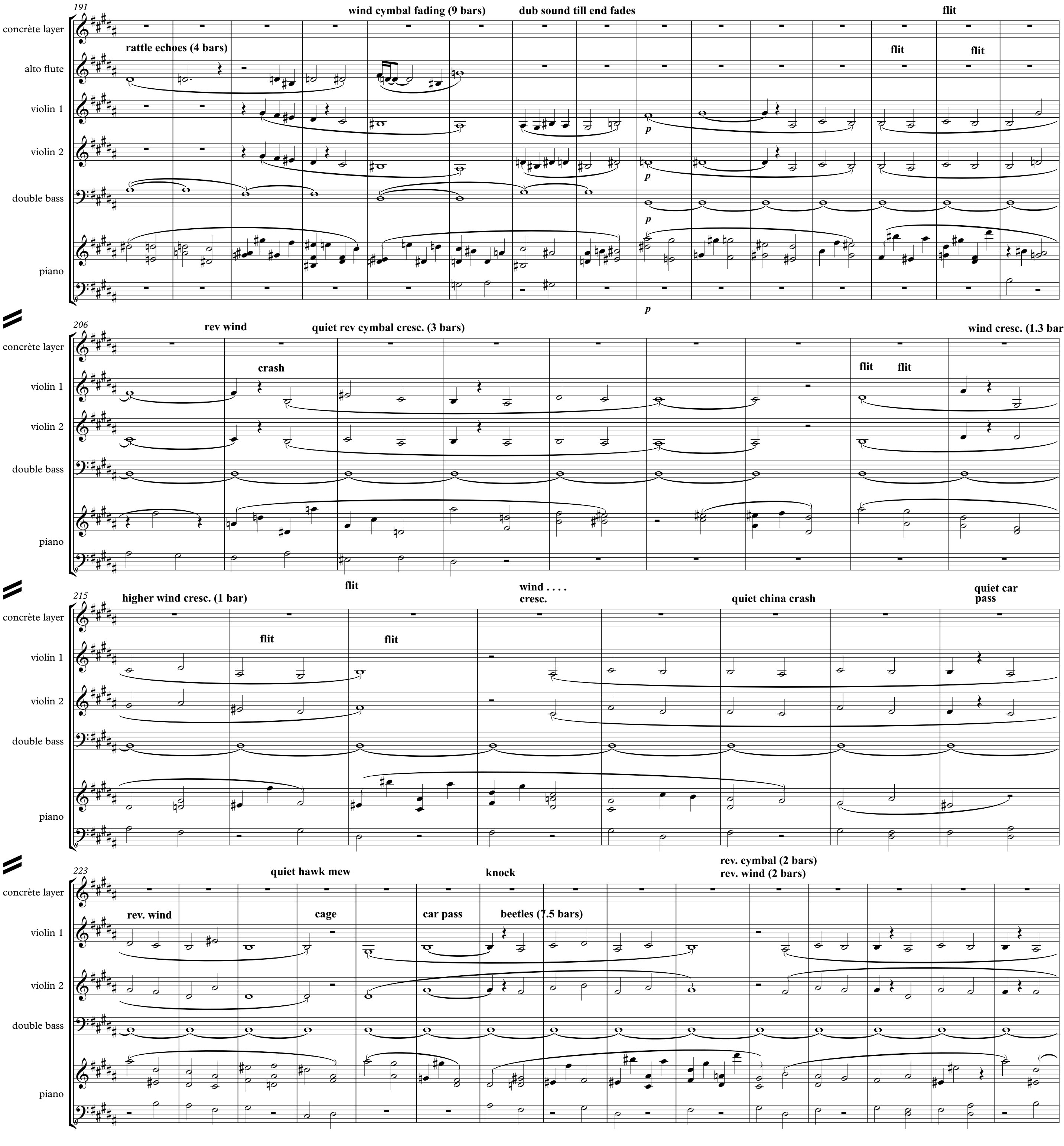
Geoff Geer

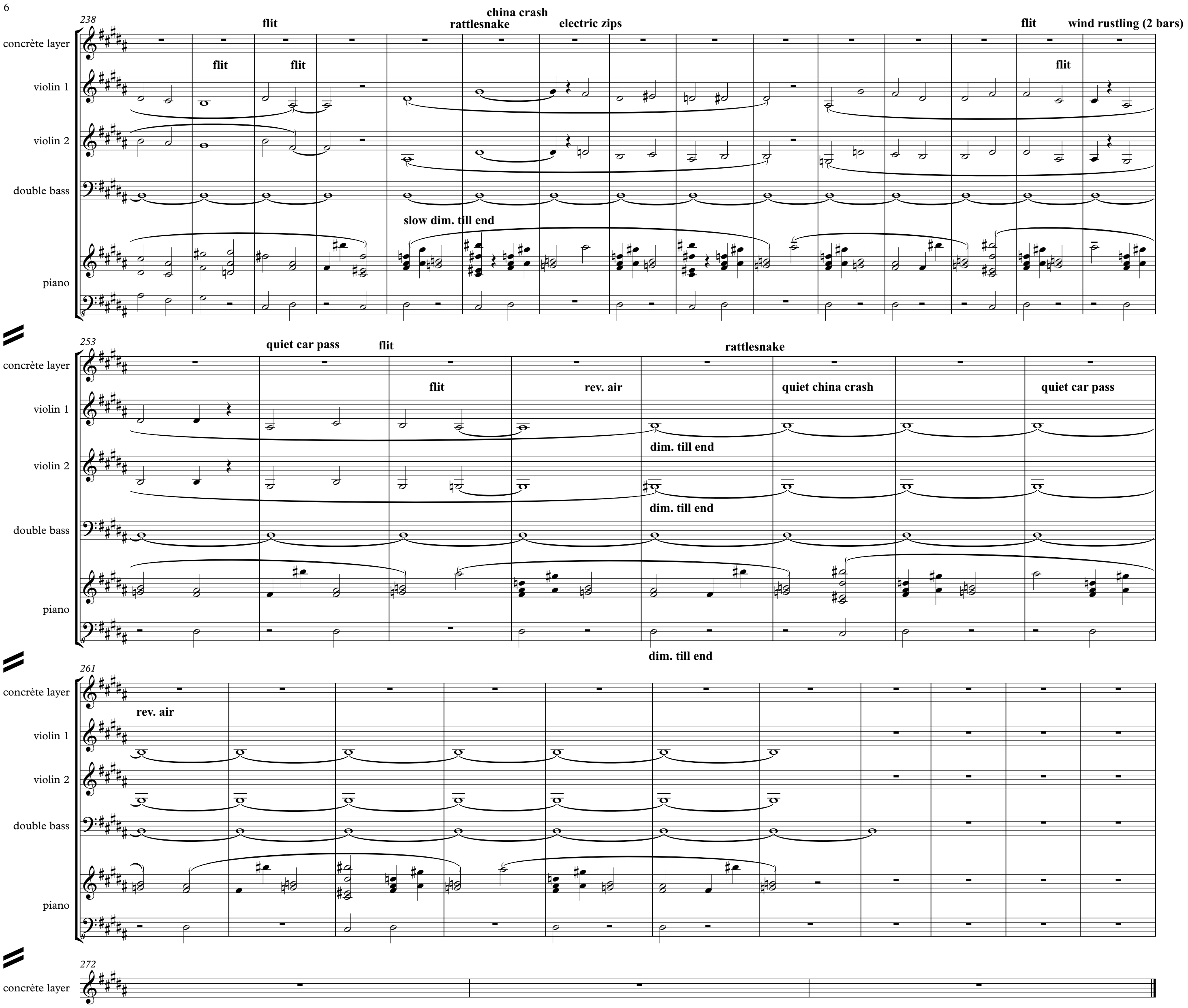

134 bpm
peaceful, obscure, ominous, precise, sweeping
alto flute
double bass
piano
mp
mp
mp
7
concrète layer
alto flute
bassoon
violin 1
violin 2
double bass
piano
hollow air sound (2.5 bars)
flit
seashore waves (2 bars)
p
mp
mp
21
beetles (3 bars)
chimes (1 bar)
spectral chimes into air (6 bars)
woodblock soft-knee echoes (4 bars)
rev spectral cymbal cresc. (6 bars)
35
air sizzle pressure (3 bars)
cymbal timbre shift pan left (2 bars)
42
tin flit
air sizzle pressure (5 bars)
raptor (2 bars)
rev swipe


49
iron rumble fade in cresc. (4 bars)
hawk mew muffled
sound object
. . . .
beetles (2 bars)
air cymbal swell (9 bars)
distant bird flocking (1.2 bars)
concrète layer
alto flute
violin 1
violin 2
double bass
piano
61
swipe
high iron
rev cymbal (2 bars)
stutters
clack
wave lapping (1.5 bars)
74
air hum . . . .
rattlesnake (1 bar)
low air pressure
(1 bar)
gizmo
distant crate rattle
swipe
p
84
flit
air into water cresc. (1 bar)
distant leave and breeze
(1 bar)
rattlesnake
gizmo
hum
rattle
air . . .
p
rev water
drop
distant car pass
leaves and breeze
(1 bar)
china strike
female vocal-like sound
swipe
flit


97
swipe
rev cymbal (6 bars)
flit
flit
wind (2 bars)
swipe
leaves
glass
swipe
leaves
concrète layer
violin 1
violin 2
double bass
piano
air pressure
105
air
water . . . .
cricket gizmo
spectral bells
(3 bars)
flit
china crash
wind (2 bars)
air
mp
mp
mp
mp
114
raven
beetles (3 bars)
soft china crash
air
spectral tinkle
twigs
wind (2 bars)
alto flute
126
grate
rev cymbal cresc. (5 bars)
slip
rev cymbal
cymbal p
rattle p
gizmo p
swipe p
click p
rev swipe
flit
flit
drop p (1 bar)
air p
air p
air p
mp

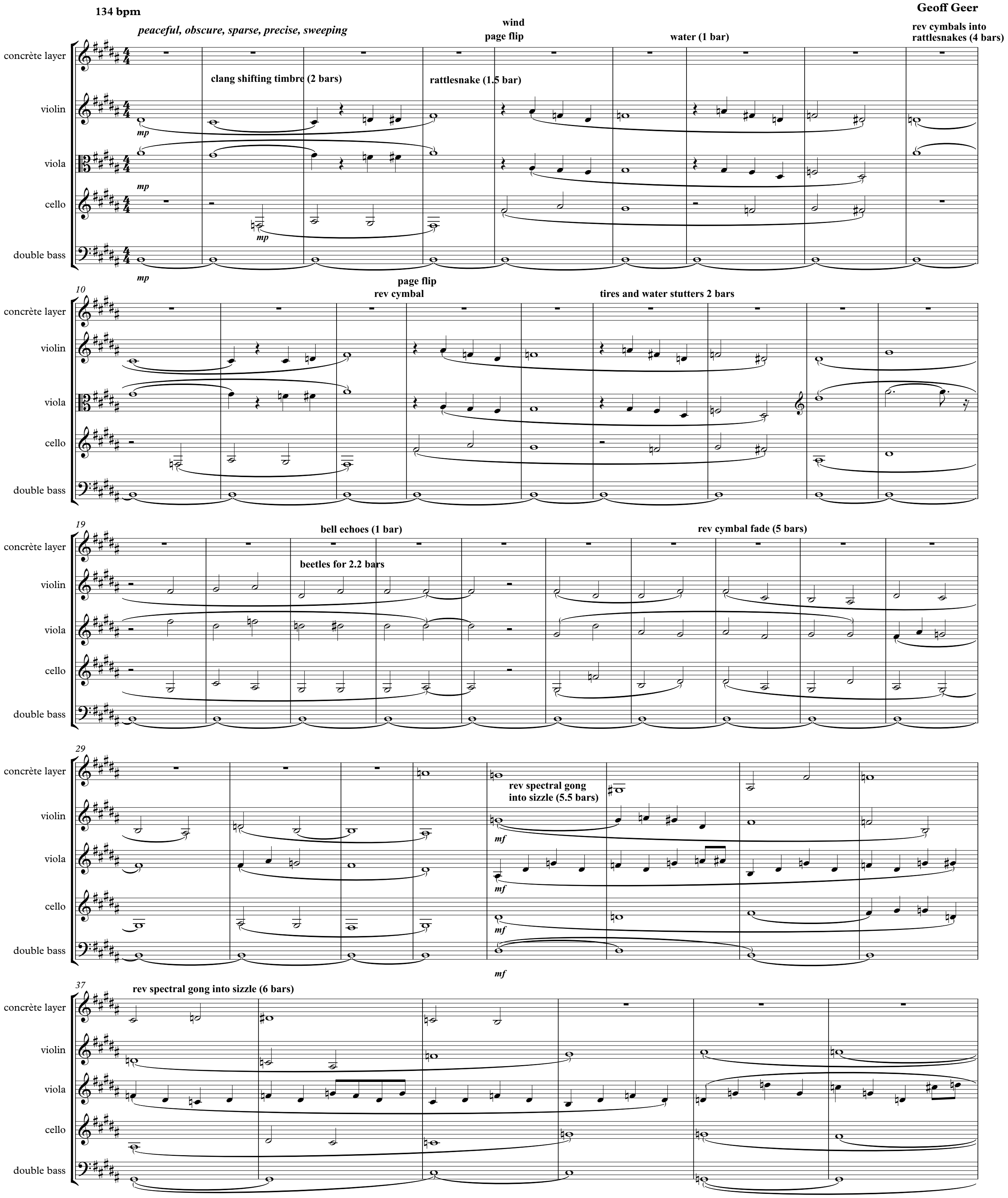

140
swipe p
crash p
rev wah p
rev rattle p
swipe p
crackle p
crackle p
crackle p
distant flutter p
rattle p
crackle p
crackle p
concrète layer
alto flute
violin 1
violin 2
double bass
piano
152
distant flutter into air p
wah p
metal sounds into wind
rumble p
crackling (2 bars)
bubbles p
click p
bubbles with straw
click water into wind (3 bars)
bug spray
saucer p
wind (2.5 bars)
flit
164
swipe into wind (1.5 bars)
bag crumple
wind (3 bars)
water (2.5 bars)
truck pass
177
rev cymbal (4 bars)
rev cymbal (4 bars)
water drop
hawk mew
rev cymbal (4 bars)
sound object
electric monks (5 bars)
raptor

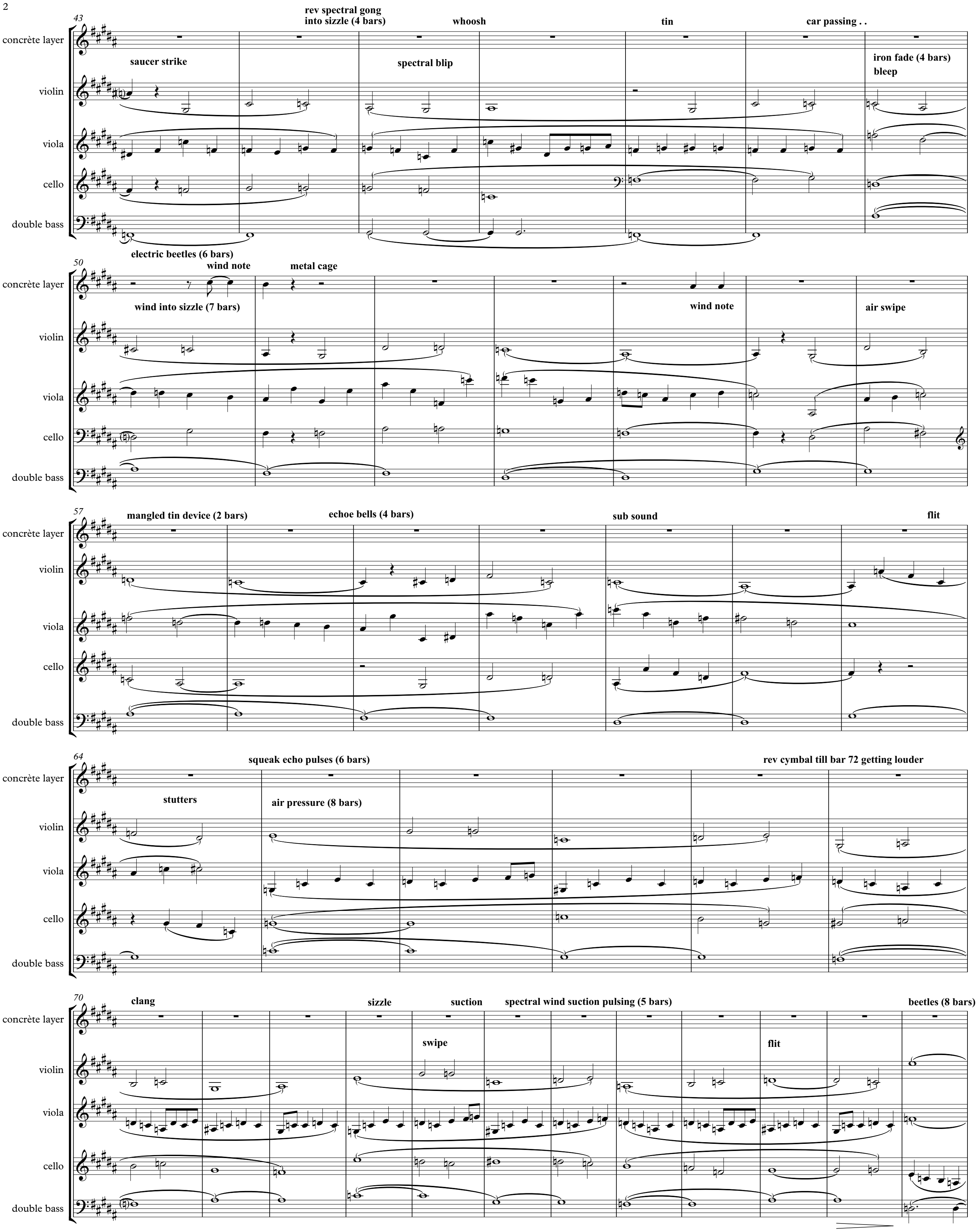

191
concrète layer
alto flute
violin 1
violin 2
double bass
piano
rattle echoes (4 bars)
wind cymbal fading (9 bars)
dub sound till end fades
flit
flit
flit
p
p
p
p
206
rev wind
quiet rev cymbal cresc. (3 bars)
wind cresc. (1.3 bars)
crash
flit
flit
215
higher wind cresc. (1 bar)
flit
flit
flit
wind . . . .
cresc.
quiet china crash
quiet car
pass
223
quiet hawk mew
knock
rev. cymbal (2 bars)
rev. wind (2 bars)
rev. wind
cage
car pass
beetles (7.5 bars)

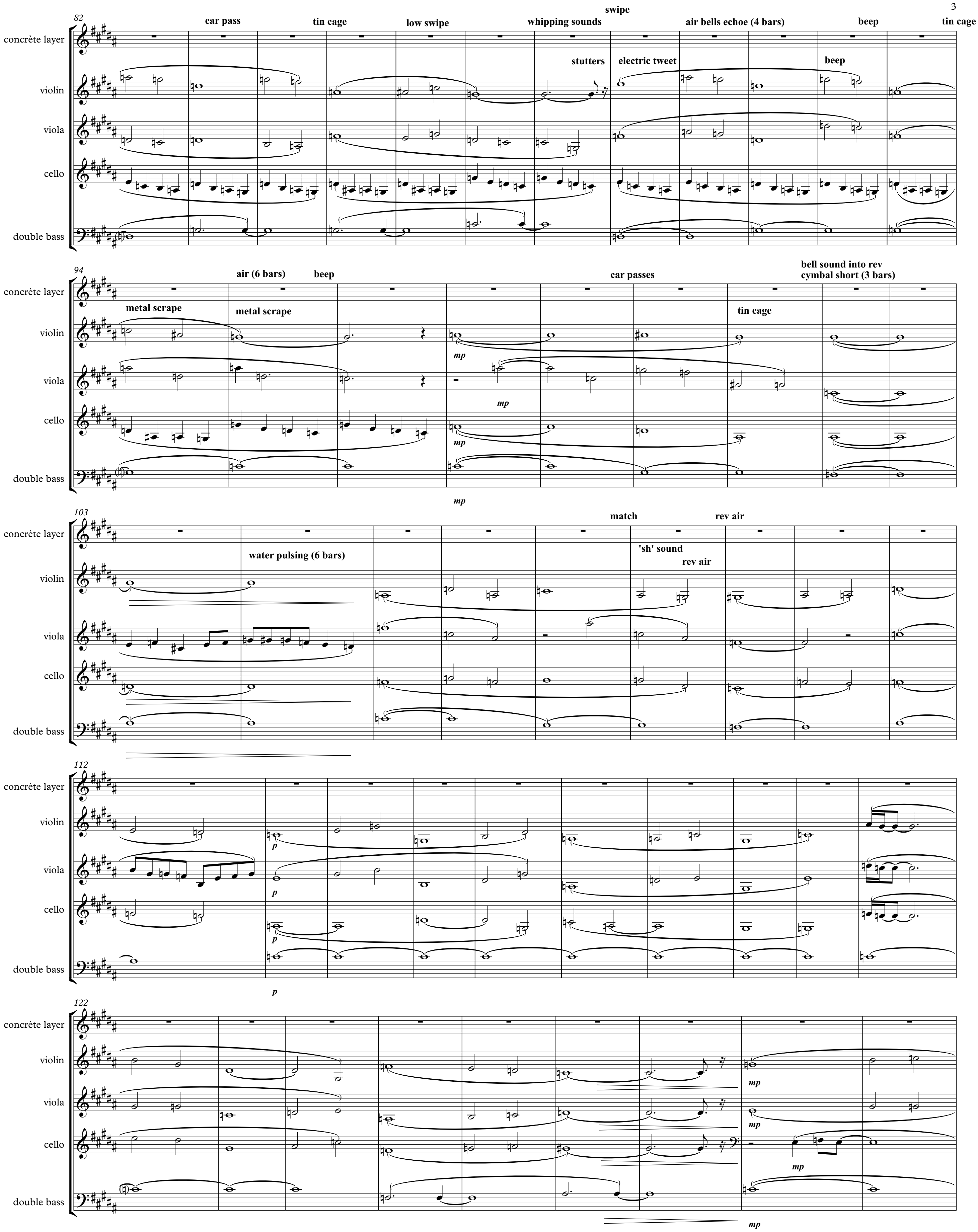

238
concrète layer
violin 1
violin 2
double bass
piano
flit
china crash
rattlesnake
electric zips
flit
wind rustling (2 bars)
flit
flit
flit
slow dim. till end
253
quiet car pass
flit
rattlesnake
flit
rev. air
quiet china crash
quiet car pass
dim. till end
dim. till end
dim. till end
261
rev. air
272

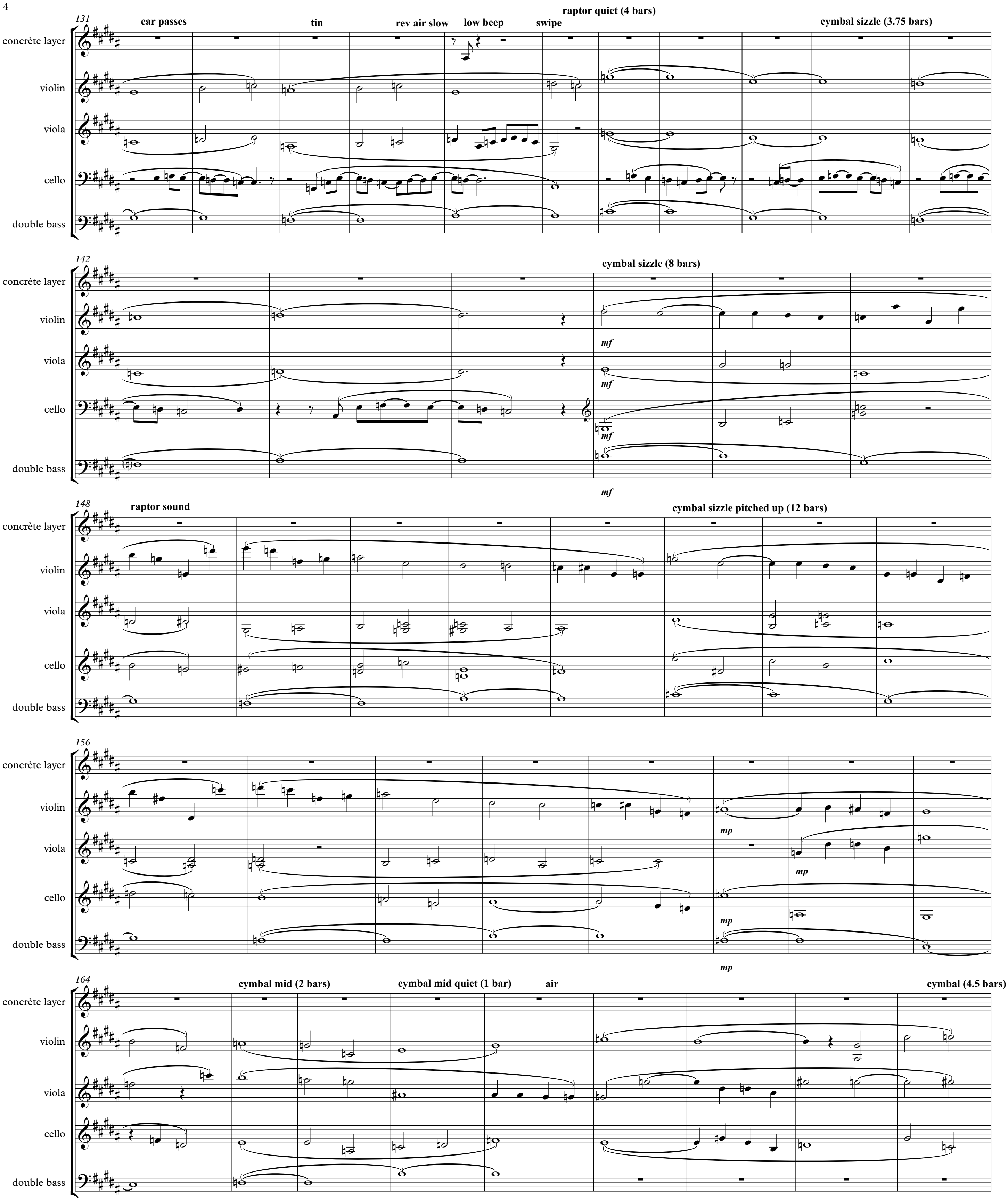
Tadvanalila part 2 (for string quartet)

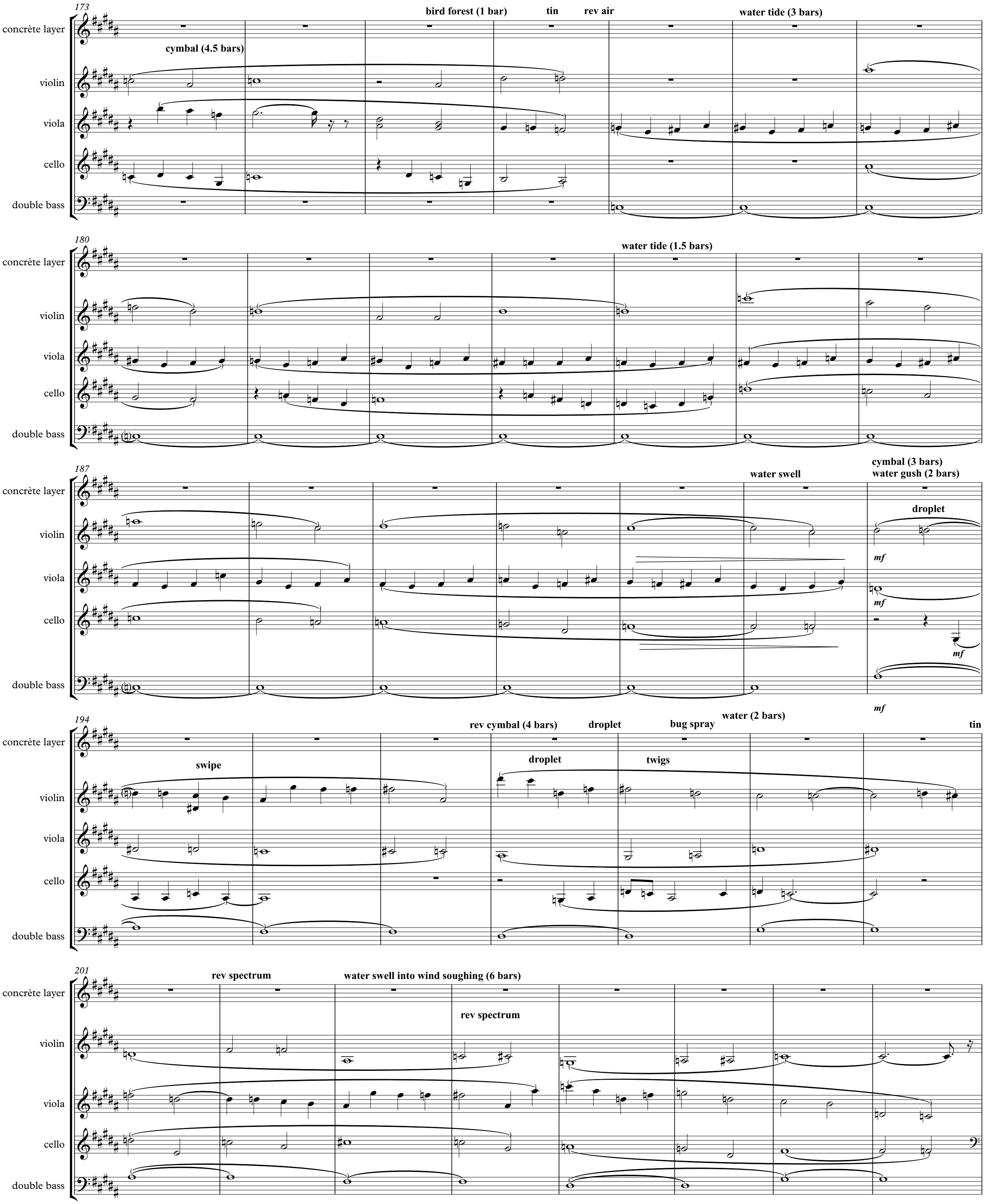
Geoff Geer

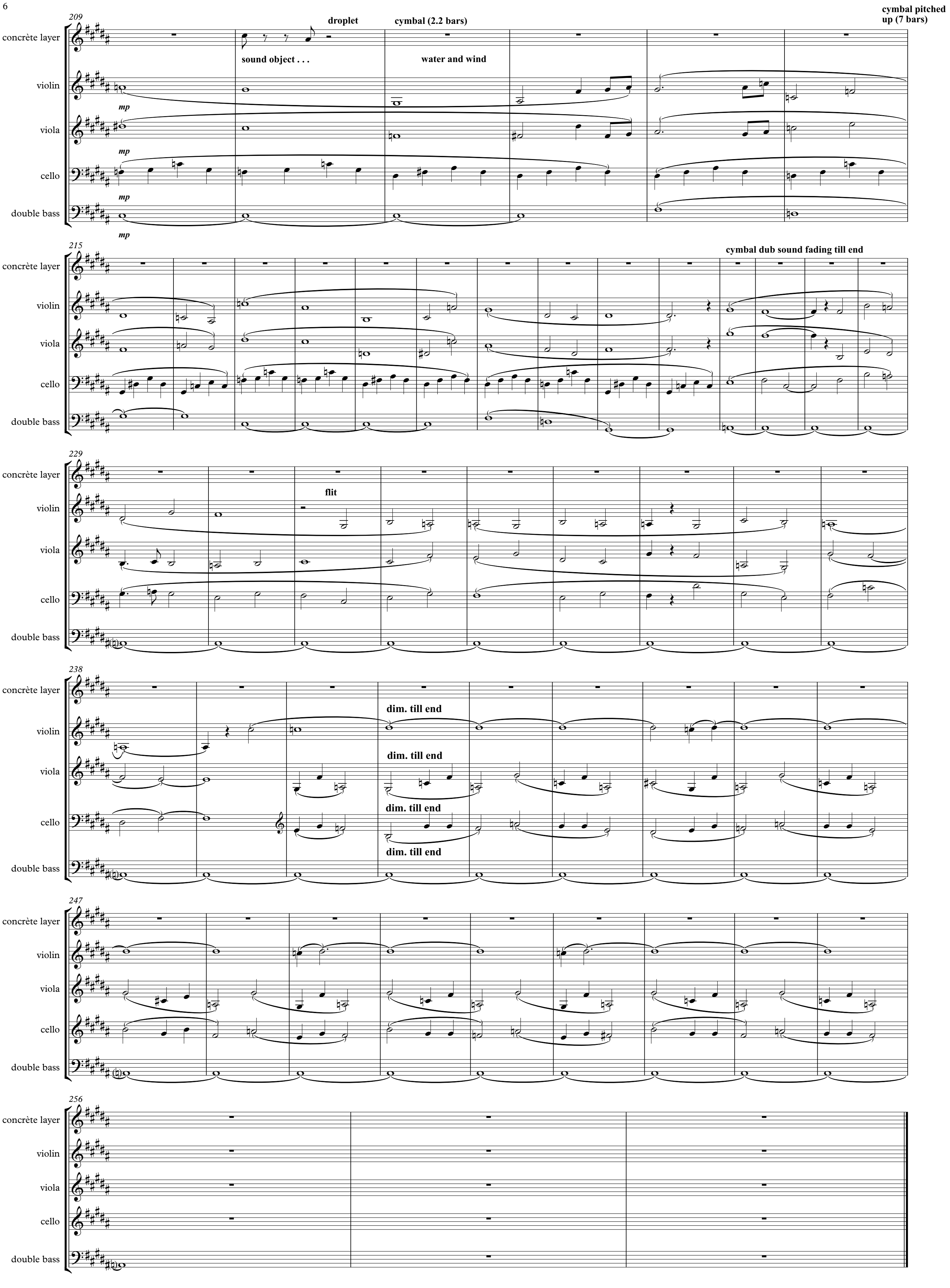

134 bpm
peaceful, obscure, sparse, precise, sweeping
wind
page flip
water (1 bar)
rev cymbals into rattlesnakes (4 bars)
clang shifting timbre (2 bars)
rattlesnake (1.5 bar)
concrète layer
violin
viola
cello
double bass
mp
mp
mp
mp
10
page flip
rev cymbal
tires and water stutters 2 bars
19
bell echoes (1 bar)
rev cymbal fade (5 bars)
beetles for 2.2 bars
29
rev spectral gong into sizzle (5.5 bars)
mf
mf
mf
mf
37
rev spectral gong into sizzle (6 bars)


43
rev spectral gong into sizzle (4 bars)
whoosh
tin
car passing . .
concrète layer
saucer strike
spectral blip
iron fade (4 bars)
bleep
violin
viola
cello
double bass
50
electric beetles (6 bars)
wind note
metal cage
wind into sizzle (7 bars)
wind note
air swipe
57
mangled tin device (2 bars)
echoe bells (4 bars)
sub sound
flit
64
squeak echo pulses (6 bars)
rev cymbal till bar 72 getting louder
stutters
air pressure (8 bars)
70
clang
sizzle
suction
spectral wind suction pulsing (5 bars)
beetles (8 bars)
swipe
flit


82
concrète layer
violin
viola
cello
double bass
car pass
tin cage
low swipe
whipping sounds
swipe
air bells echoe (4 bars)
beep
tin cage
stutters
electric tweet
beep
94
air (6 bars)
beep
car passes
bell sound into rev
cymbal short (3 bars)
metal scrape
metal scrape
tin cage
mp
mp
mp
mp
103
match
rev air
water pulsing (6 bars)
'sh' sound
rev air
112
p
p
p
p
122
mp
mp
mp
mp


131
car passes
tin
rev air slow
low beep
swipe
raptor quiet (4 bars)
cymbal sizzle (3.75 bars)
concrète layer
violin
viola
cello
double bass
142
cymbal sizzle (8 bars)
mf
mf
mf
mf
148
raptor sound
cymbal sizzle pitched up (12 bars)
156
mp
mp
mp
mp
164
cymbal mid (2 bars)
cymbal mid quiet (1 bar)
air
cymbal (4.5 bars)


173
concrète layer
violin
viola
cello
double bass
bird forest (1 bar)
tin
rev air
water tide (3 bars)
cymbal (4.5 bars)
180
water tide (1.5 bars)
187
water swell
cymbal (3 bars)
water gush (2 bars)
droplet
mf
mf
mf
mf
194
rev cymbal (4 bars)
droplet
bug spray
water (2 bars)
tin
swipe
droplet
twigs
201
rev spectrum
water swell into wind soughing (6 bars)
rev spectrum

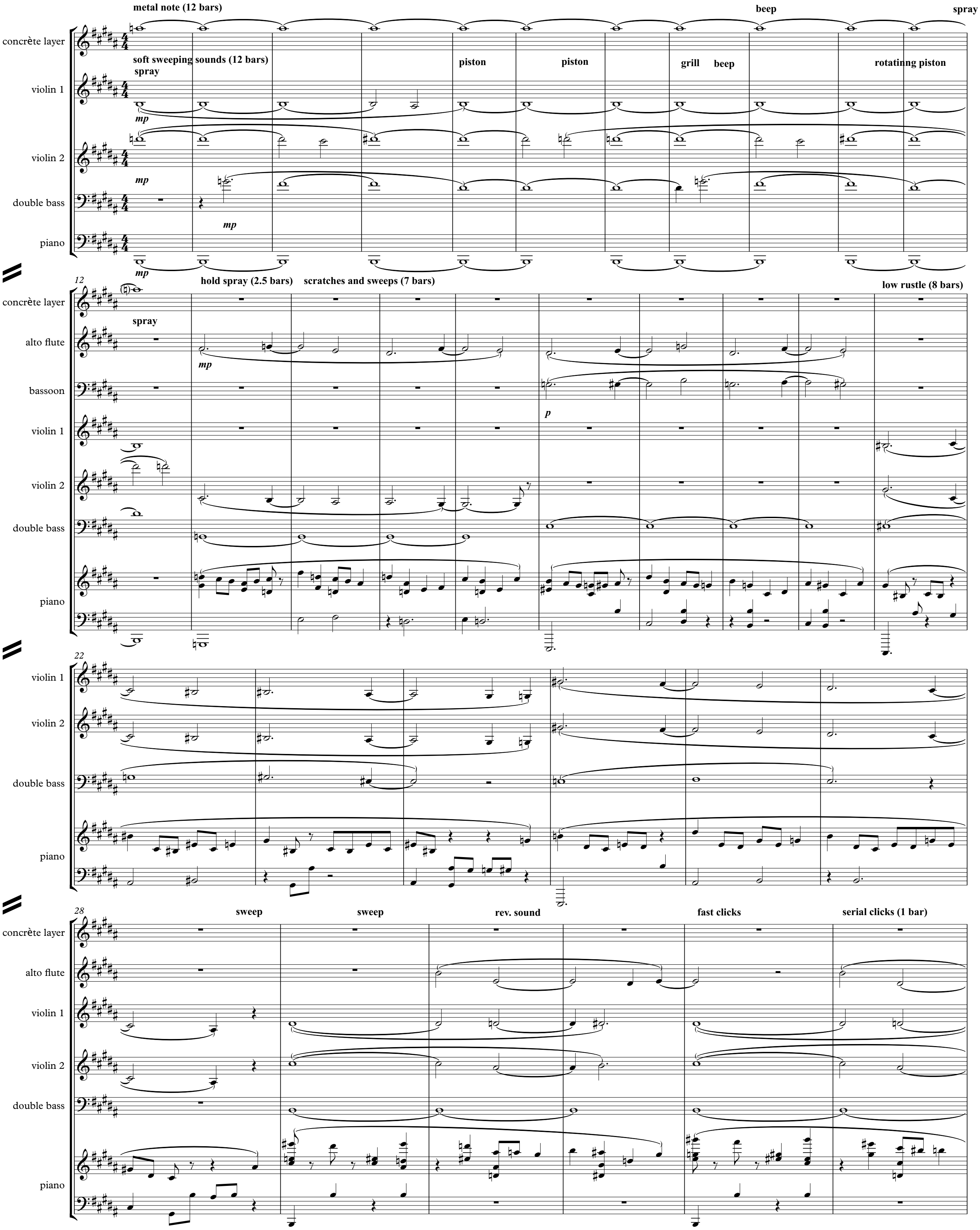

209
droplet
cymbal (2.2 bars)
cymbal pitched up (7 bars)
concrète layer
sound object . . .
water and wind
violin
mp
viola
mp
cello
mp
double bass
mp
215
cymbal dub sound fading till end
concrète layer
violin
viola
cello
double bass
229
concrète layer
violin
flit
viola
cello
double bass
238
concrète layer
violin
dim. till end
viola
dim. till end
cello
dim. till end
double bass
dim. till end
247
concrète layer
violin
viola
cello
double bass
256
concrète layer
violin
viola
cello
double bass

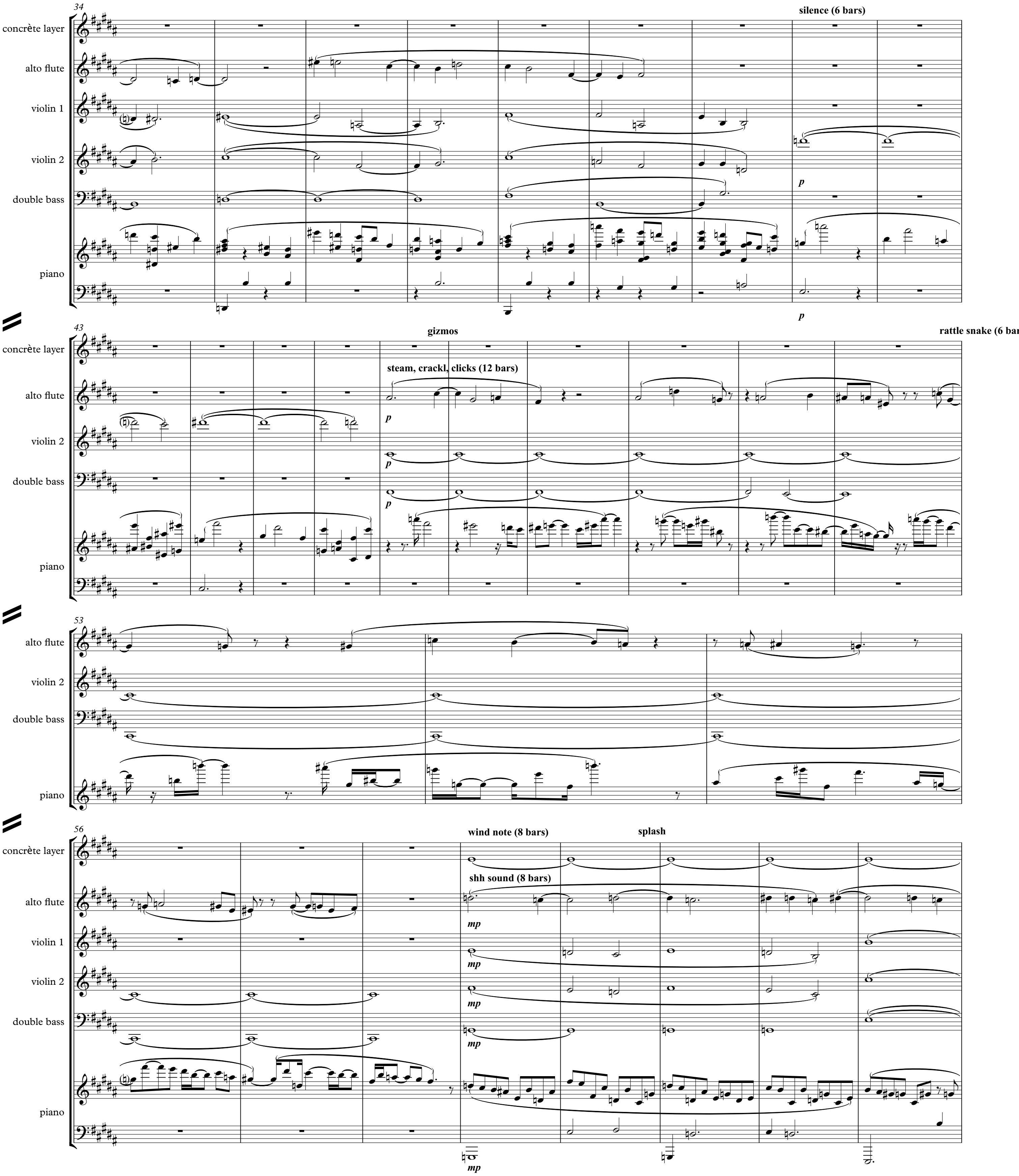
144 bpm

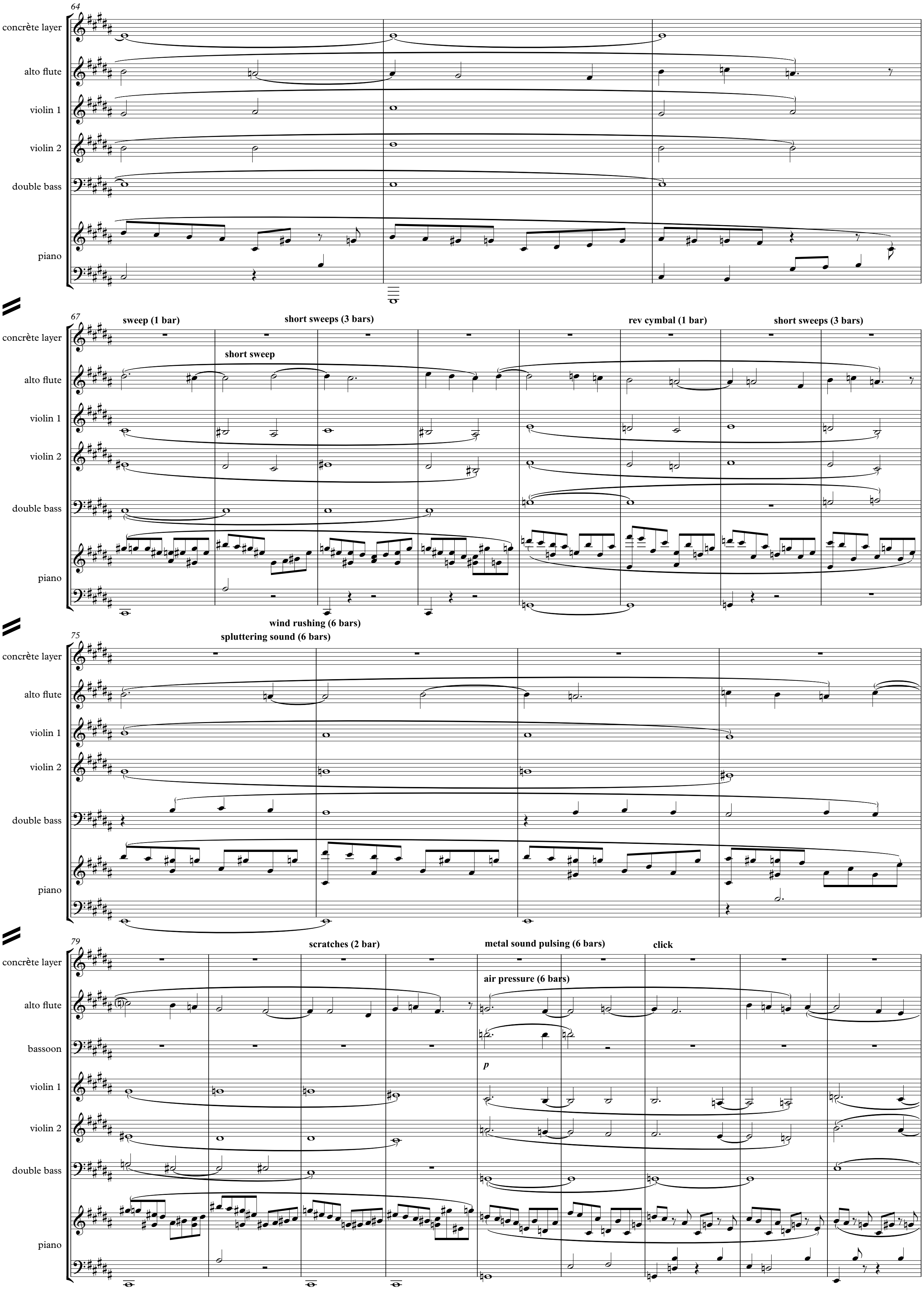
eerie, chilling, suspensful, ominous

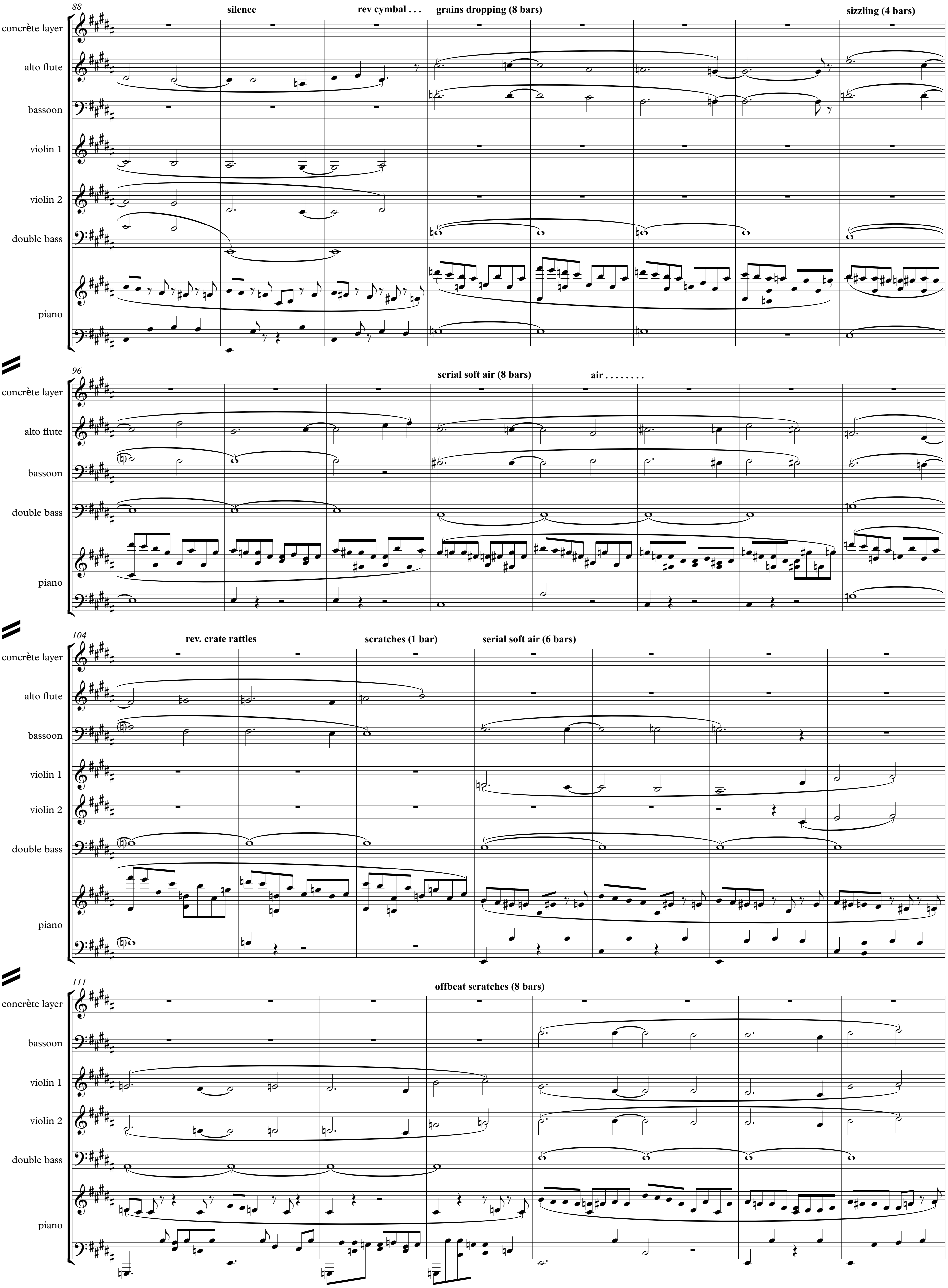
Demon Sands

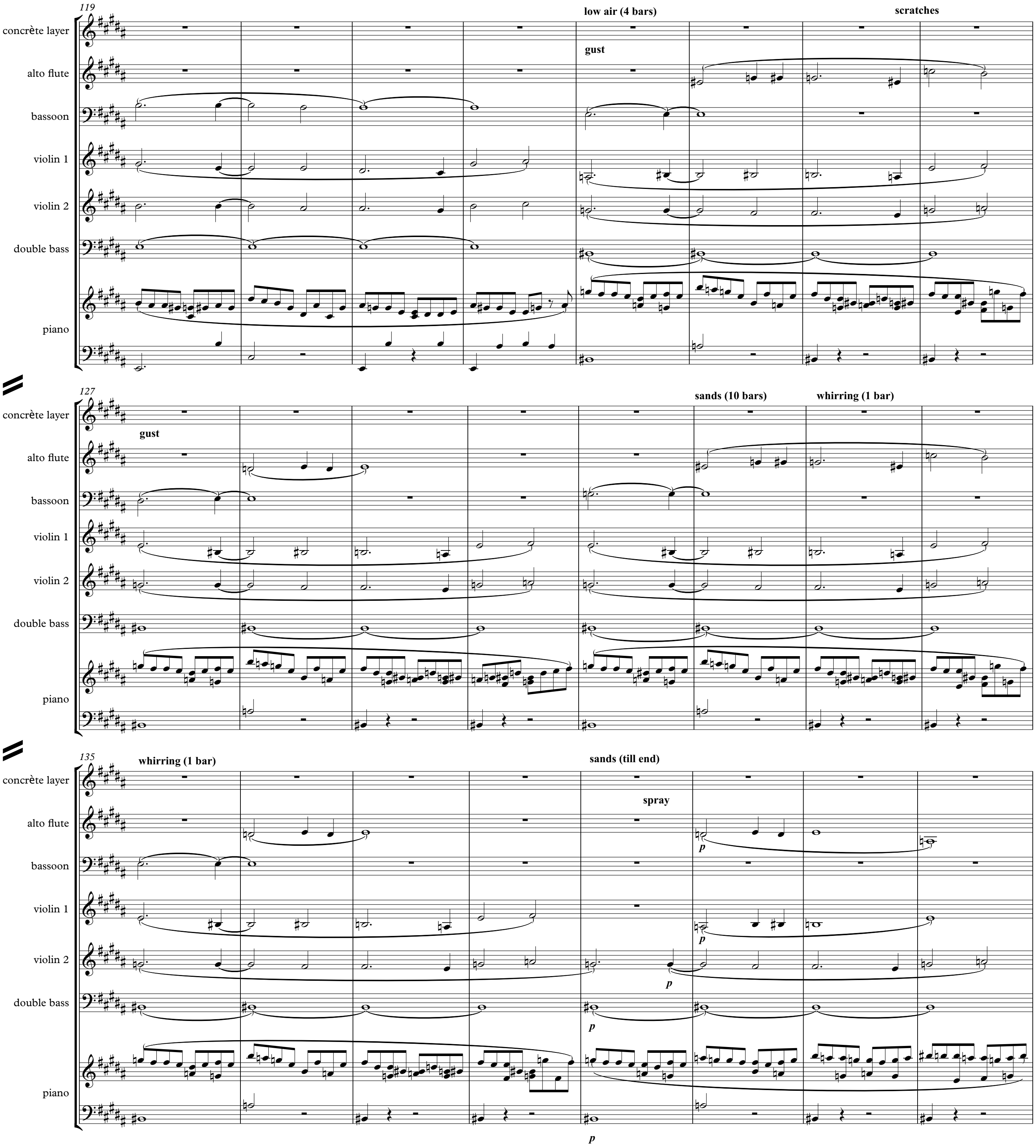
Geoff Geer

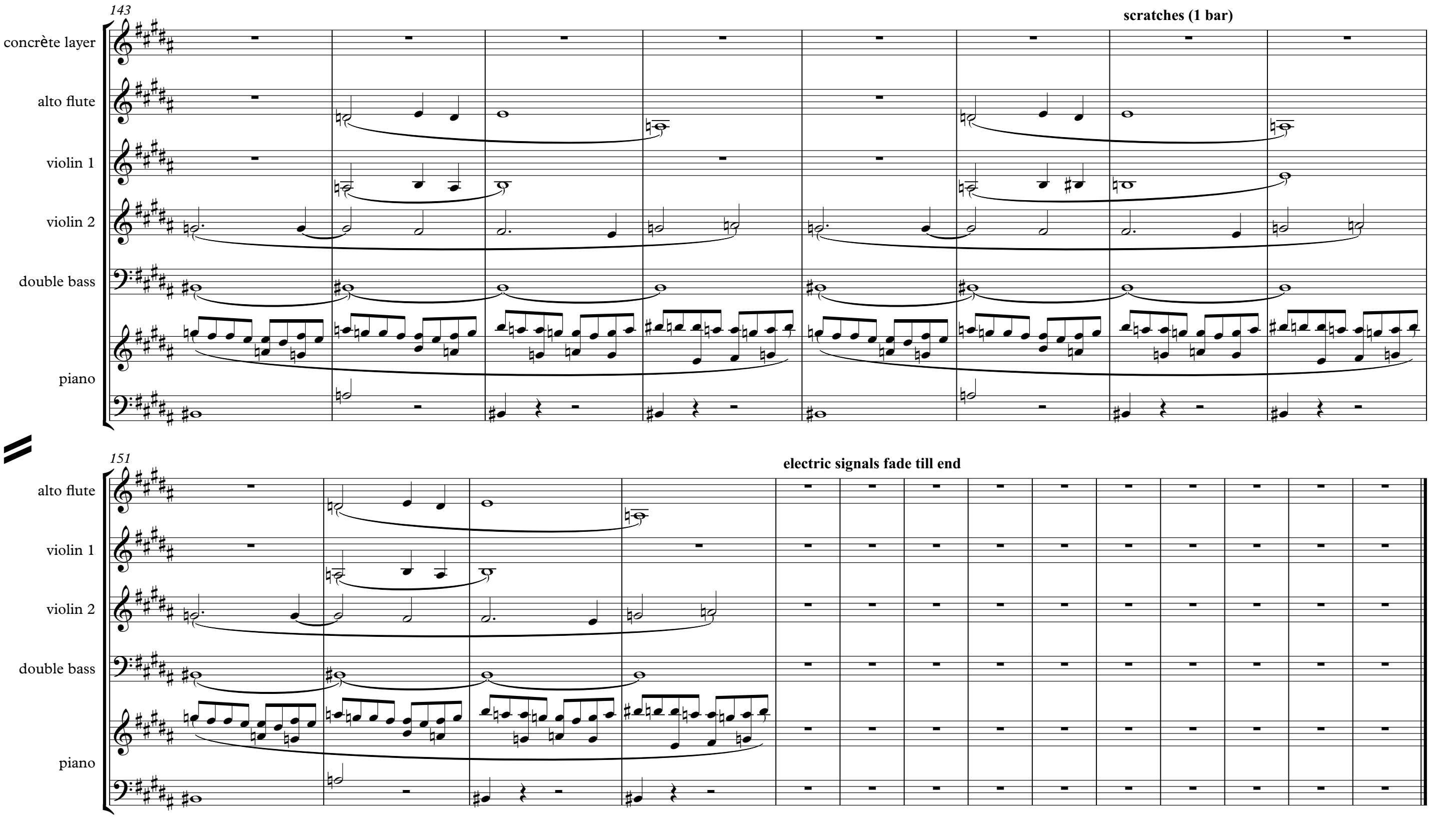

metal note (12 bars)
beep
spray
concrète layer
soft sweeping sounds (12 bars)
spray
violin 1
piston
piston
grill
beep
rotatinng piston
mp
violin 2
mp
double bass
mp
piano
mp
12
hold spray (2.5 bars)
scratches and sweeps (7 bars)
low rustle (8 bars)
concrète layer
spray
alto flute
mp
bassoon
p
violin 1
violin 2
double bass
piano
22
violin 1
violin 2
double bass
piano
28
sweep
sweep
rev. sound
fast clicks
serial clicks (1 bar)
concrète layer
alto flute
violin 1
violin 2
double bass
piano


34
concrète layer
alto flute
violin 1
violin 2
double bass
piano
silence (6 bars)
p
p
43
gizmos
steam, crackl, clicks (12 bars)
rattle snake (6 ba
p
p
p
53
56
wind note (8 bars)
splash
shh sound (8 bars)
mp
mp
mp
mp
mp


64
concrète layer
alto flute
violin 1
violin 2
double bass
piano
67
sweep (1 bar)
short sweeps (3 bars)
rev cymbal (1 bar)
short sweeps (3 bars)
concrète layer
short sweep
alto flute
violin 1
violin 2
double bass
piano
wind rushing (6 bars)
spluttering sound (6 bars)
75
concrète layer
alto flute
violin 1
violin 2
double bass
piano
79
scratches (2 bar)
metal sound pulsing (6 bars)
click
concrète layer
air pressure (6 bars)
alto flute
bassoon
p
violin 1
violin 2
double bass
piano

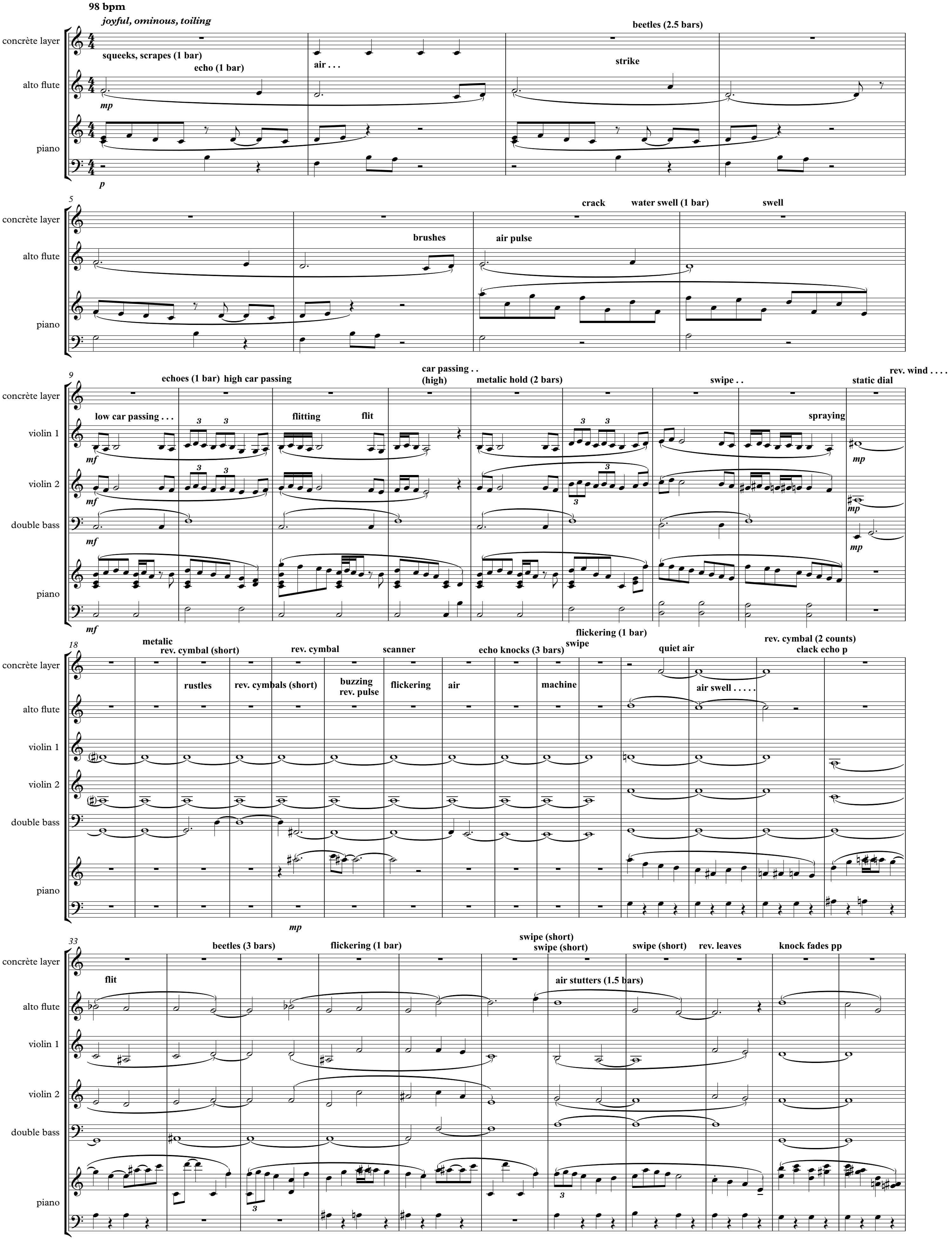

88
silence
rev cymbal . . .
grains dropping (8 bars)
sizzling (4 bars)
concrète layer
alto flute
bassoon
violin 1
violin 2
double bass
piano
96
serial soft air (8 bars)
air . . . .
104
rev. crate rattles
scratches (1 bar)
serial soft air (6 bars)
111
offbeat scratches (8 bars)

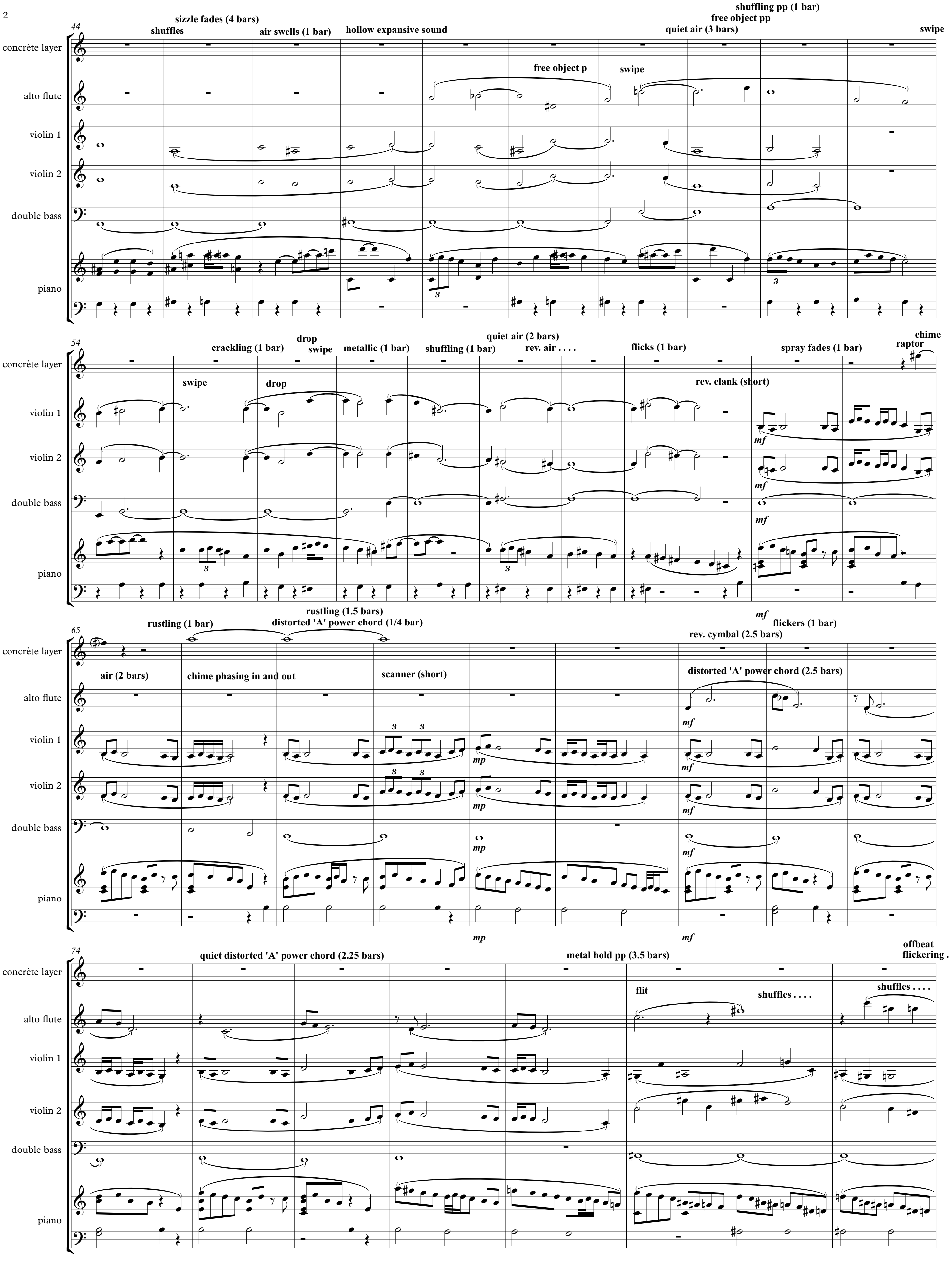

119
concrète layer
alto flute
bassoon
violin 1
violin 2
double bass
piano
low air (4 bars)
scratches
gust
127
concrète layer
alto flute
bassoon
violin 1
violin 2
double bass
piano
gust
sands (10 bars)
whirring (1 bar)
135
concrète layer
alto flute
bassoon
violin 1
violin 2
double bass
piano
whirring (1 bar)
sands (till end)
spray
p
p
p
p
p

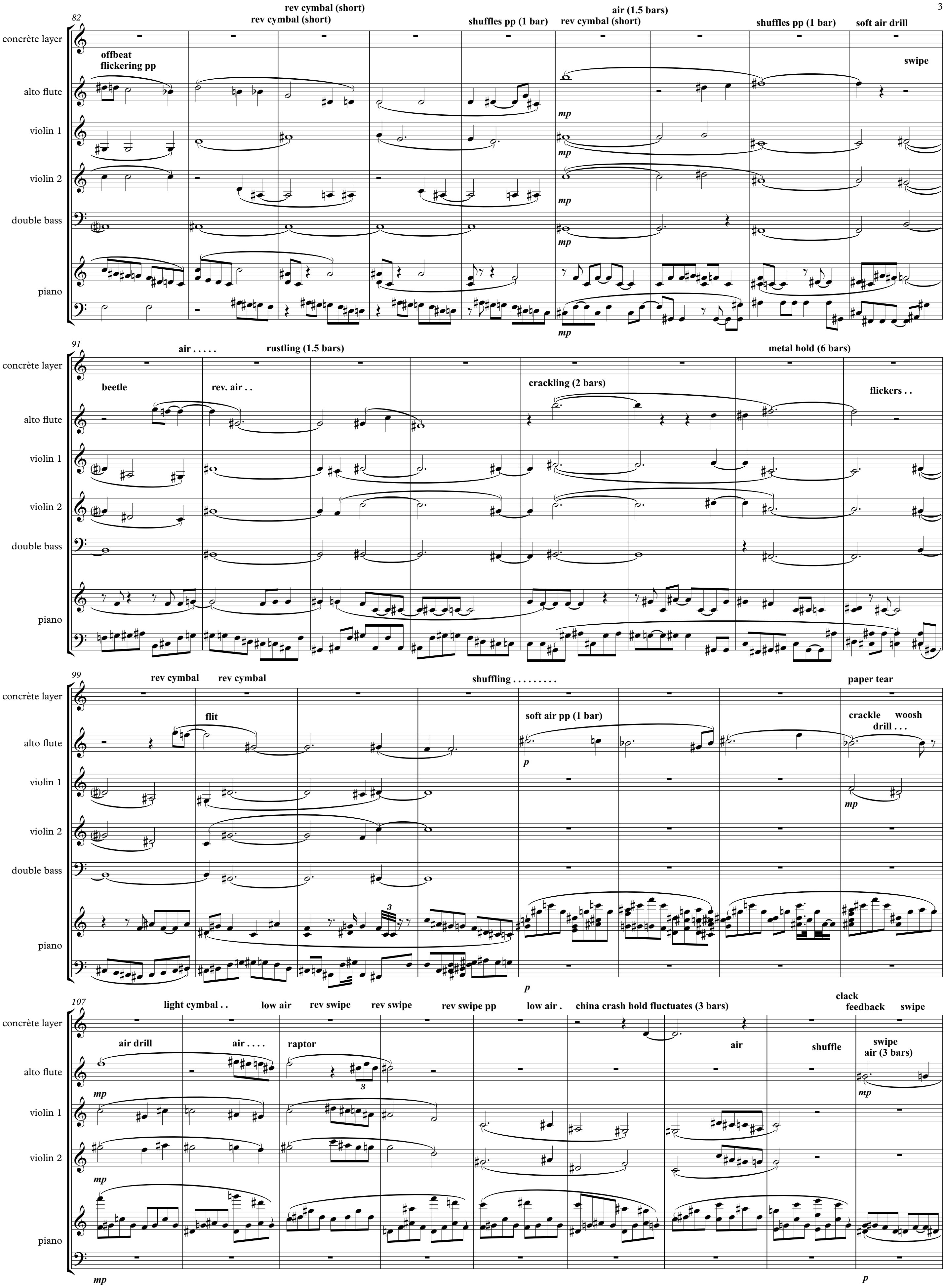

143
scratches (1 bar)
concrète layer
alto flute
violin 1
violin 2
double bass
piano
151
electric signals fade till end
alto flute
violin 1
violin 2
double bass
piano

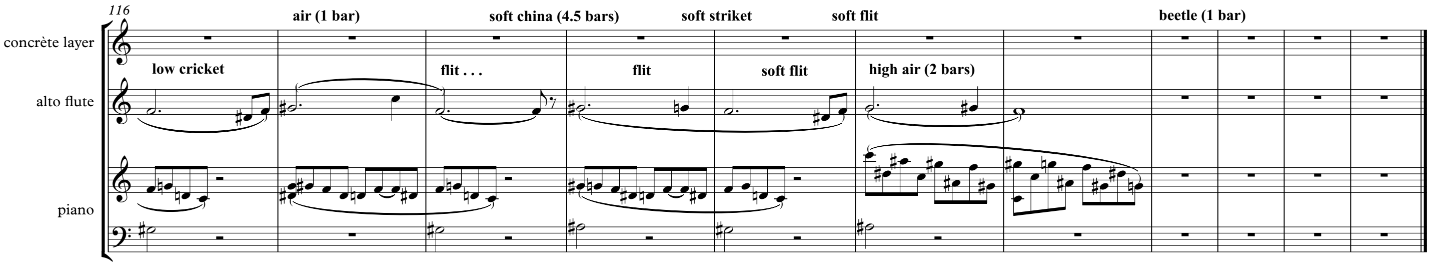
A Desolate Market

Geoff Geer


98 bpm
joyful, ominous, toiling
concrète layer
alto flute
piano
squeeks, scrapes (1 bar)
echo (1 bar)
mp
p
air . . .
beetles (2.5 bars)
strike
5
brushes
air pulse
crack
water swell (1 bar)
swell
9
echoes (1 bar)
high car passing
car passing . .
(high)
metalic hold (2 bars)
swipe . .
static dial
rev. wind . . . .
low car passing . . .
flitting
flit
spraying
violin 1
violin 2
double bass
mf
mp
3
18
metalic
rev. cymbal (short)
rev. cymbal
scanner
echo knocks (3 bars)
flickering (1 bar)
swipe
quiet air
rev. cymbal (2 counts)
clack echo p
rustles
rev. cymbals (short)
buzzing
rev. pulse
flickering
air
machine
air swell . . . . .
33
beetles (3 bars)
flickering (1 bar)
swipe (short)
swipe (short)
swipe (short)
rev. leaves
knock fades pp
flit
air stutters (1.5 bars)

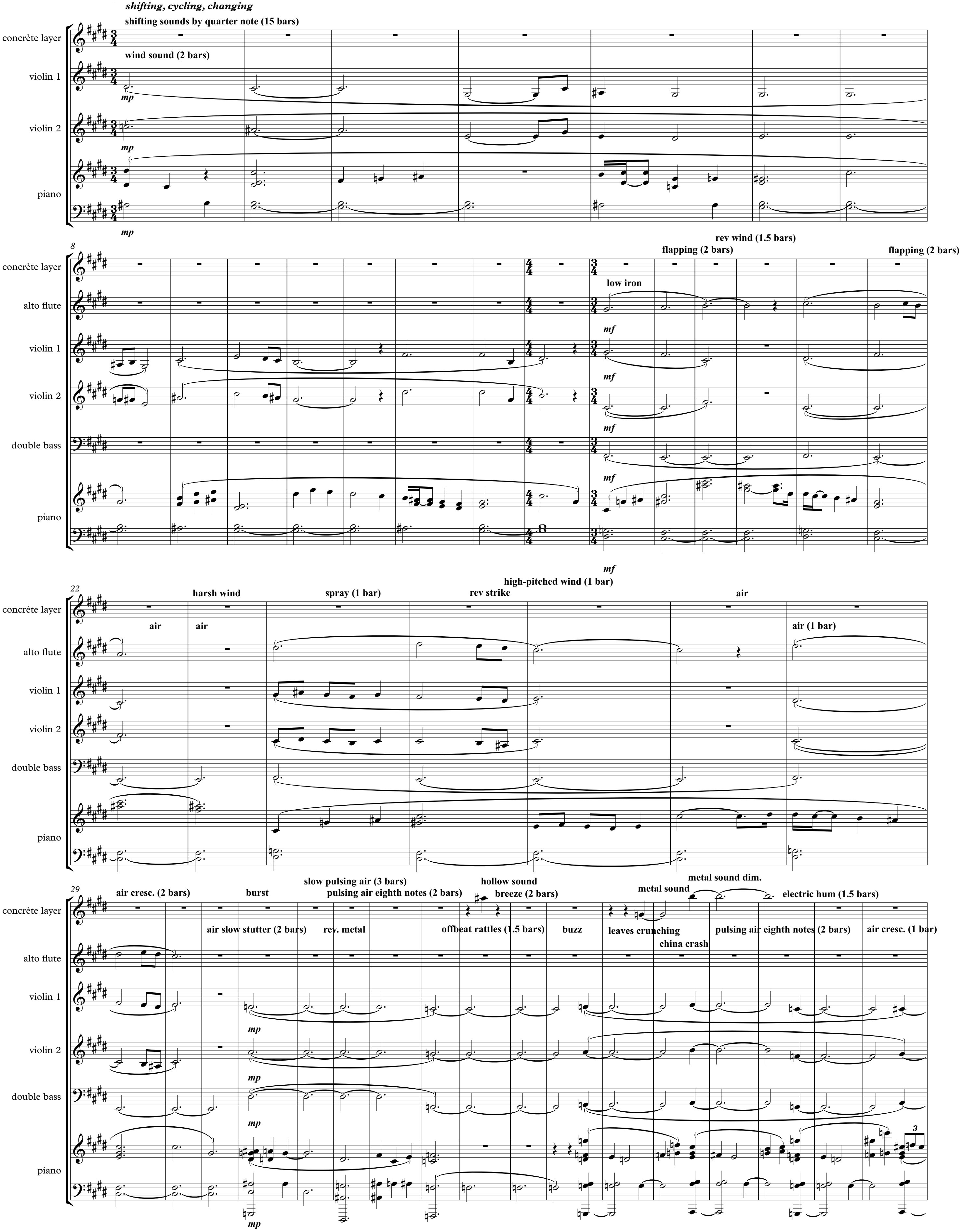

44
sizzle fades (4 bars)
shuffles
air swells (1 bar)
hollow expansive sound
shuffling pp (1 bar)
free object pp
quiet air (3 bars)
swipe
free object p
swipe
concrète layer
alto flute
violin 1
violin 2
double bass
piano
3
3
54
crackling (1 bar)
drop
swipe
metallic (1 bar)
shuffling (1 bar)
quiet air (2 bars)
rev. air . . . .
flicks (1 bar)
spray fades (1 bar)
chime
raptor
swipe
drop
rev. clank (short)
3
3
mf
mf
mf
mf
65
rustling (1 bar)
rustling (1.5 bars)
distorted 'A' power chord (1/4 bar)
flickers (1 bar)
rev. cymbal (2.5 bars)
air (2 bars)
chime phasing in and out
scanner (short)
distorted 'A' power chord (2.5 bars)
3
3
3
3
mf
mp
mf
mp
mf
mp
mf
mp
mf
74
quiet distorted 'A' power chord (2.25 bars)
metal hold pp (3.5 bars)
offbeat
flickering . . . .
flit
shuffles . . . .
shuffles . . . .

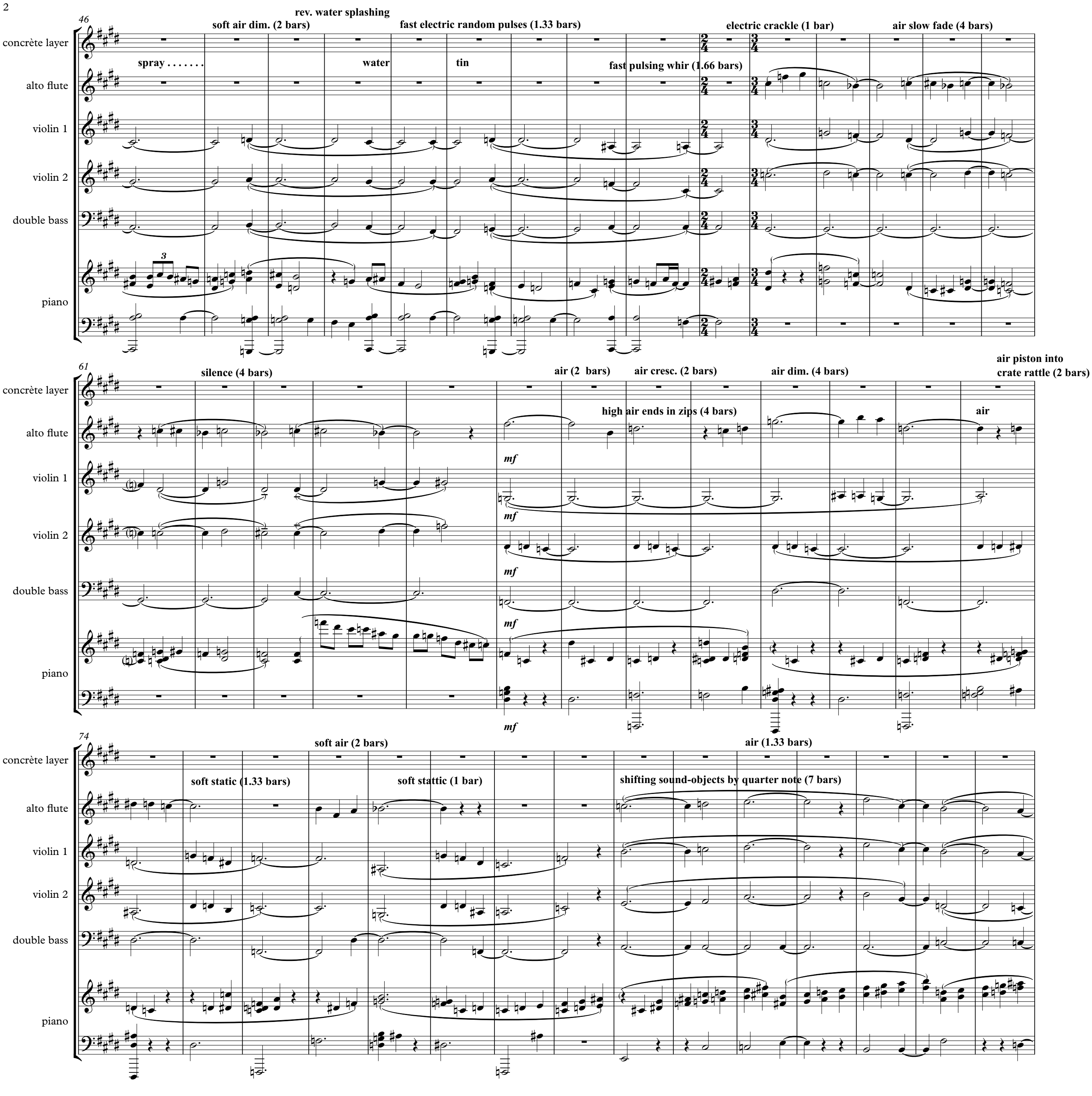

82
rev cymbal (short)
rev cymbal (short)
shuffles pp (1 bar)
air (1.5 bars)
rev cymbal (short)
shuffles pp (1 bar)
soft air drill
concrète layer
offbeat
flickering pp
swipe
alto flute
violin 1
violin 2
double bass
piano
mp
mp
mp
mp
mp
91
air . . . . .
rustling (1.5 bars)
metal hold (6 bars)
beetle
rev. air . .
crackling (2 bars)
flickers . .
99
rev cymbal
rev cymbal
shuffling . . . .
paper tear
flit
soft air pp (1 bar)
crackle
woosh
drill . . .
p
mp
3
p
107
light cymbal . .
low air
rev swipe
rev swipe
rev swipe pp
low air .
china crash hold fluctuates (3 bars)
clack
feedback
swipe
air drill
air . . . .
raptor
air
shuffle
swipe
air (3 bars)
mp
mp
mp
3
mp
p

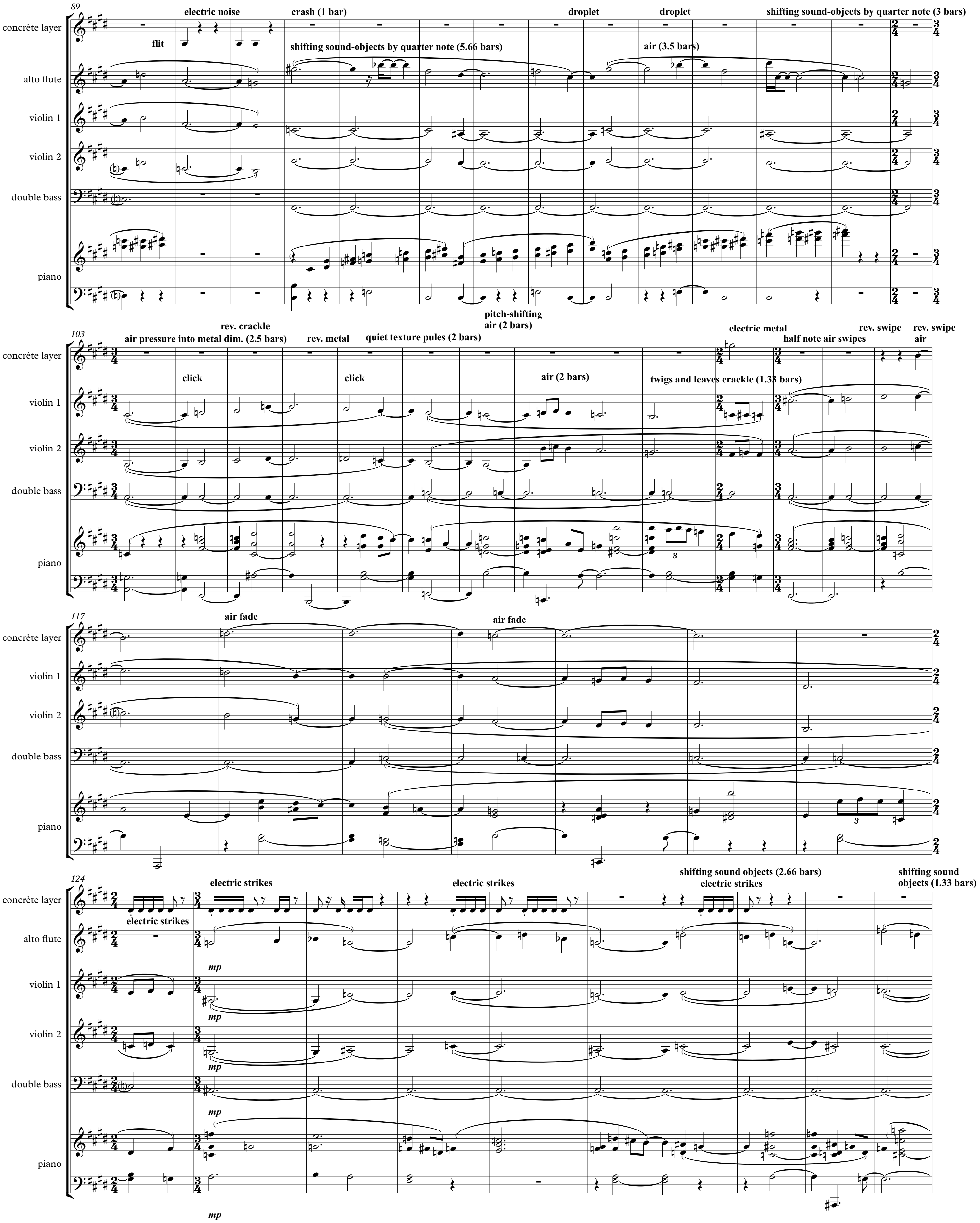

116
concrète layer
alto flute
piano
air (1 bar)
soft china (4.5 bars)
soft striket
soft flit
beetle (1 bar)
low cricket
flit . . .
flit
soft flit
high air (2 bars)

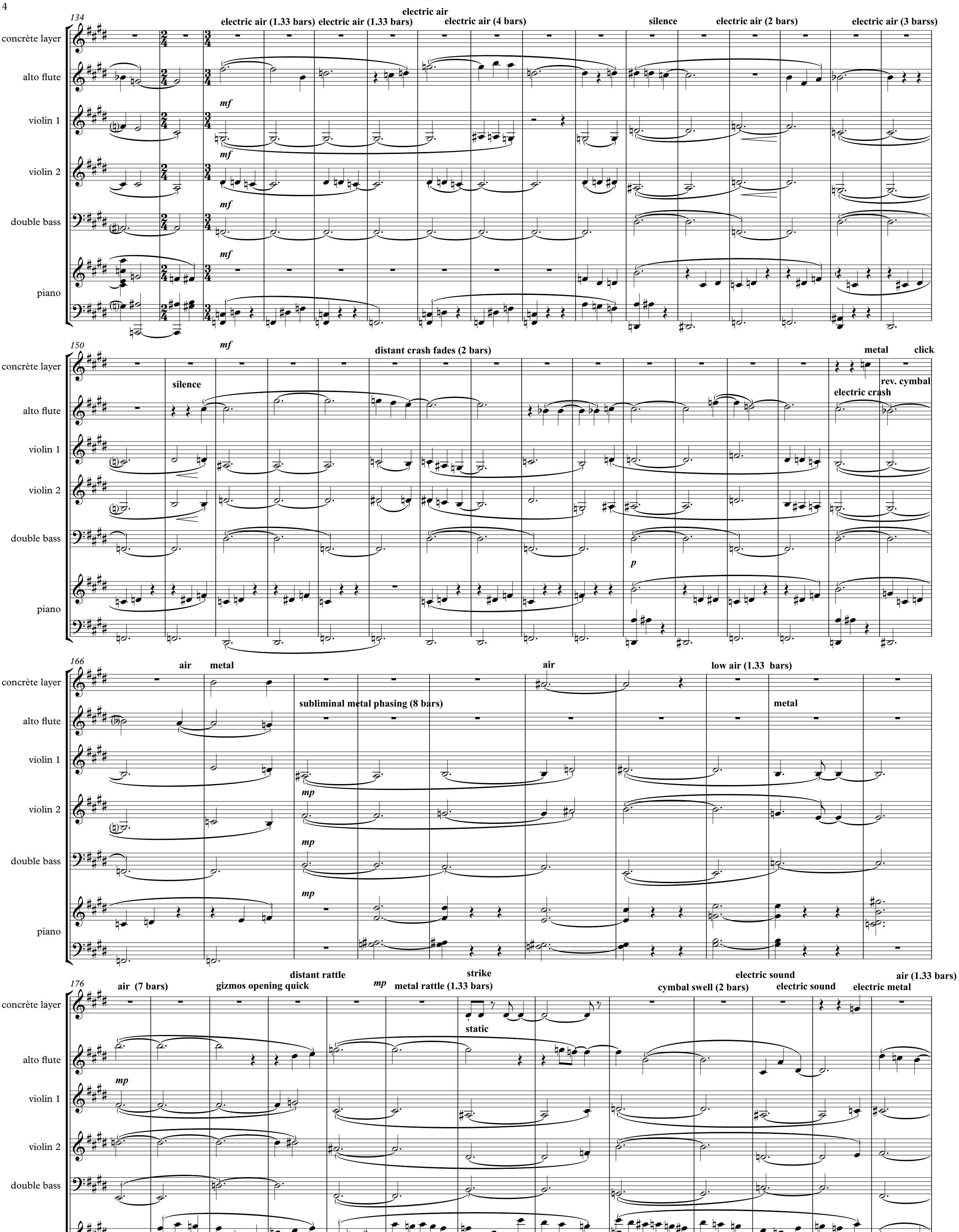
The Broken Oracle part 1

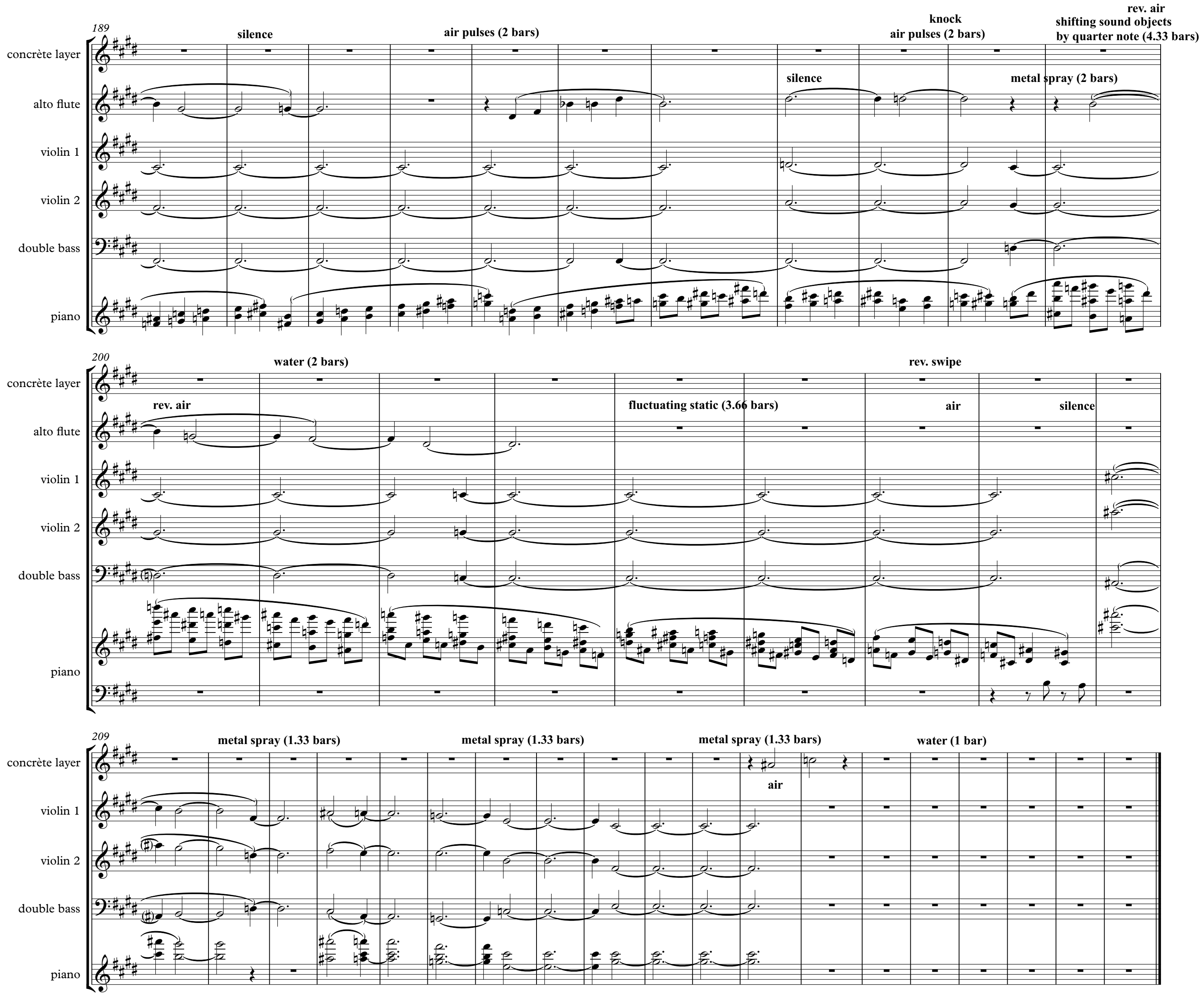
Geoff Geer


132 bpm
shifting, cycling, changing
shifting sounds by quarter note (15 bars)
concrète layer
wind sound (2 bars)
violin 1
mp
violin 2
mp
piano
mp
8
concrète layer
alto flute
violin 1
violin 2
double bass
piano
rev wind (1.5 bars)
flapping (2 bars)
flapping (2 bars)
low iron
mf
mf
mf
mf
8
mf
22
harsh wind
spray (1 bar)
rev strike
high-pitched wind (1 bar)
air
air
air
air (1 bar)
29
air cresc. (2 bars)
burst
slow pulsing air (3 bars)
pulsing air eighth notes (2 bars)
hollow sound
breeze (2 bars)
metal sound
metal sound dim.
electric hum (1.5 bars)
air slow stutter (2 bars)
rev. metal
offbeat rattles (1.5 bars)
buzz
leaves crunching
china crash
pulsing air eighth notes (2 bars)
air cresc. (1 bar)
mp
mp
mp
mp
3


46
rev. water splashing
soft air dim. (2 bars)
fast electric random pulses (1.33 bars)
electric crackle (1 bar)
air slow fade (4 bars)
spray . . . .
water
tin
fast pulsing whir (1.66 bars)
3
concrète layer
alto flute
violin 1
violin 2
double bass
piano
61
silence (4 bars)
air (2 bars)
air cresc. (2 bars)
air dim. (4 bars)
air piston into crate rattle (2 bars)
high air ends in zips (4 bars)
air
mf
mf
mf
mf
mf
mf
74
soft air (2 bars)
air (1.33 bars)
soft static (1.33 bars)
soft stattic (1 bar)
shifting sound-objects by quarter note (7 bars)

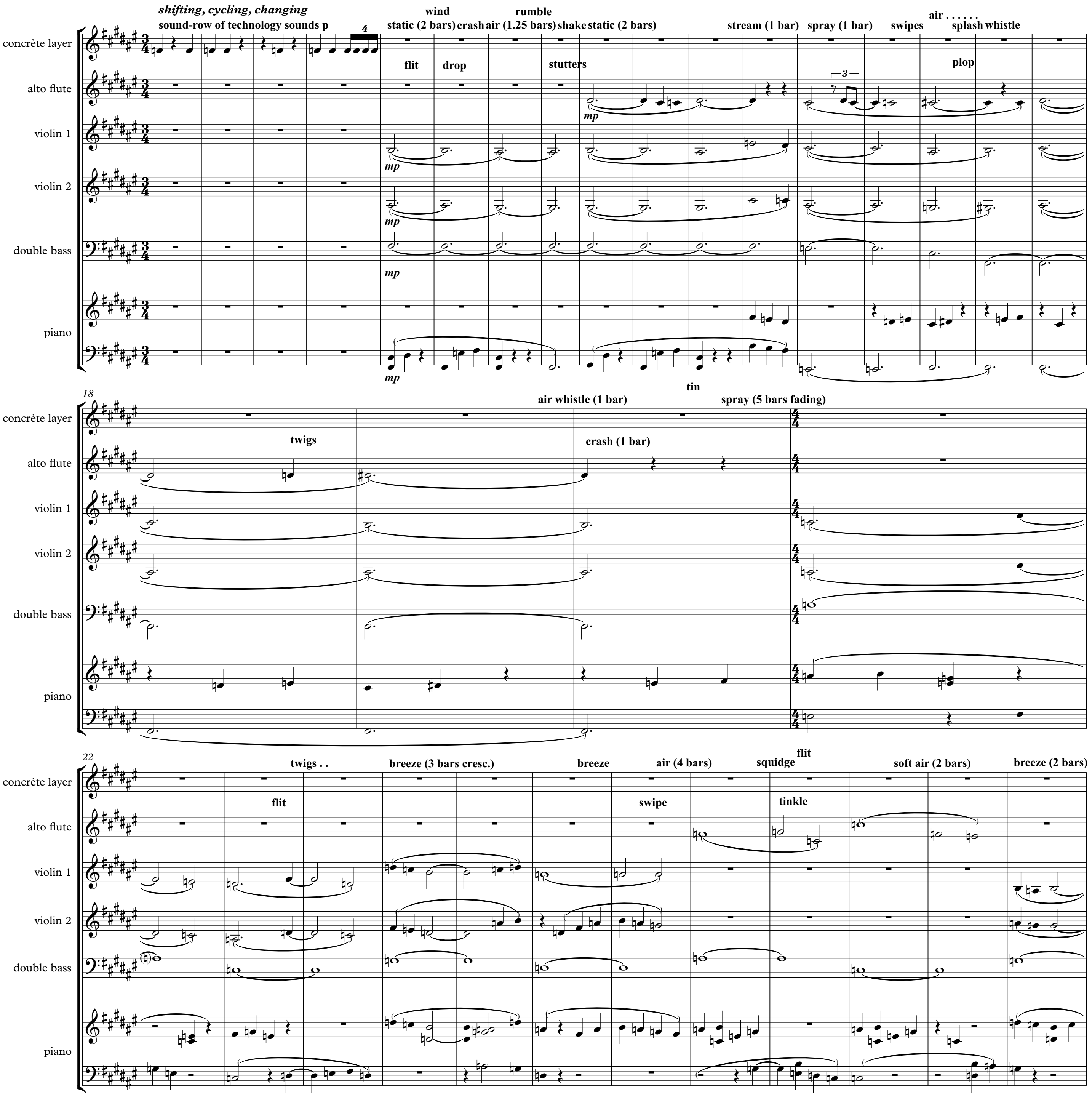

89
concrète layer
alto flute
violin 1
violin 2
double bass
piano
electric noise
flit
crash (1 bar)
shifting sound-objects by quarter note (5.66 bars)
droplet
droplet
air (3.5 bars)
shifting sound-objects by quarter note (3 bars)
103
concrète layer
violin 1
violin 2
double bass
piano
rev. crackle
air pressure into metal dim. (2.5 bars)
rev. metal
quiet texture pules (2 bars)
pitch-shifting
air (2 bars)
click
click
air (2 bars)
twigs and leaves crackle (1.33 bars)
electric metal
half note air swipes
rev. swipe
rev. swipe
air
3
117
concrète layer
violin 1
violin 2
double bass
piano
air fade
air fade
3
124
concrète layer
alto flute
violin 1
violin 2
double bass
piano
electric strikes
electric strikes
electric strikes
shifting sound objects (2.66 bars)
electric strikes
shifting sound
objects (1.33 bars)
mp
mp
mp
mp
mp
mp

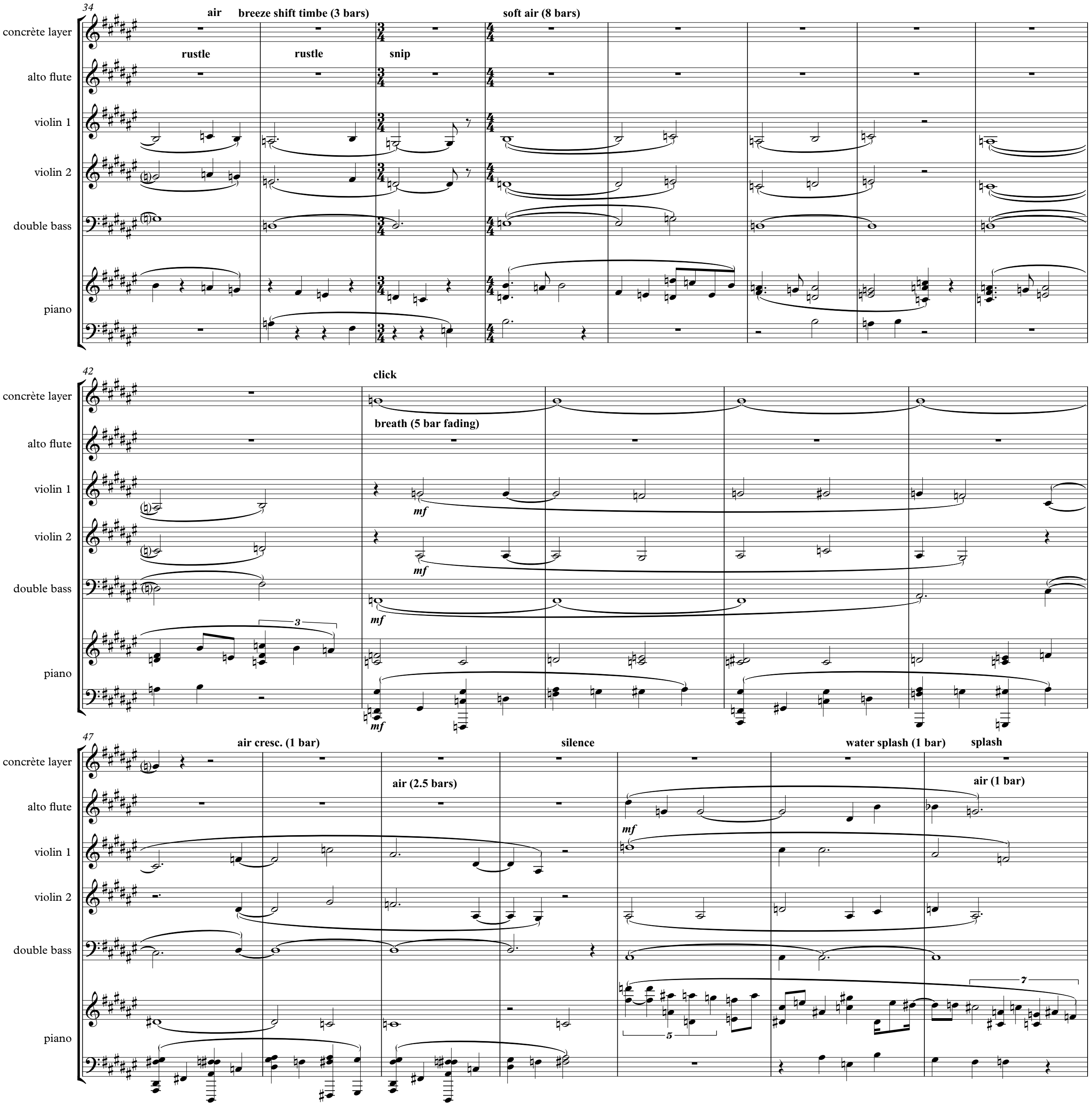

134
electric air (1.33 bars)
electric air (1.33 bars)
electric air
electric air (4 bars)
silence
electric air (2 bars)
electric air (3 barss)
concrète layer
alto flute
violin 1
violin 2
double bass
piano
mf
mf
mf
mf
mf
150
distant crash fades (2 bars)
silence
metal
click
rev. cymbal
electric crash
p
166
air
metal
subliminal metal phasing (8 bars)
air
low air (1.33 bars)
metal
mp
mp
mp
176
air (7 bars)
gizmos opening quick
distant rattle
mp
metal rattle (1.33 bars)
strike
static
cymbal swell (2 bars)
electric sound
electric sound
electric metal
air (1.33 bars)
mp
3

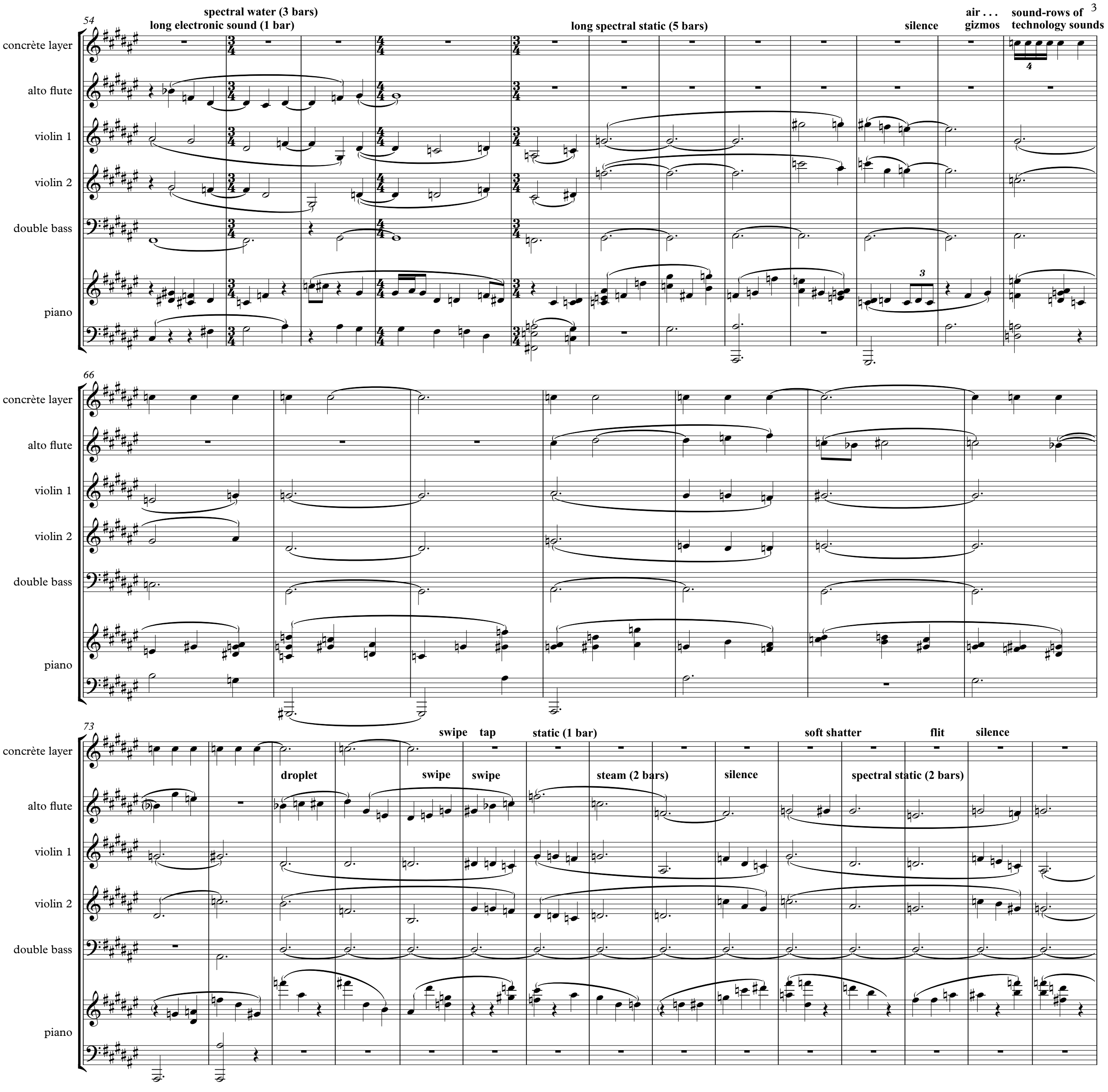

189
silence
air pulses (2 bars)
knock
air pulses (2 bars)
rev. air
shifting sound objects
by quarter note (4.33 bars)
concrète layer
alto flute
violin 1
violin 2
double bass
piano
silence
metal spray (2 bars)
200
water (2 bars)
rev. swipe
rev. air
fluctuating static (3.66 bars)
air
silence
concrète layer
alto flute
violin 1
violin 2
double bass
piano
209
metal spray (1.33 bars)
metal spray (1.33 bars)
metal spray (1.33 bars)
water (1 bar)
air
concrète layer
violin 1
violin 2
double bass
piano

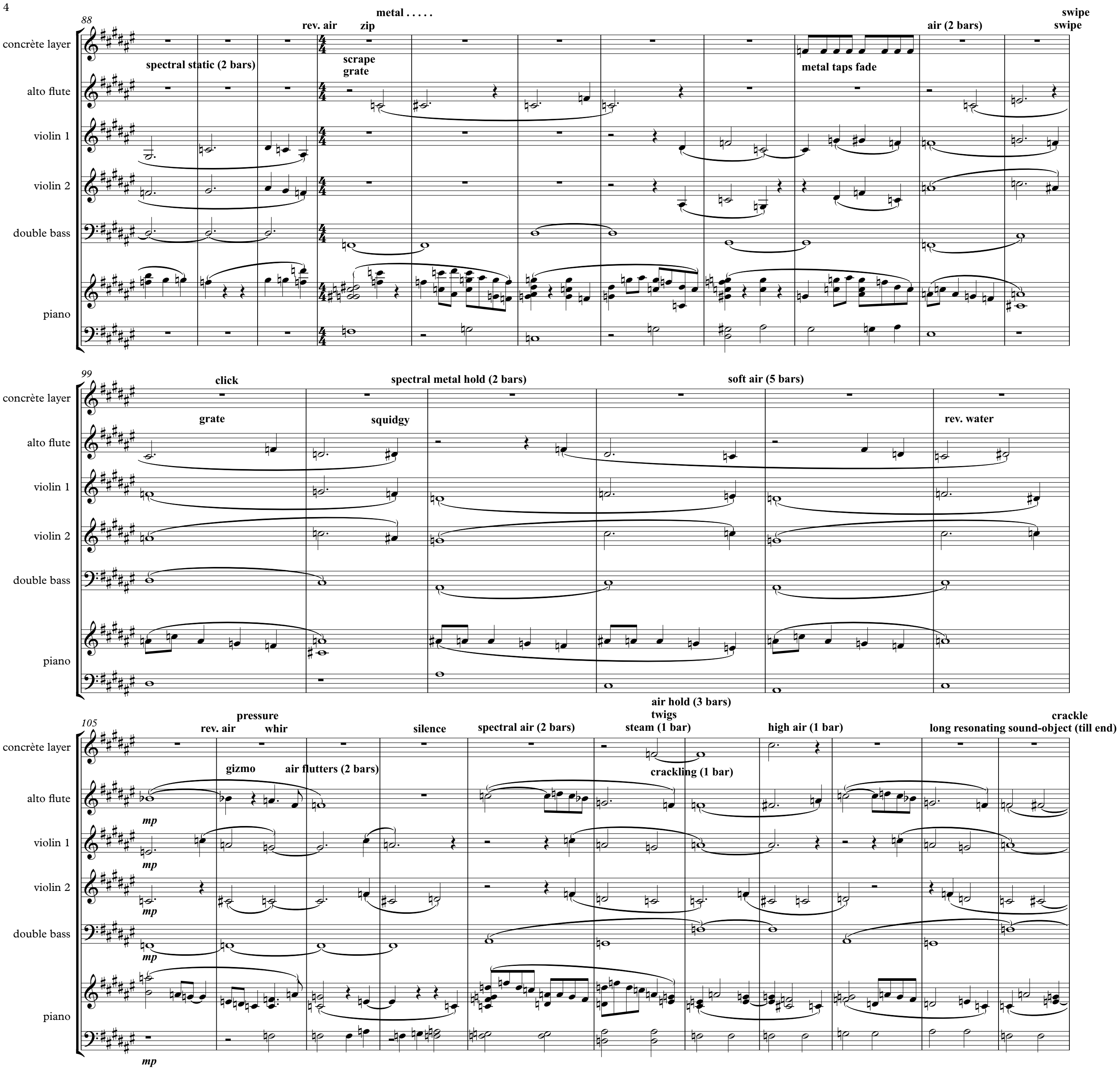
The Broken Oracle part 2

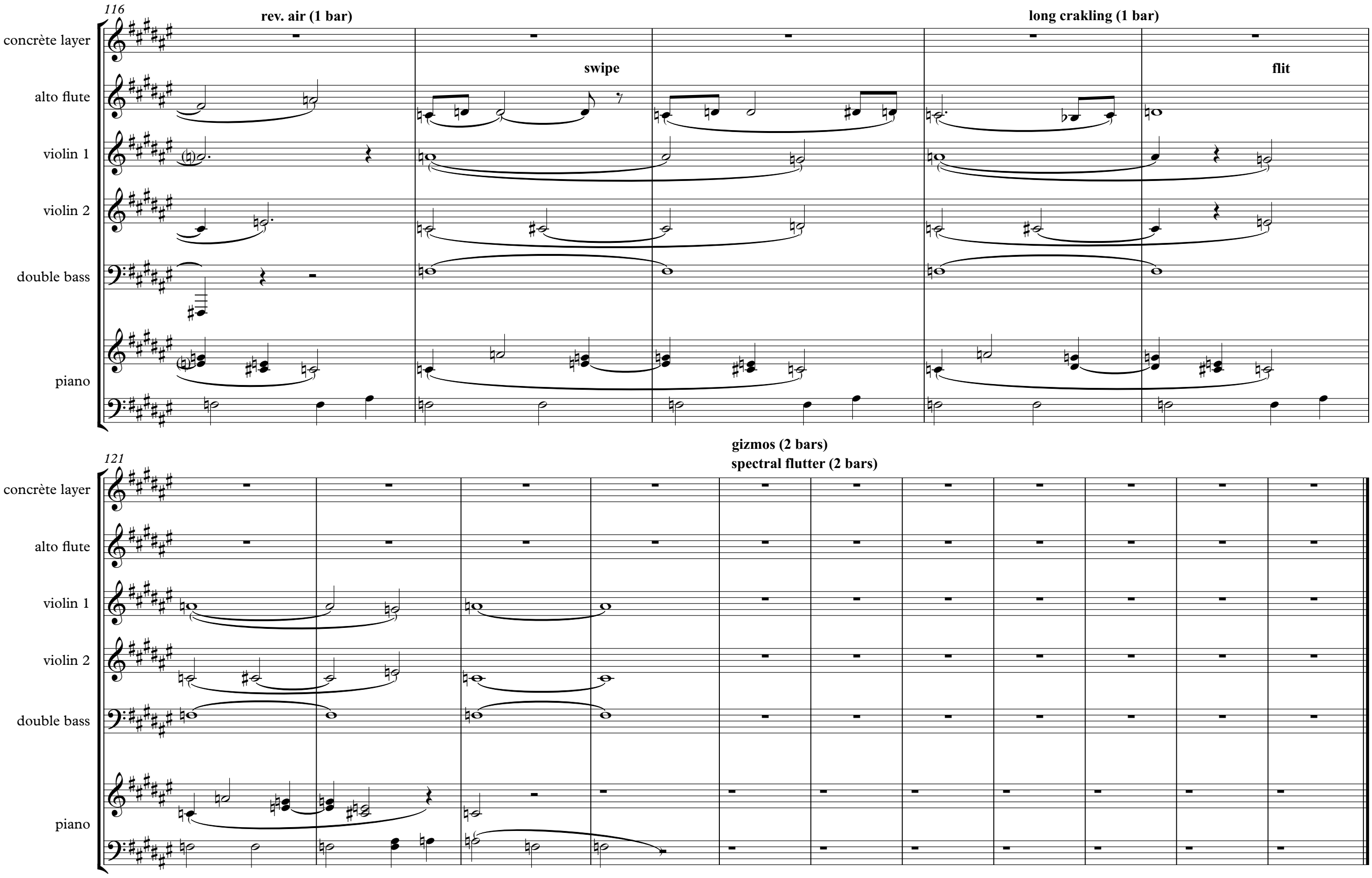
Geoff Geer


104 bpm
shifting, cycling, changing
sound-row of technology sounds p
wind
static (2 bars)
crash
rumble
air (1.25 bars)
shake
static (2 bars)
stream (1 bar)
spray (1 bar)
swipes
air . . . . . .
splash
whistle
flit
drop
stutters
plop
concrète layer
alto flute
violin 1
violin 2
double bass
piano
mp
18
twigs
air whistle (1 bar)
crash (1 bar)
tin
spray (5 bars fading)
22
twigs . .
flit
breeze (3 bars cresc.)
breeze
air (4 bars)
swipe
squidge
flit
tinkle
soft air (2 bars)
breeze (2 bars)


34
concrète layer
alto flute
violin 1
violin 2
double bass
piano
air
breeze shift timbe (3 bars)
soft air (8 bars)
rustle
rustle
snip
42
click
breath (5 bar fading)
mf
mf
mf
mf
3
47
air cresc. (1 bar)
silence
water splash (1 bar)
splash
air (2.5 bars)
air (1 bar)
mf
5
7

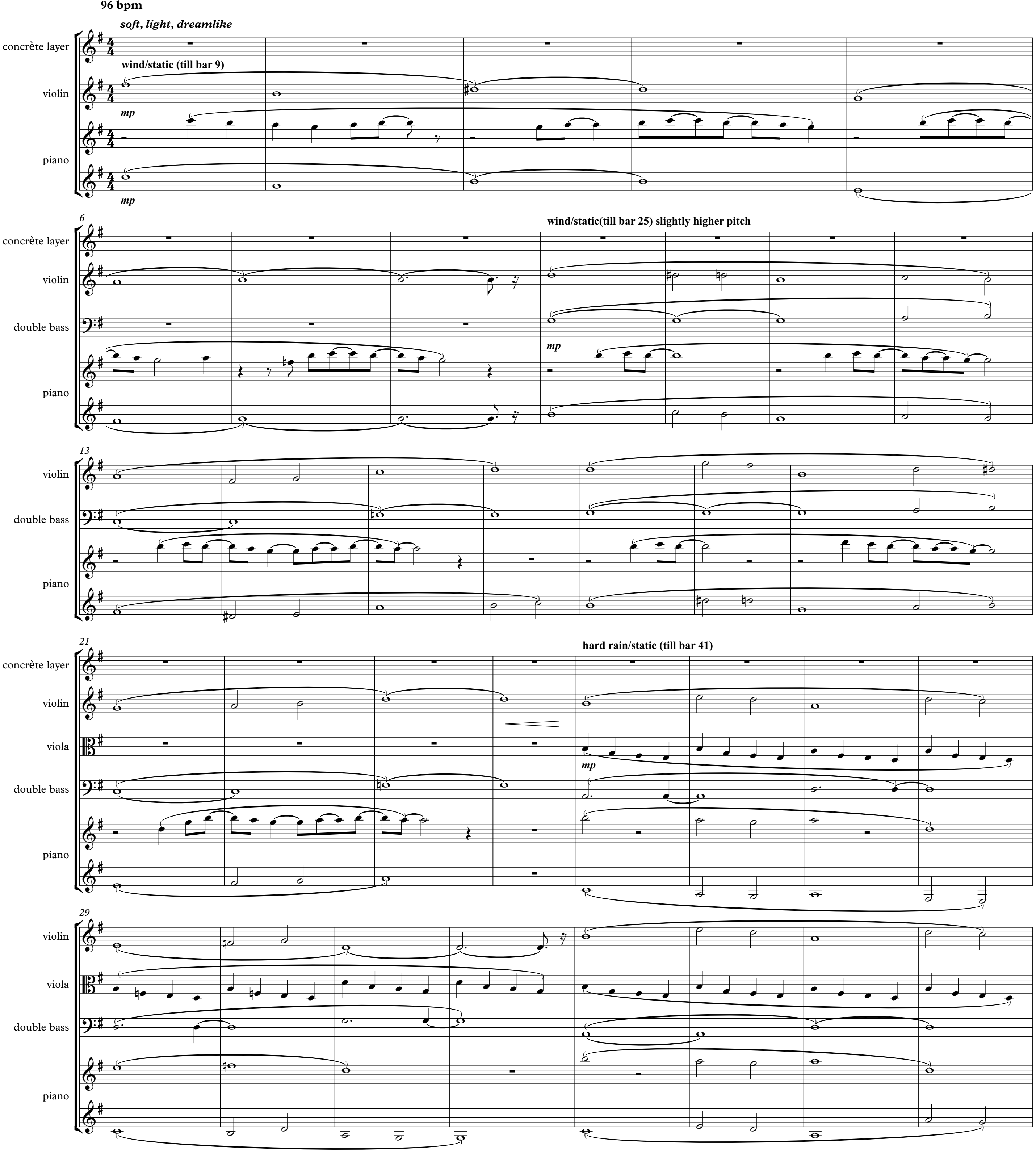

54
spectral water (3 bars)
long electronic sound (1 bar)
long spectral static (5 bars)
silence
air . . .
gizmos
sound-rows of
technology sounds
concrète layer
alto flute
violin 1
violin 2
double bass
piano
3
4
66
73
droplet
swipe
swipe
tap
swipe
static (1 bar)
steam (2 bars)
silence
soft shatter
spectral static (2 bars)
flit
silence

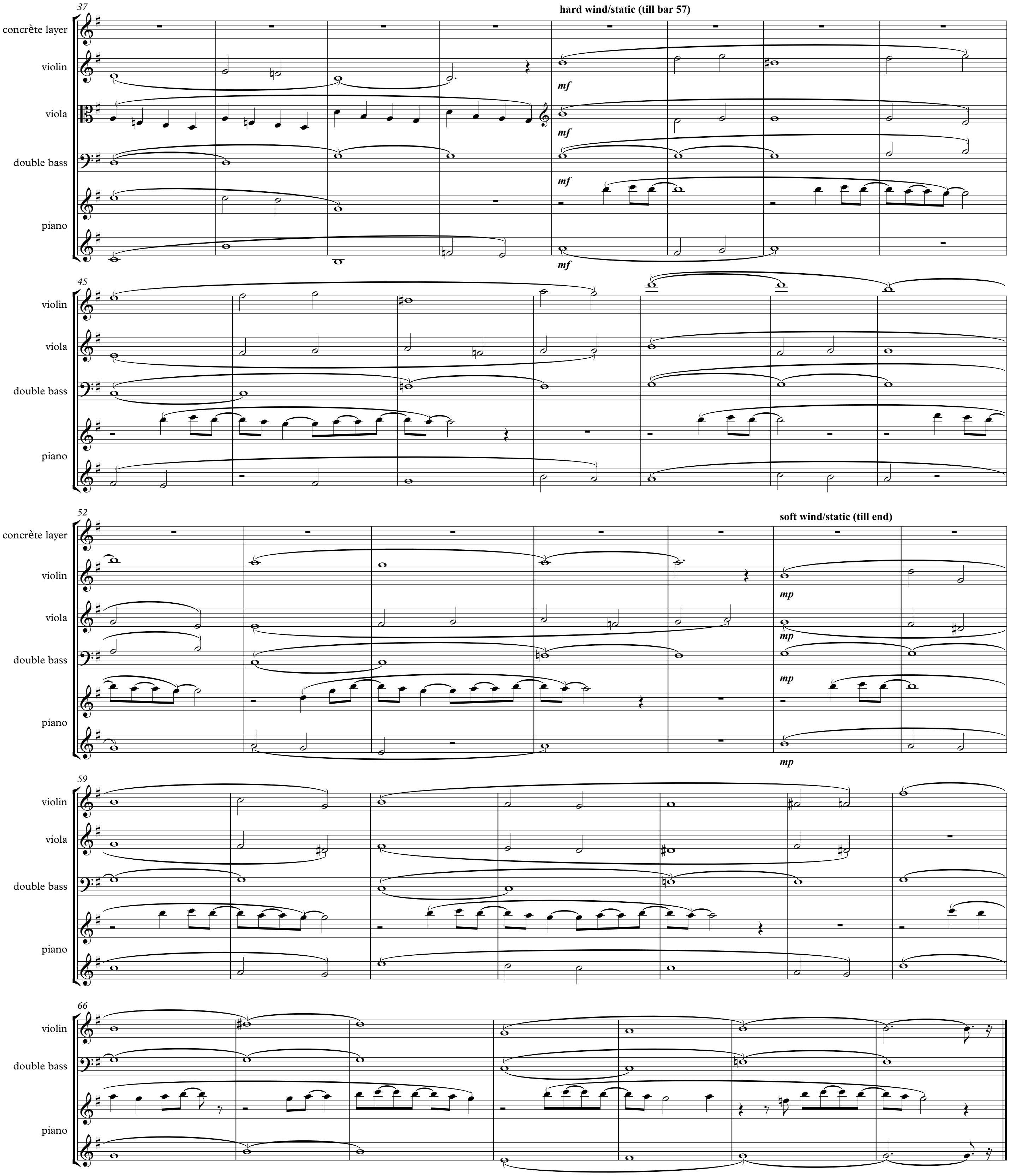

88
concrète layer
alto flute
violin 1
violin 2
double bass
piano
spectral static (2 bars)
rev. air
metal . . . . .
zip
scrape
grate
metal taps fade
air (2 bars)
swipe
swipe
99
click
grate
spectral metal hold (2 bars)
squidgy
soft air (5 bars)
rev. water
105
rev. air
pressure
whir
gizmo
air flutters (2 bars)
silence
spectral air (2 bars)
air hold (3 bars)
twigs
steam (1 bar)
crackling (1 bar)
high air (1 bar)
crackle
long resonating sound-object (till end)
mp
mp
mp
mp
mp
mp


116
concrète layer
alto flute
violin 1
violin 2
double bass
piano
rev. air (1 bar)
swipe
long crakling (1 bar)
flit
121
concrète layer
alto flute
violin 1
violin 2
double bass
piano
gizmos (2 bars)
spectral flutter (2 bars)

Like the Night

Geoff Geer

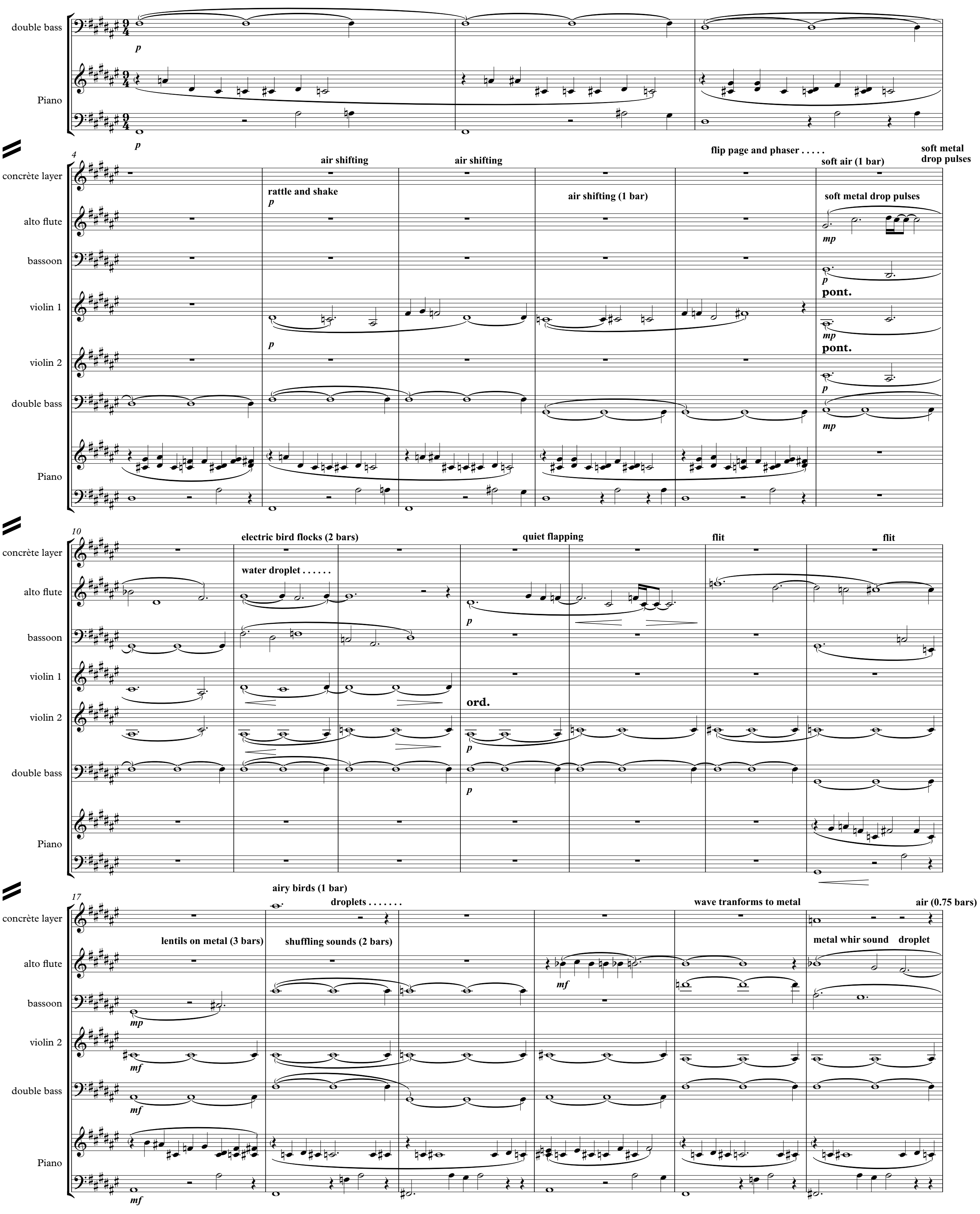

96 bpm
soft, light, dreamlike
concrète layer
violin
piano
wind/static (till bar 9)
mp
mp
6
concrète layer
violin
double bass
piano
wind/static(till bar 25) slightly higher pitch
mp
13
violin
double bass
piano
21
concrète layer
violin
viola
double bass
piano
hard rain/static (till bar 41)
mp
29
violin
viola
double bass
piano

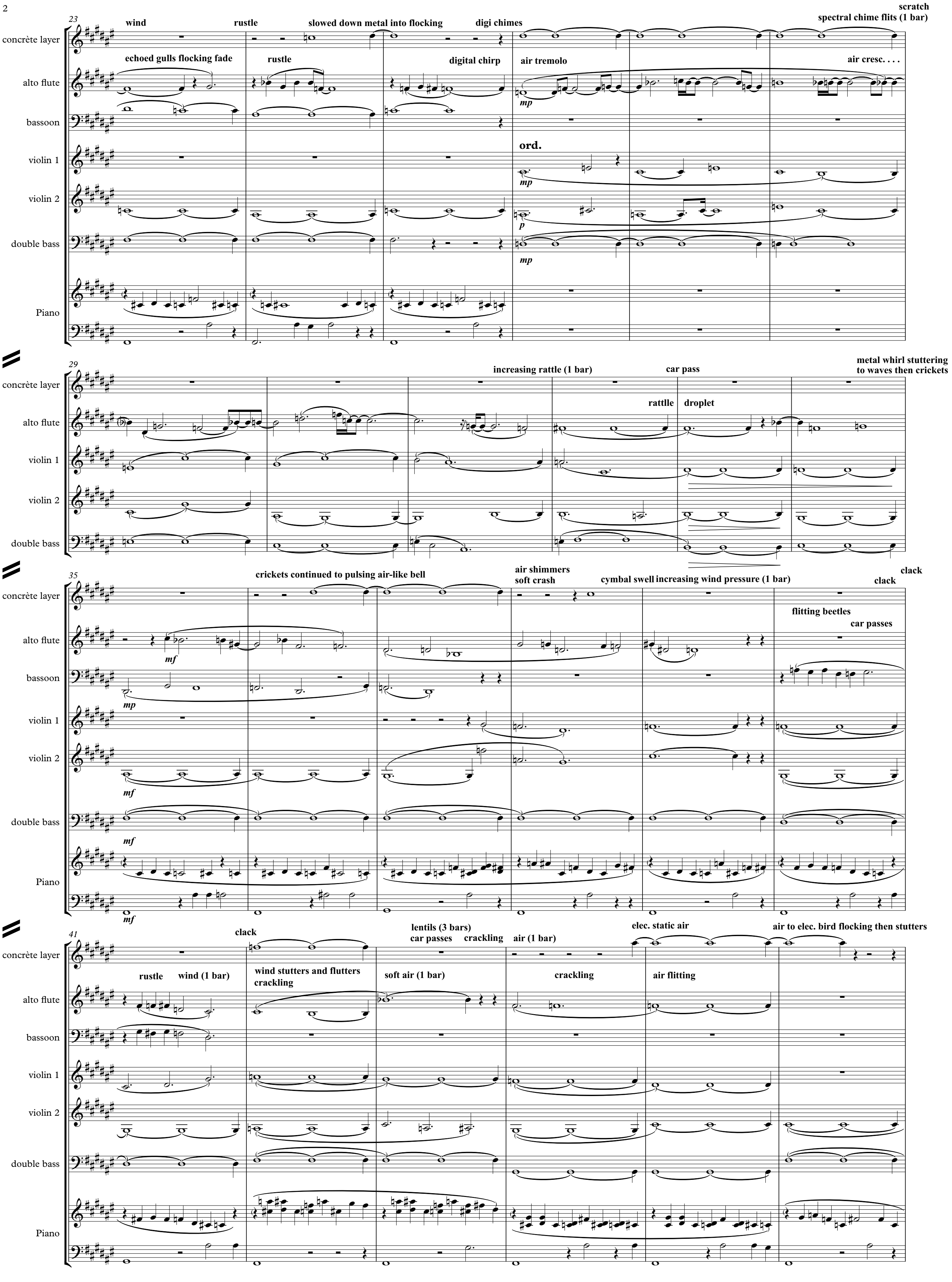

37
hard wind/static (till bar 57)
concrète layer
violin
viola
double bass
piano
mf
mf
mf
mf
45
violin
viola
double bass
piano
52
soft wind/static (till end)
concrète layer
violin
viola
double bass
piano
mp
mp
mp
mp
59
violin
viola
double bass
piano
66
violin
double bass
piano

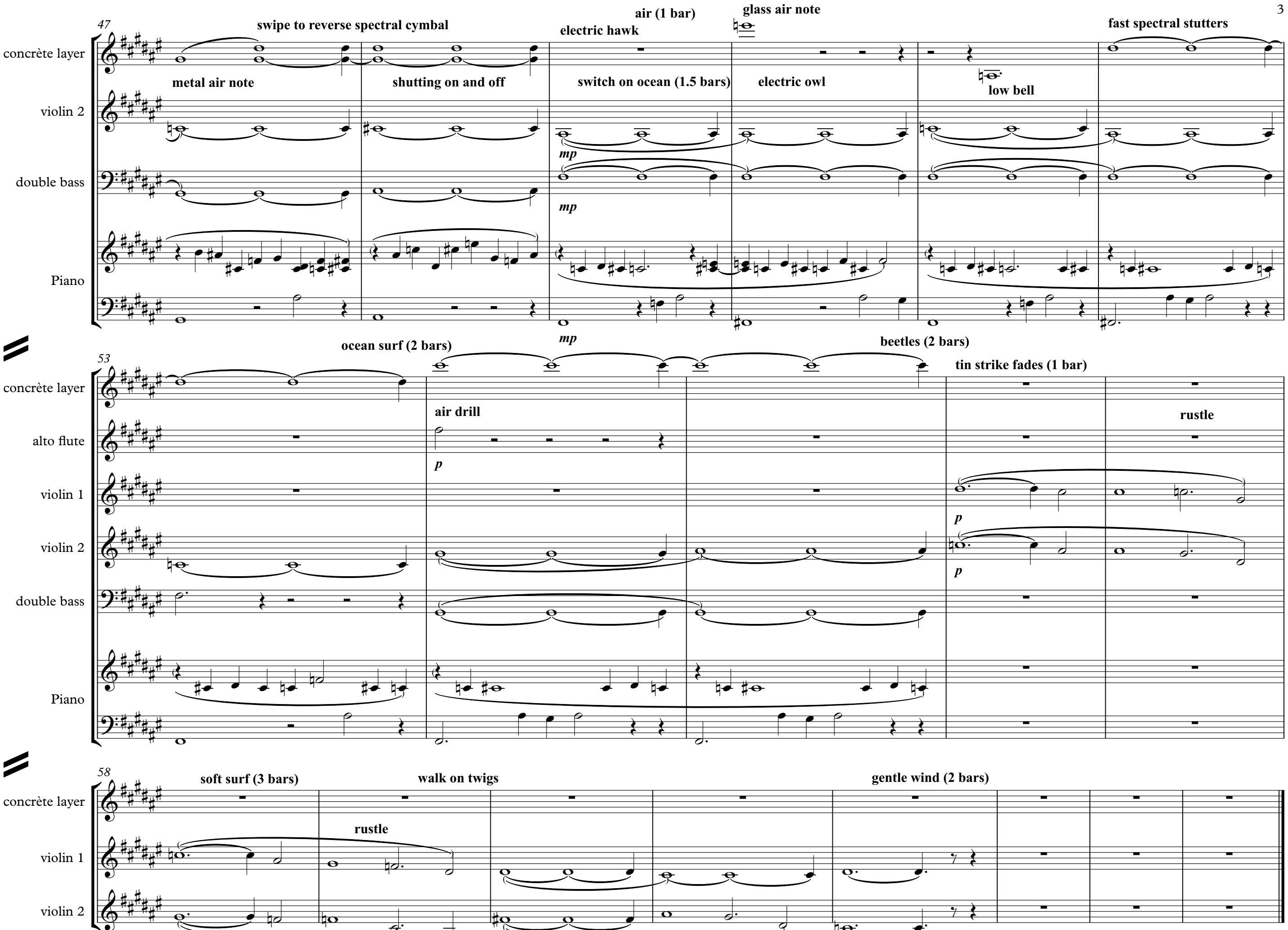
Through the Six Worlds
Hungry ghost realm (Preta)

Geoff Geer

142 bpm

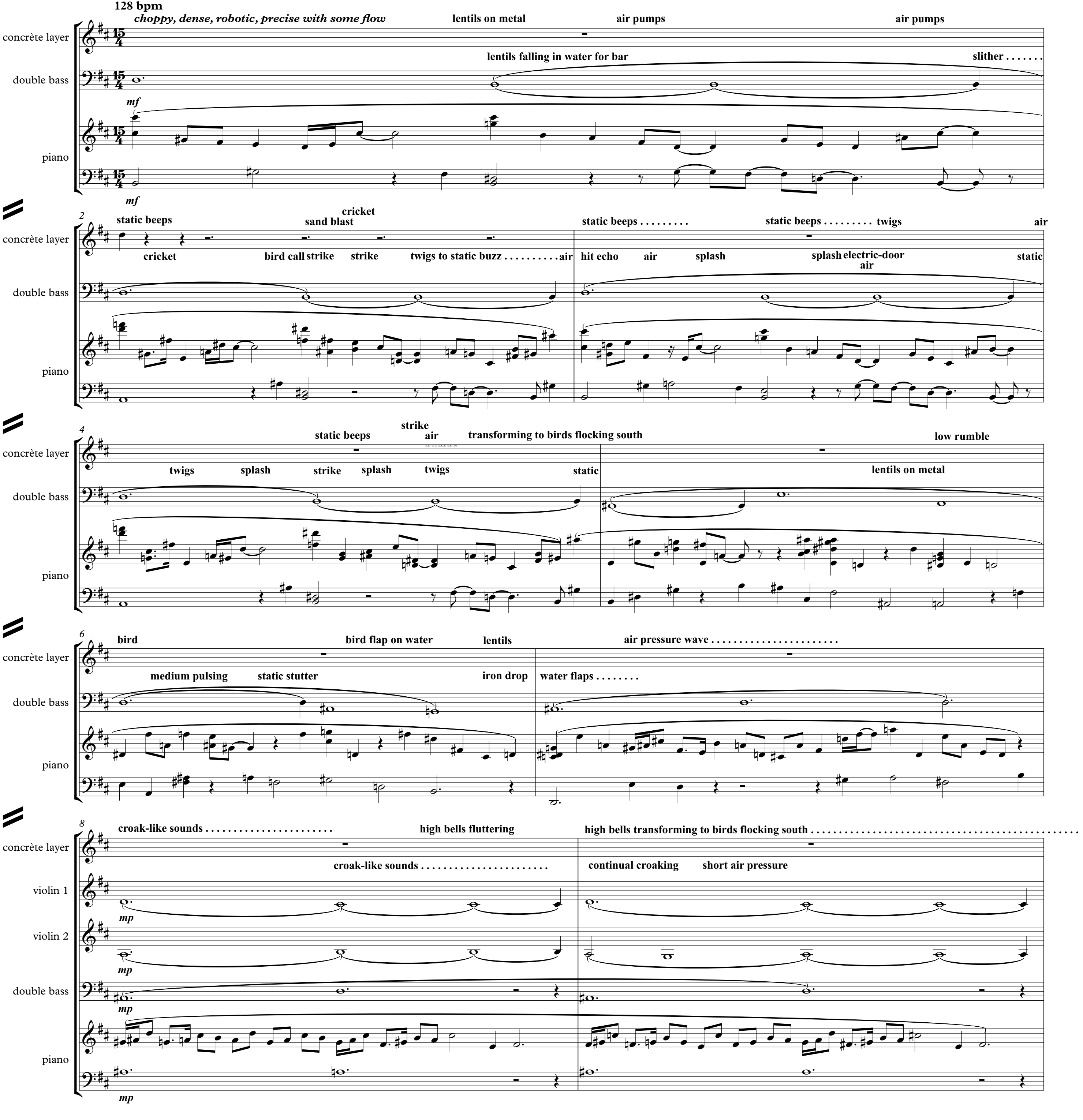

precise, wispish, anomalous
double bass
Piano
p
p
4
concrète layer
alto flute
bassoon
violin 1
violin 2
double bass
Piano
air shifting
air shifting
flip page and phaser . . . . .
soft air (1 bar)
soft metal drop pulses
rattle and shake
p
air shifting (1 bar)
soft metal drop pulses
mp
p
pont.
p
mp
pont.
p
mp
10
electric bird flocks (2 bars)
quiet flapping
flit
flit
water droplet . . . . . .
p
ord.
p
p
17
airy birds (1 bar)
droplets . . . .
wave tranforms to metal
air (0.75 bars)
lentils on metal (3 bars)
shuffling sounds (2 bars)
metal whir sound
droplet
mf
mp
mf
mf
mf

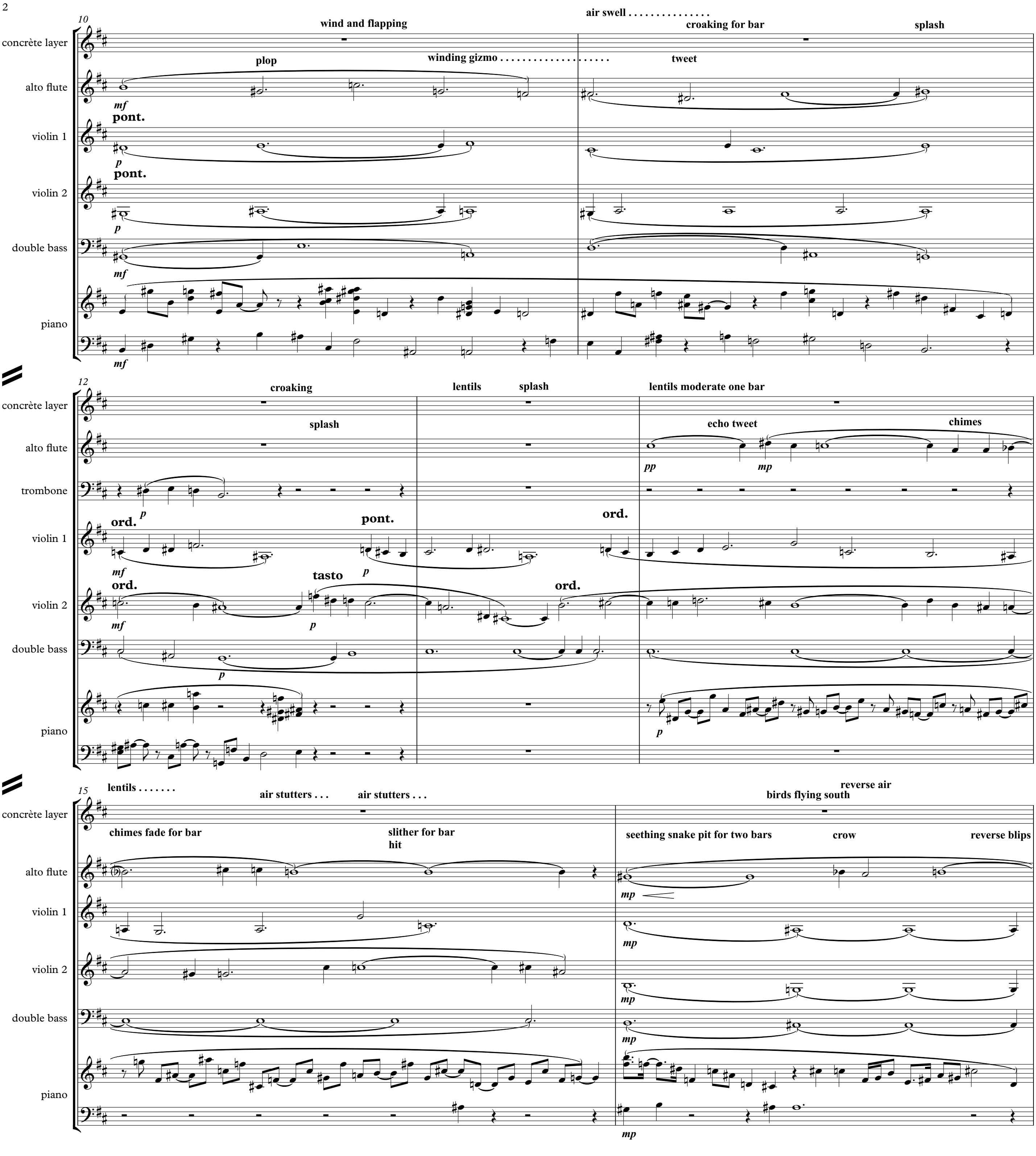

23
concrète layer
alto flute
bassoon
violin 1
violin 2
double bass
Piano
wind
rustle
slowed down metal into flocking
digi chimes
scratch
spectral chime flits (1 bar)
echoed gulls flocking fade
rustle
digital chirp
air tremolo
air cresc. . . .
mp
ord.
mp
p
mp
29
increasing rattle (1 bar)
car pass
metal whirl stuttering
to waves then crickets
rattlle
droplet
35
crickets continued to pulsing air-like bell
air shimmers
soft crash
cymbal swell
increasing wind pressure (1 bar)
clack
clack
flitting beetles
car passes
mf
mp
mf
mf
mf
41
clack
lentils (3 bars)
car passes
crackling
air (1 bar)
elec. static air
air to elec. bird flocking then stutters
rustle
wind (1 bar)
wind stutters and flutters
crackling
soft air (1 bar)
crackling
air flitting

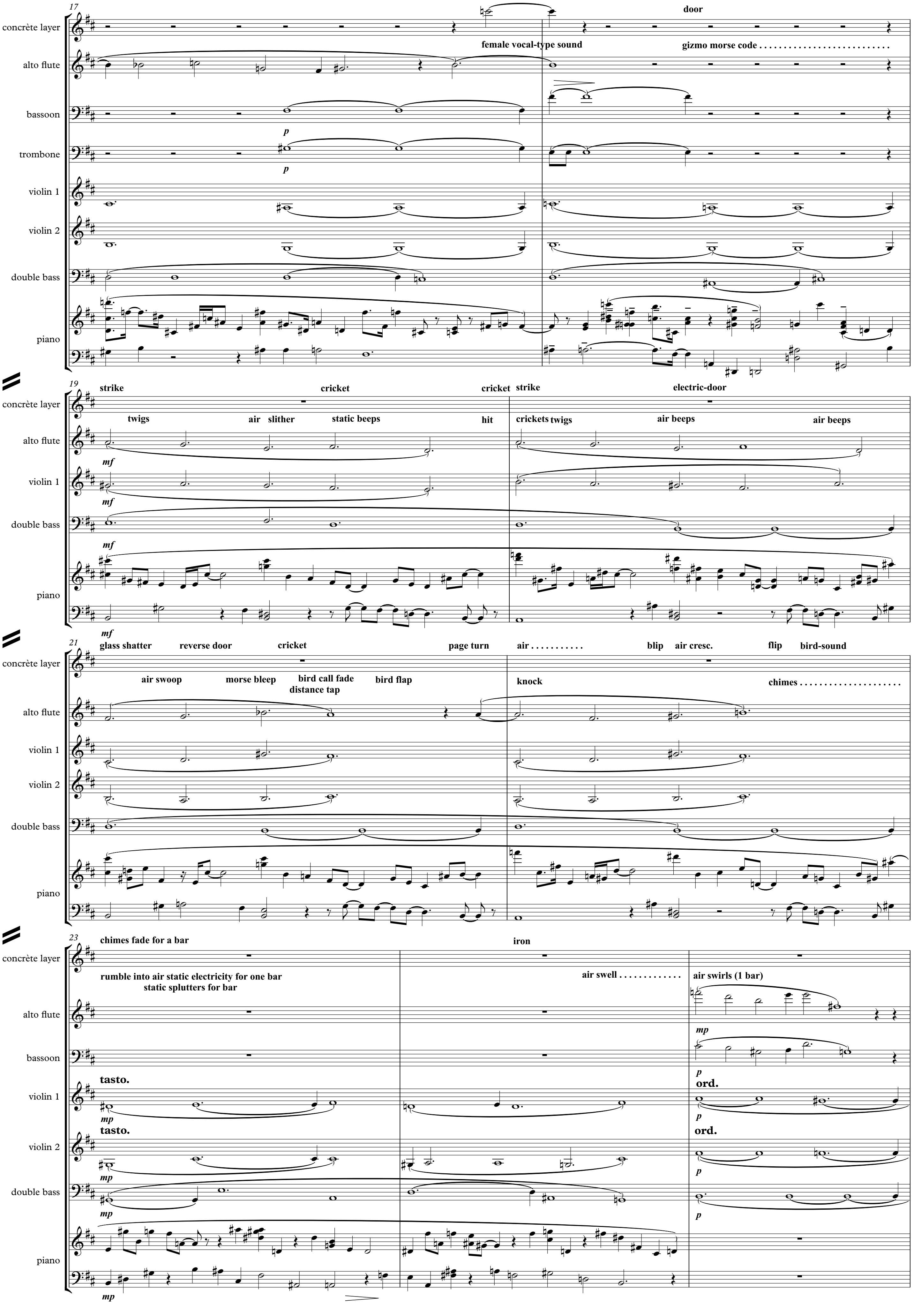

47
concrète layer
violin 2
double bass
Piano
swipe to reverse spectral cymbal
metal air note
shutting on and off
air (1 bar)
electric hawk
switch on ocean (1.5 bars)
mp
mp
mp
glass air note
electric owl
low bell
fast spectral stutters
53
concrète layer
alto flute
violin 1
violin 2
double bass
Piano
ocean surf (2 bars)
air drill
p
beetles (2 bars)
tin strike fades (1 bar)
rustle
p
p
58
concrète layer
violin 1
violin 2
soft surf (3 bars)
walk on twigs
rustle
gentle wind (2 bars)

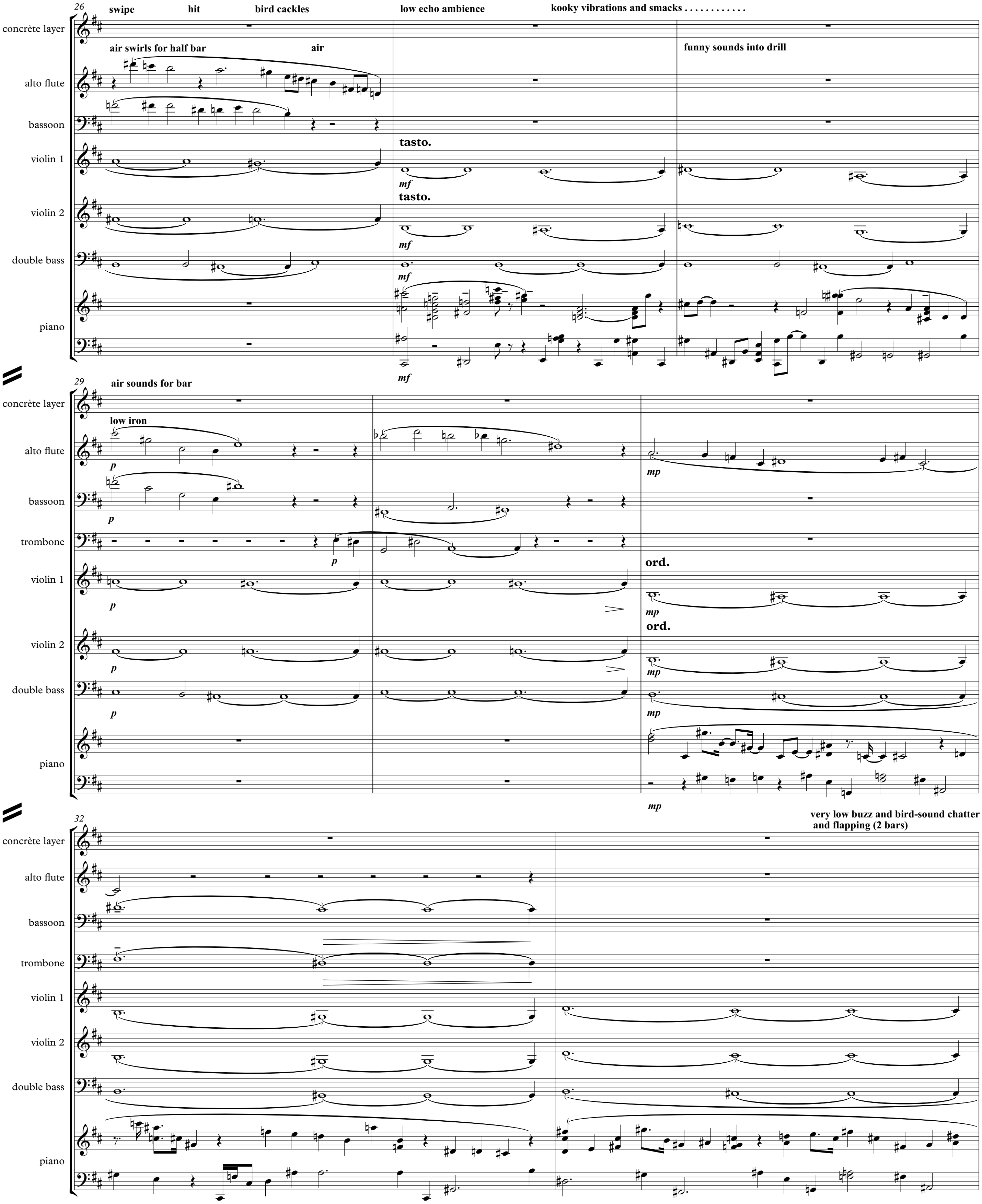
Through the Six Worlds
Animal realm (Tiryagyoni)

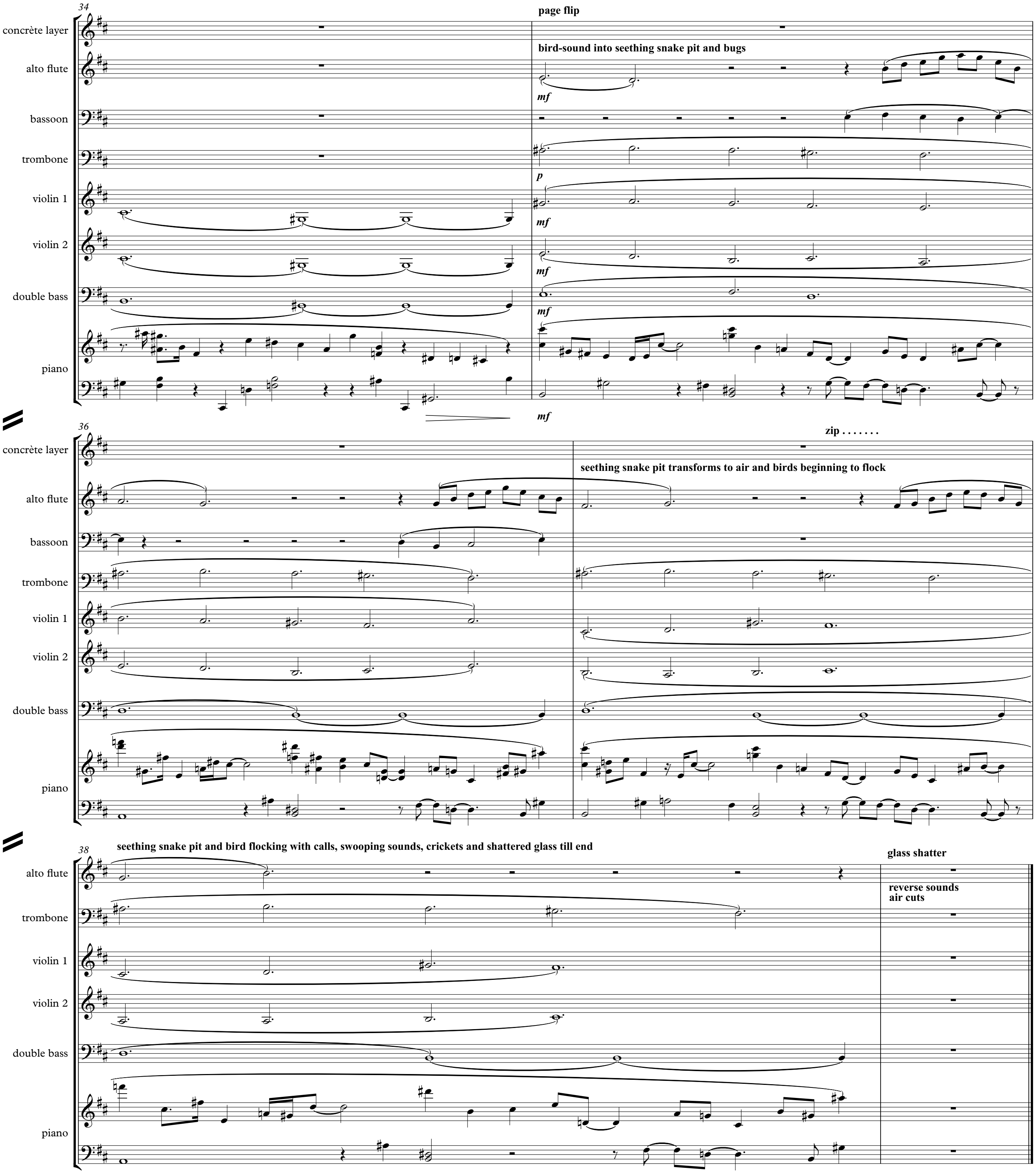
Geoff Geer


128 bpm
choppy, dense, robotic, precise with some flow
concrète layer
double bass
piano
lentils on metal
air pumps
air pumps
lentils falling in water for bar
slither . . . .
mf
mf
2
static beeps
sand blast
cricket
cricket
bird call
strike
strike
twigs to static buzz . . . . air
static beeps . . . .
static beeps . . . .
twigs
air
hit echo
air
splash
splash
electric-door
air
static
4
static beeps
strike
air
transforming to birds flocking south
low rumble
twigs
splash
strike
splash
twigs
static
lentils on metal
6
bird
bird flap on water
lentils
air pressure wave . . . .
medium pulsing
static stutter
iron drop
water flaps . . . .
8
croak-like sounds . . . .
high bells fluttering
high bells transforming to birds flocking south . . . .
violin 1
violin 2
croak-like sounds . . . .
continual croaking
short air pressure
mp
mp
mp
mp


10
air swell . . . .
wind and flapping
croaking for bar
splash
plop
winding gizmo . . . .
tweet
concrète layer
alto flute
violin 1
violin 2
double bass
piano
mf
pont.
p
pont.
p
mf
mf
12
croaking
lentils
splash
lentils moderate one bar
splash
echo tweet
chimes
trombone
p
pp
mp
ord.
pont.
ord.
mf
p
ord.
tasto
ord.
mf
p
p
p
15
lentils . . . .
air stutters . . .
air stutters . . .
reverse air
birds flying south
chimes fade for bar
slither for bar
hit
seething snake pit for two bars
crow
reverse blips
mp
mp
mp
mp
mp


17
concrète layer
alto flute
bassoon
trombone
violin 1
violin 2
double bass
piano
female vocal-type sound
door
gizmo morse code . . . .
p
p
19
strike
cricket
cricket
twigs
air
slither
static beeps
hit
strike
electric-door
crickets
twigs
air beeps
air beeps
mf
mf
mf
mf
21
glass shatter
reverse door
cricket
page turn
air . . . .
blip
air cresc.
flip
bird-sound
air swoop
morse bleep
bird call fade
distance tap
bird flap
knock
chimes . . . .
23
chimes fade for a bar
iron
rumble into air static electricity for one bar
static splutters for bar
air swell . . . .
air swirls (1 bar)
mp
p
tasto.
ord.
mp
p
tasto.
ord.
mp
p
mp
p
mp

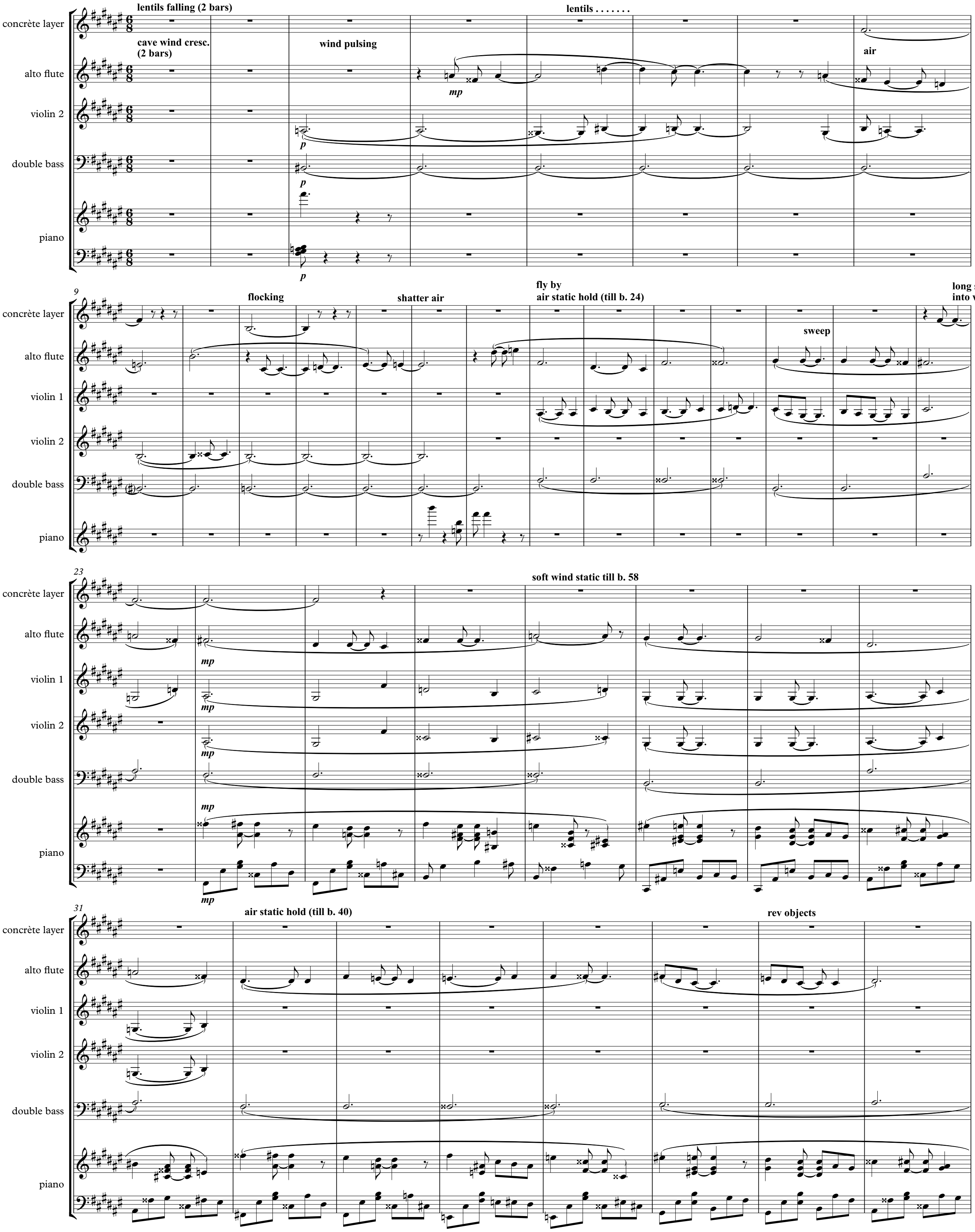

26
swipe
hit
bird cackles
low echo ambience
kooky vibrations and smacks . . . .
concrète layer
air swirls for half bar
air
funny sounds into drill
alto flute
bassoon
violin 1
tasto.
mf
violin 2
tasto.
mf
double bass
mf
piano
mf
29
air sounds for bar
concrète layer
low iron
alto flute
p
bassoon
p
trombone
p
violin 1
p
ord.
mp
violin 2
p
ord.
mp
double bass
p
mp
piano
mp
32
very low buzz and bird-sound chatter
and flapping (2 bars)
concrète layer
alto flute
bassoon
trombone
violin 1
violin 2
double bass
piano

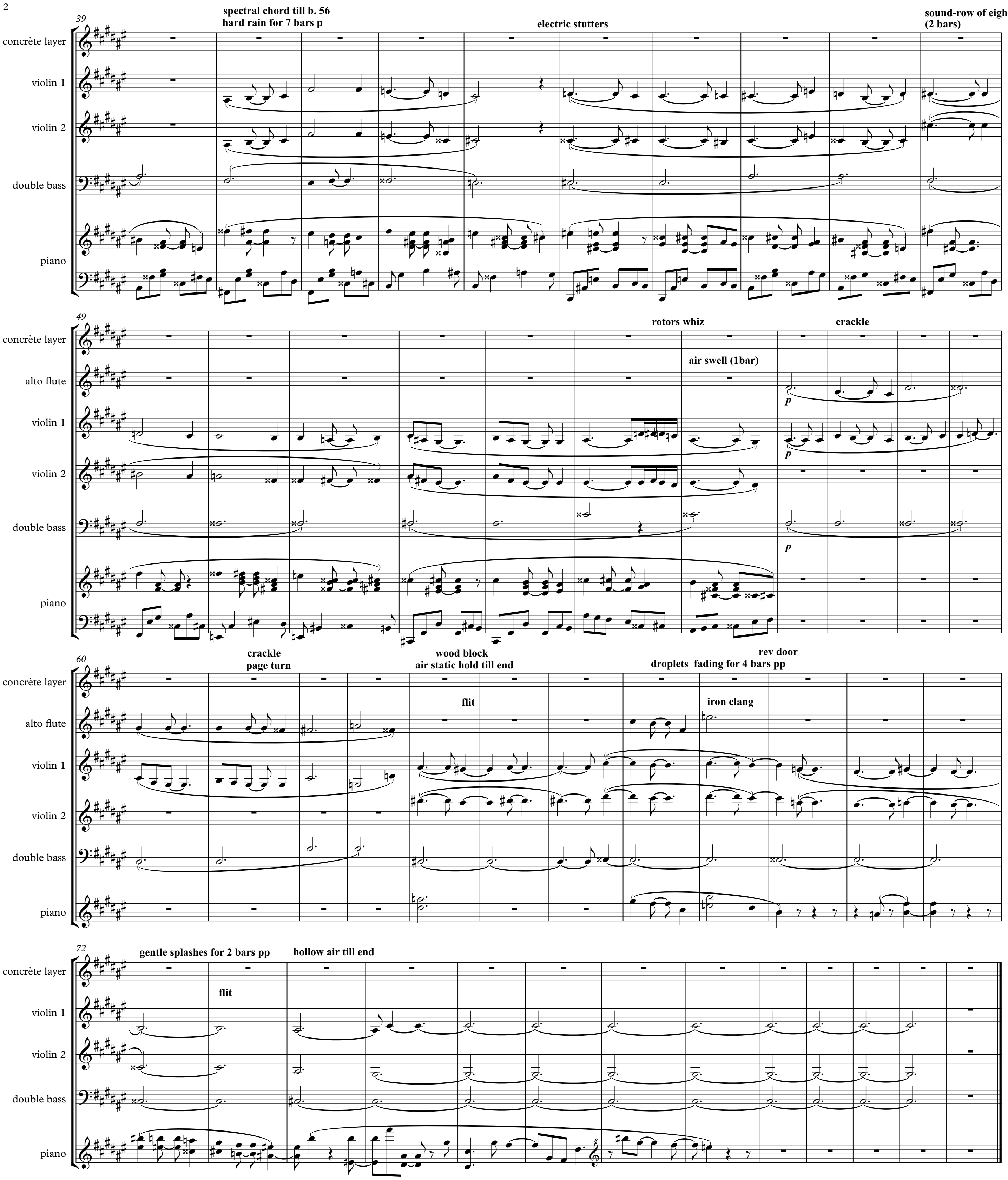

34
concrète layer
alto flute
bassoon
trombone
violin 1
violin 2
double bass
piano
page flip
bird-sound into seething snake pit and bugs
mf
p
mf
mf
mf
mf
36
zip . . . .
seething snake pit transforms to air and birds beginning to flock
38
seething snake pit and bird flocking with calls, swooping sounds, crickets and shattered glass till end
glass shatter
reverse sounds
air cuts

Through the Six Worlds
Human realm (Manuṣya) part 1

Geoff Geer

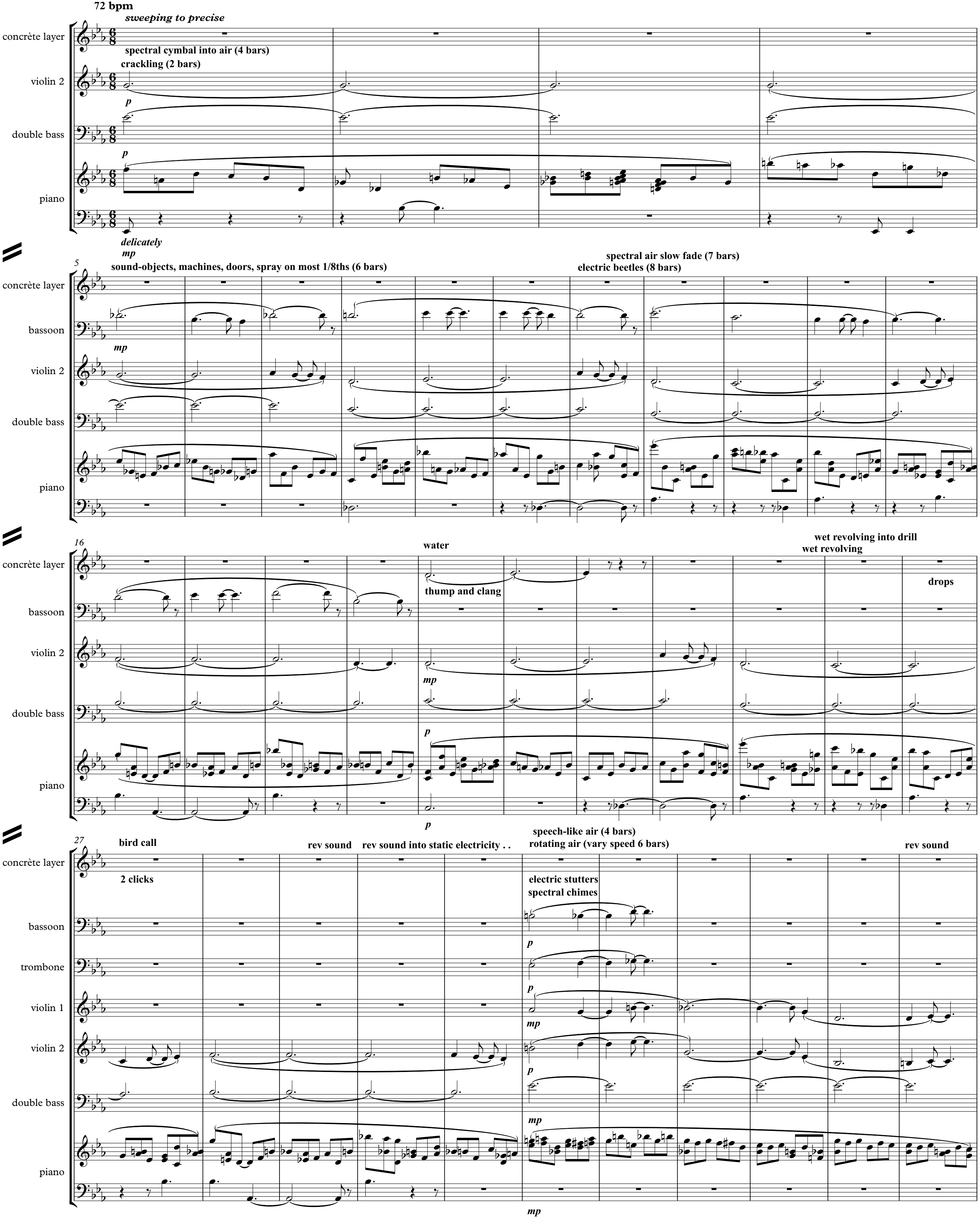
58 bpm
largely sweeping

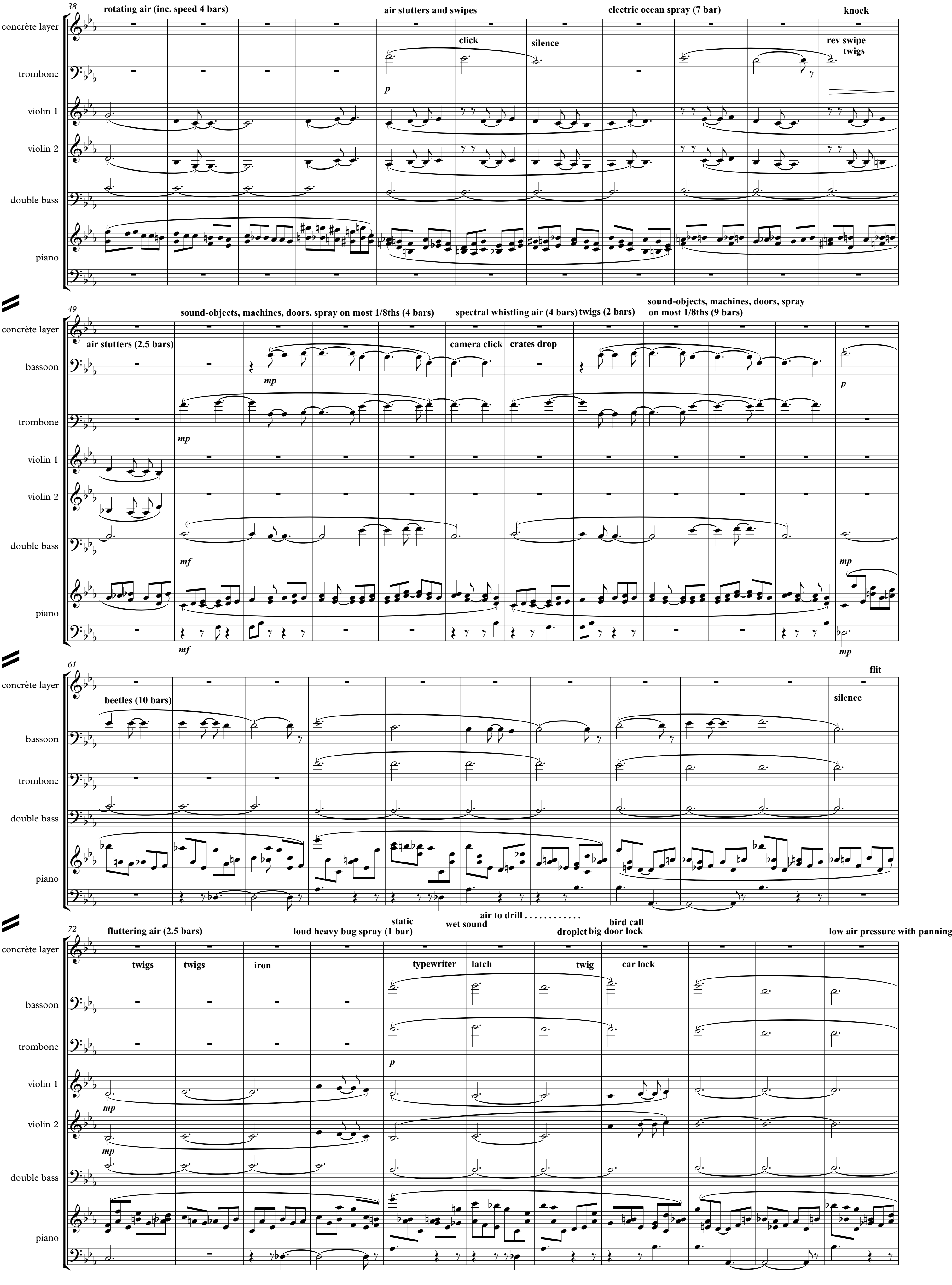

lentils falling (2 bars)
lentils . . . .
cave wind cresc. (2 bars)
wind pulsing
air
concrète layer
alto flute
violin 1
violin 2
double bass
piano
mp
p
9
flocking
shatter air
fly by
air static hold (till b. 24)
sweep
long sweep into wind
23
soft wind static till b. 58
31
air static hold (till b. 40)
rev objects

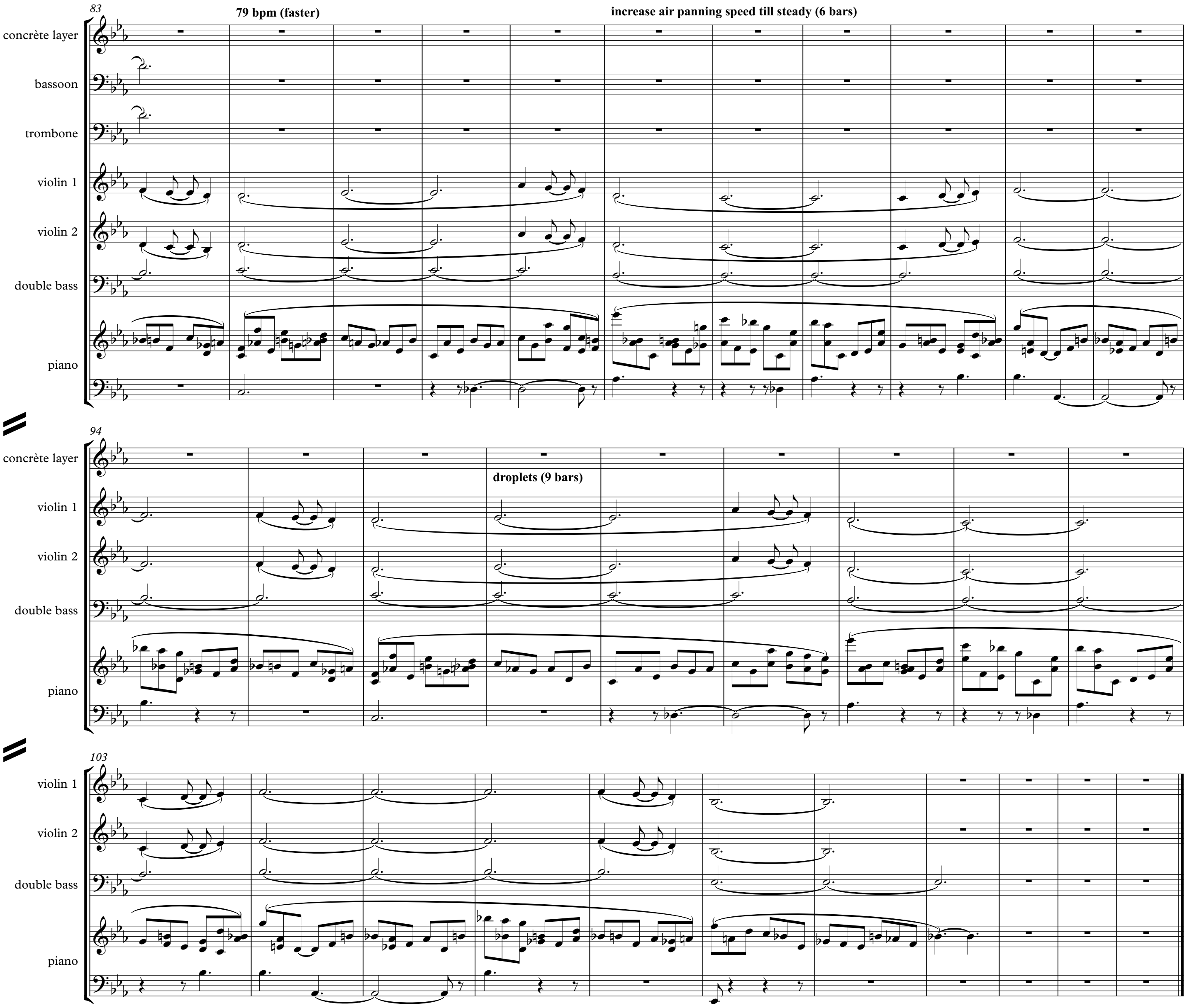

39
spectral chord till b. 56
hard rain for 7 bars p
electric stutters
sound-row of eighth notess
(2 bars)
concrète layer
violin 1
violin 2
double bass
piano
49
rotors whiz
air swell (1bar)
crackle
p
p
p
concrète layer
alto flute
violin 1
violin 2
double bass
piano
60
crackle
page turn
wood block
air static hold till end
flit
droplets fading for 4 bars pp
rev door
iron clang
concrète layer
alto flute
violin 1
violin 2
double bass
piano
72
gentle splashes for 2 bars pp
hollow air till end
flit
concrète layer
violin 1
violin 2
double bass
piano

Through the Six Worlds
Human realm (Manuṣya) part 2

Geoff Geer

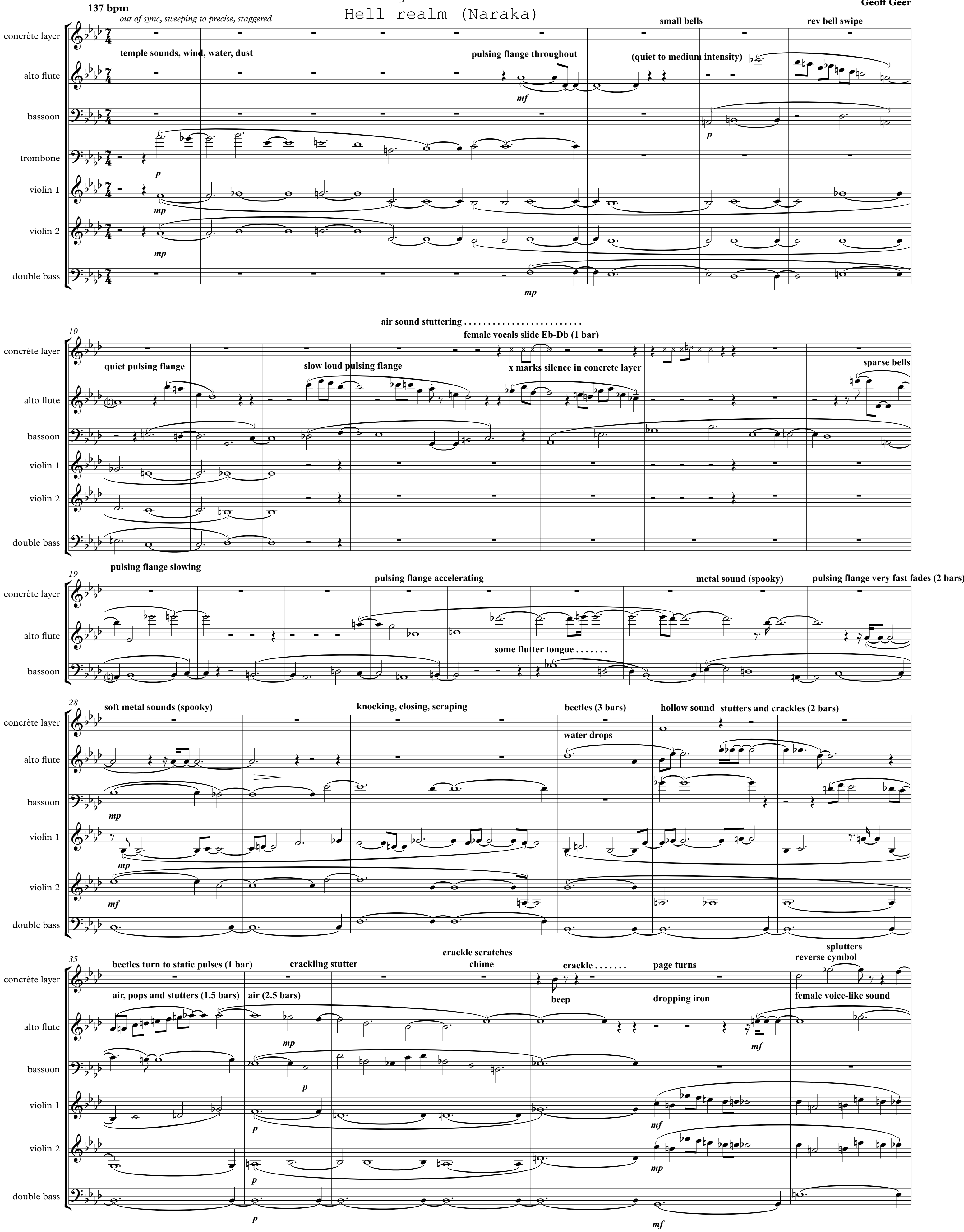

72 bpm
sweeping to precise
spectral cymbal into air (4 bars)
crackling (2 bars)
concrète layer
violin 2
double bass
piano
p
p
delicately
mp
5
sound-objects, machines, doors, spray on most 1/8ths (6 bars)
spectral air slow fade (7 bars)
electric beetles (8 bars)
concrète layer
bassoon
violin 2
double bass
piano
mp
16
water
thump and clang
wet revolving into drill
wet revolving
drops
concrète layer
bassoon
violin 2
double bass
piano
mp
p
p
27
bird call
2 clicks
rev sound
rev sound into static electricity . .
speech-like air (4 bars)
rotating air (vary speed 6 bars)
electric stutters
spectral chimes
rev sound
concrète layer
bassoon
trombone
violin 1
violin 2
double bass
piano
p
p
mp
p
mp
mp

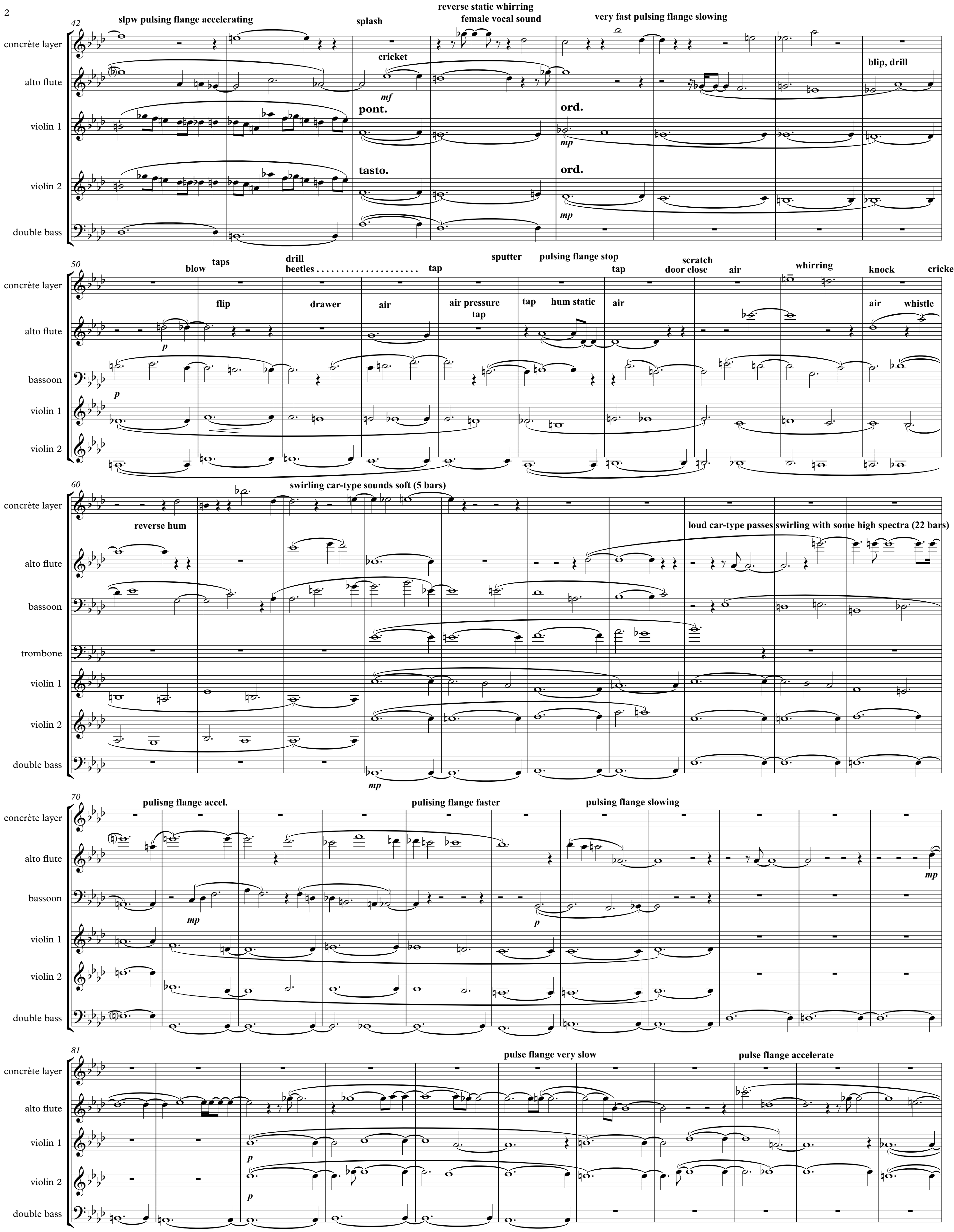

38
rotating air (inc. speed 4 bars)
air stutters and swipes
electric ocean spray (7 bar)
knock
concrète layer
click
silence
rev swipe
twigs
trombone
p
violin 1
violin 2
double bass
piano
49
sound-objects, machines, doors, spray on most 1/8ths (4 bars)
spectral whistling air (4 bars)
twigs (2 bars)
sound-objects, machines, doors, spray on most 1/8ths (9 bars)
concrète layer
air stutters (2.5 bars)
camera click
crates drop
bassoon
mp
p
trombone
mp
violin 1
violin 2
double bass
mf
piano
mp
mf
mp
61
concrète layer
flit
beetles (10 bars)
silence
bassoon
trombone
double bass
piano
72
fluttering air (2.5 bars)
static
loud heavy bug spray (1 bar)
wet sound
air to drill . . . .
droplet
bird call
big door lock
low air pressure with panning
concrète layer
twigs
twigs
iron
typewriter
latch
twig
car lock
bassoon
trombone
p
violin 1
mp
violin 2
mp
double bass
piano

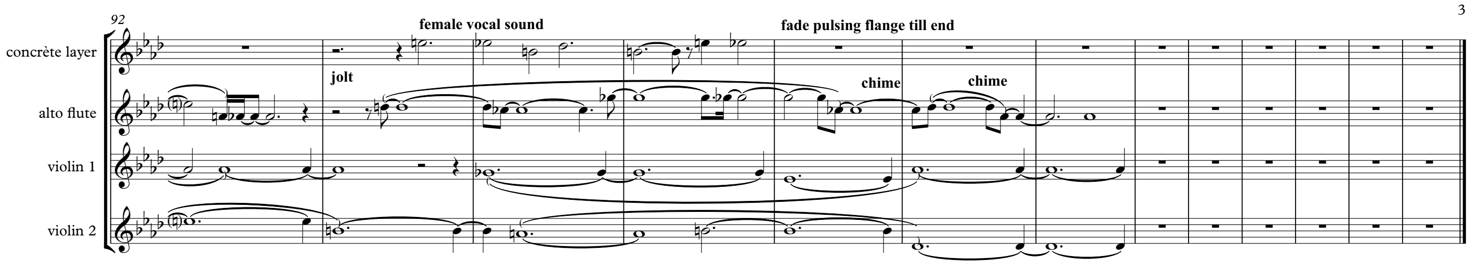

83
79 bpm (faster)
increase air panning speed till steady (6 bars)
concrète layer
bassoon
trombone
violin 1
violin 2
double bass
piano
94
concrète layer
droplets (9 bars)
violin 1
violin 2
double bass
piano
103
violin 1
violin 2
double bass
piano

Through the Six Worlds
Hell realm (Naraka)

Geoff Geer


137 bpm
out of sync, sweeping to precise, staggered
concrète layer
alto flute
bassoon
trombone
violin 1
violin 2
double bass
temple sounds, wind, water, dust
pulsing flange throughout
small bells
(quiet to medium intensity)
rev bell swipe
p
mp
mp
mf
p
mp
10
air sound stuttering . . . .
female vocals slide Eb-Db (1 bar)
quiet pulsing flange
slow loud pulsing flange
x marks silence in concrete layer
sparse bells
19
pulsing flange slowing
pulsing flange accelerating
metal sound (spooky)
pulsing flange very fast fades (2 bars)
some flutter tongue . . . .
28
soft metal sounds (spooky)
knocking, closing, scraping
beetles (3 bars)
hollow sound
stutters and crackles (2 bars)
water drops
mp
mp
mf
35
beetles turn to static pulses (1 bar)
crackling stutter
crackle scratches
chime
crackle . . . .
page turns
splutters
reverse cymbol
air, pops and stutters (1.5 bars)
air (2.5 bars)
beep
dropping iron
female voice-like sound
mp
p
mf
p
p
p
mf
mp
mf


42
slpw pulsing flange accelerating
splash
reverse static whirring
female vocal sound
very fast pulsing flange slowing
concrète layer
alto flute
violin 1
violin 2
double bass
cricket
mf
blip, drill
pont.
ord.
mp
tasto.
ord.
mp
50
blow
taps
drill
beetles . . . .
tap
sputter
pulsing flange stop
tap
scratch
door close
air
whirring
knock
cricket
concrète layer
flip
drawer
air
air pressure
tap
tap
hum static
air
air
whistle
alto flute
p
bassoon
p
violin 1
violin 2
60
swirling car-type sounds soft (5 bars)
concrète layer
reverse hum
loud car-type passes swirling with some high spectra (22 bars)
alto flute
bassoon
trombone
violin 1
violin 2
double bass
mp
70
pulisng flange accel.
pulising flange faster
pulsing flange slowing
concrète layer
alto flute
mp
bassoon
mp
p
violin 1
violin 2
double bass
81
pulse flange very slow
pulse flange accelerate
concrète layer
alto flute
violin 1
p
violin 2
p
double bass

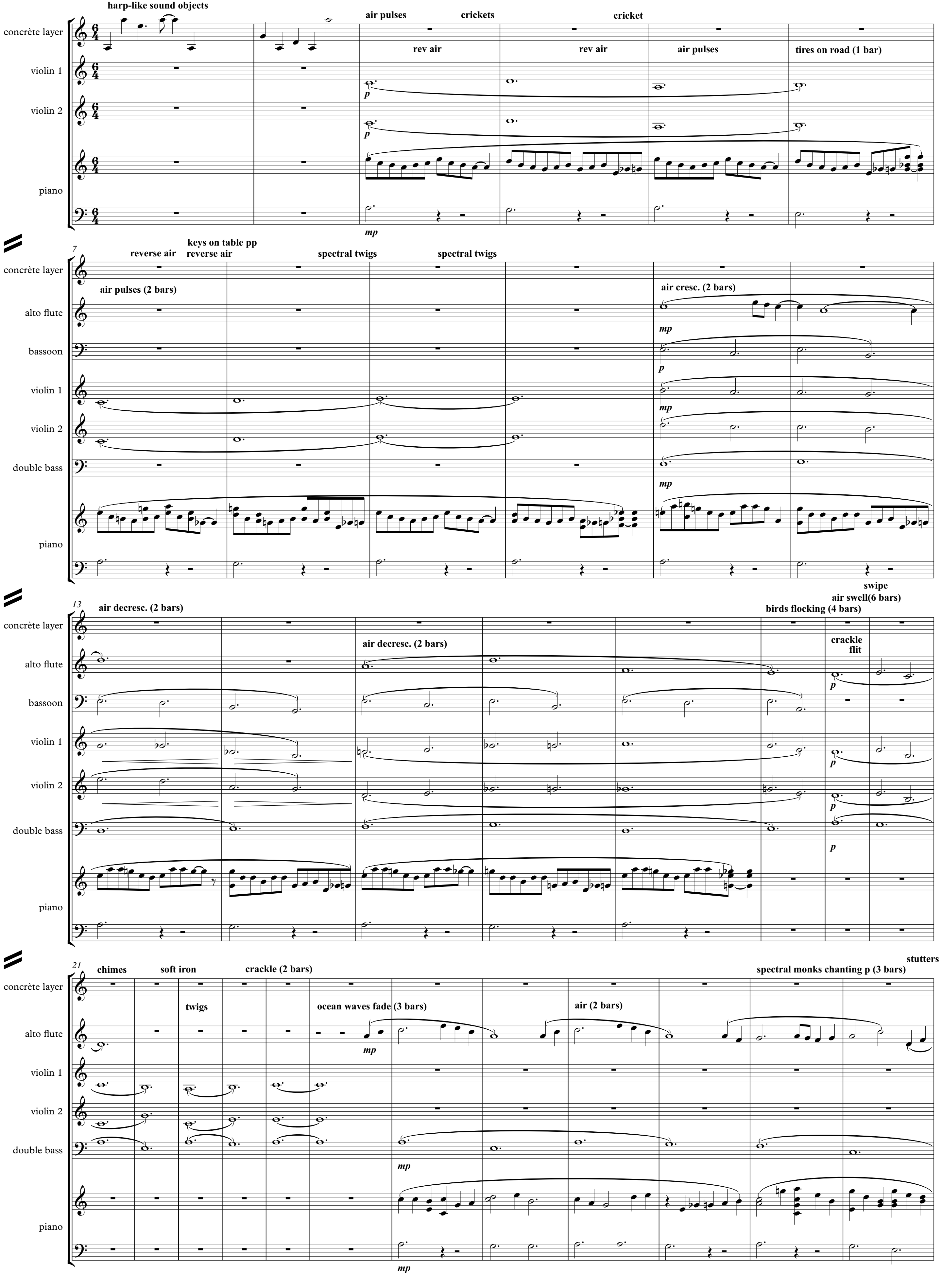

92
concrète layer
alto flute
violin 1
violin 2
female vocal sound
fade pulsing flange till end
jolt
chime
chime

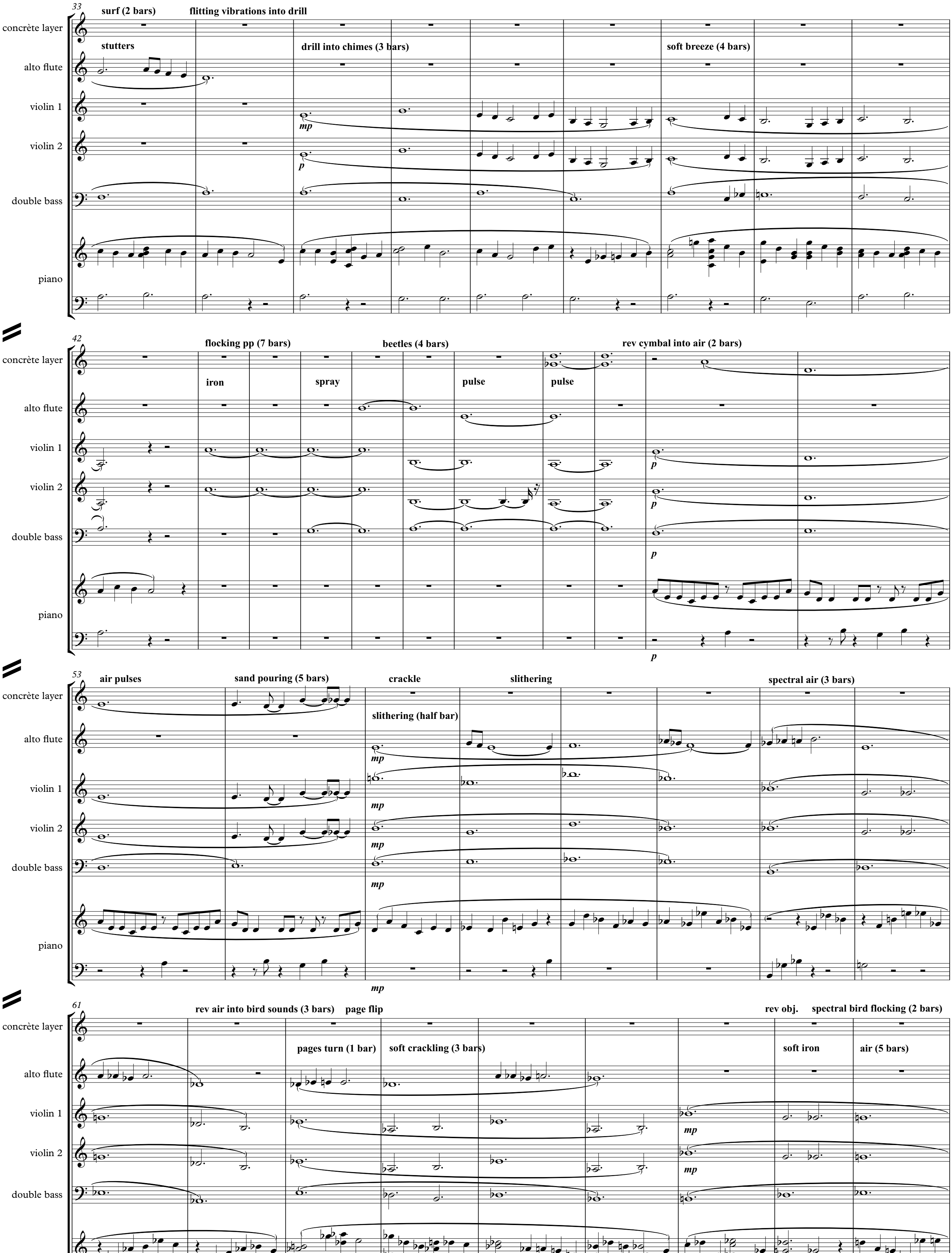
Through the Six Worlds
6 Demi-god realm (Asura) part 1

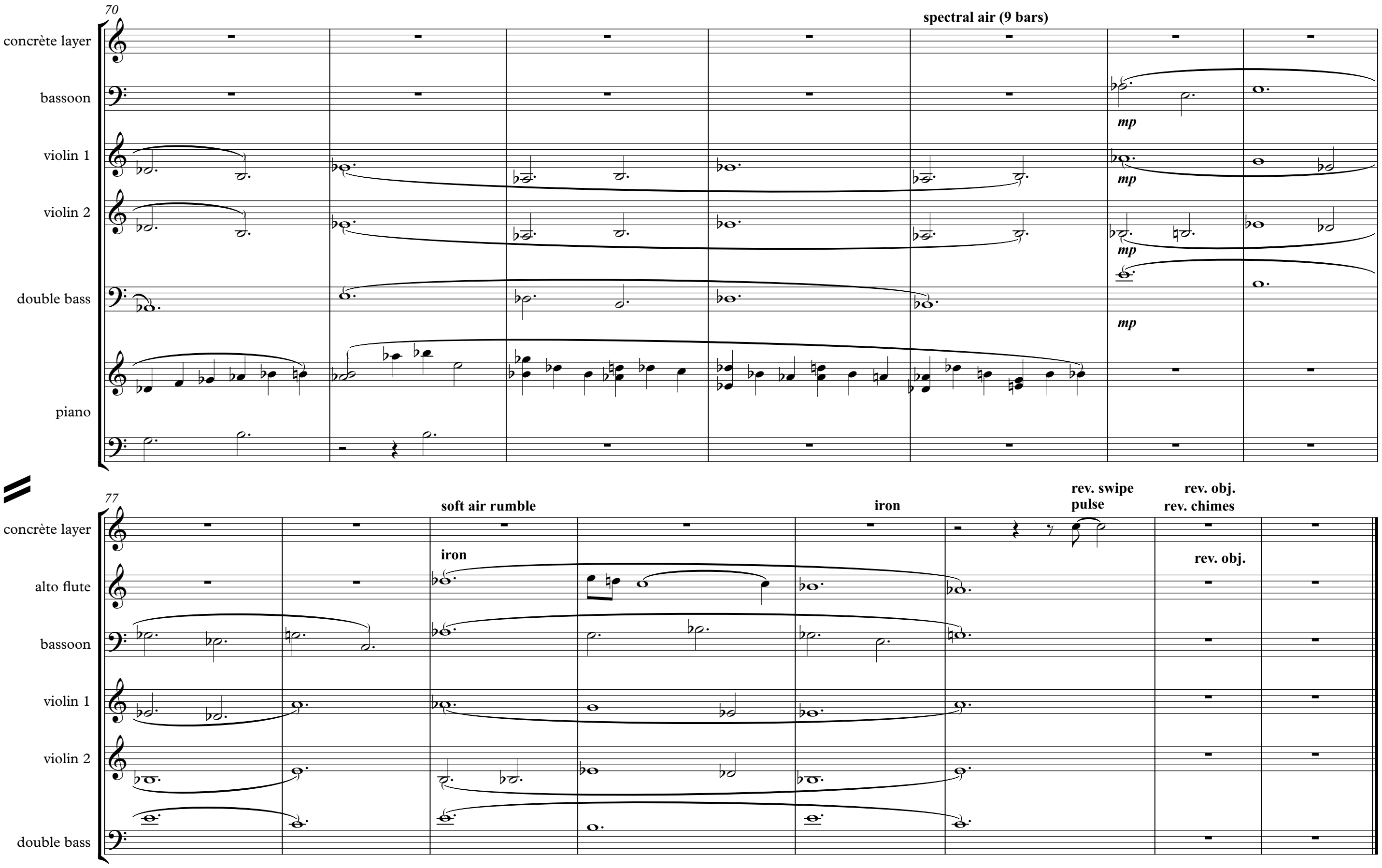
Geoff Geer

127 bpm

abrupt, staggered, choppy, sweeping

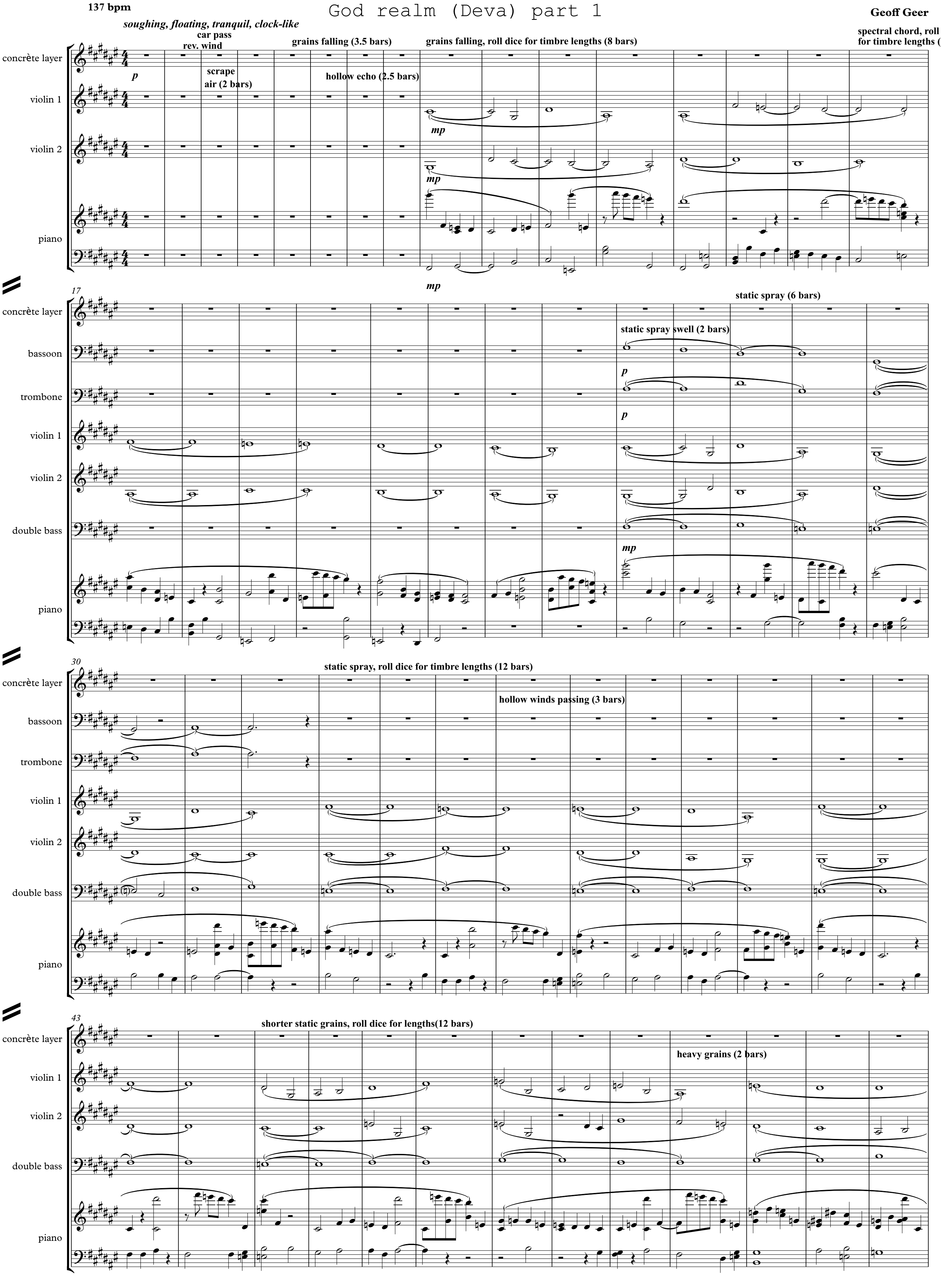

harp-like sound objects
concrète layer
violin 1
violin 2
piano
air pulses
crickets
cricket
rev air
rev air
air pulses
tires on road (1 bar)
p
p
mp
7
reverse air
keys on table pp
reverse air
spectral twigs
spectral twigs
air pulses (2 bars)
air cresc. (2 bars)
alto flute
bassoon
double bass
mp
p
mp
mp
13
air decresc. (2 bars)
air decresc. (2 bars)
swipe
air swell(6 bars)
birds flocking (4 bars)
crackle
flit
p
p
p
p
21
chimes
soft iron
crackle (2 bars)
twigs
ocean waves fade (3 bars)
air (2 bars)
spectral monks chanting p (3 bars)
stutters
mp
mp
mp

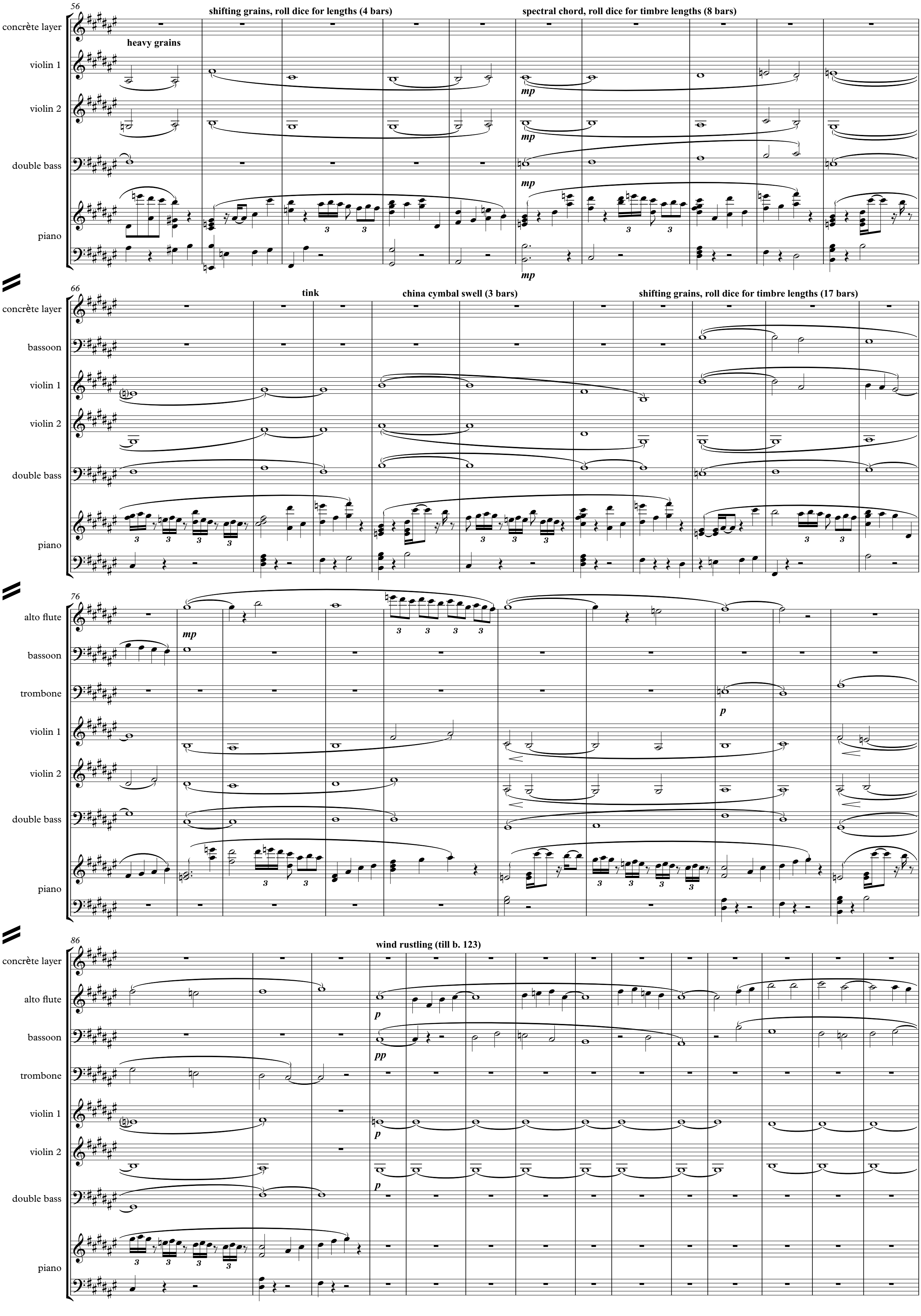

33
concrète layer
alto flute
violin 1
violin 2
double bass
piano
surf (2 bars)
flitting vibrations into drill
stutters
drill into chimes (3 bars)
soft breeze (4 bars)
mp
p
42
flocking pp (7 bars)
beetles (4 bars)
rev cymbal into air (2 bars)
iron
spray
pulse
pulse
p
p
p
p
53
air pulses
sand pouring (5 bars)
crackle
slithering
spectral air (3 bars)
slithering (half bar)
mp
mp
mp
mp
mp
61
rev air into bird sounds (3 bars)
page flip
pages turn (1 bar)
soft crackling (3 bars)
rev obj.
spectral bird flocking (2 bars)
soft iron
air (5 bars)
mp
mp

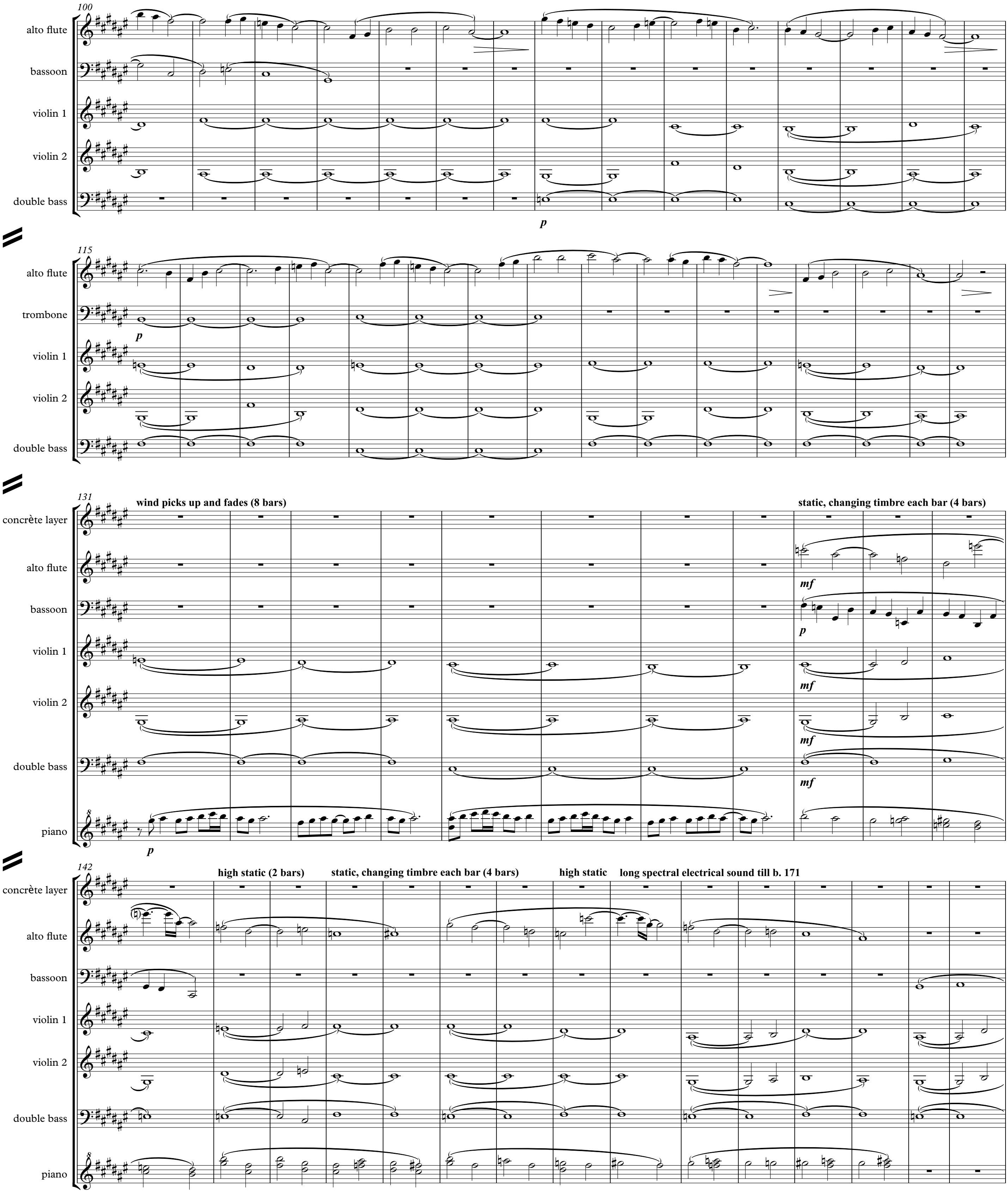

70
spectral air (9 bars)
concrète layer
bassoon
violin 1
violin 2
double bass
piano
mp
mp
mp
mp
77
soft air rumble
iron
rev. swipe
pulse
rev. obj.
rev. chimes
concrète layer
alto flute
iron
rev. obj.
bassoon
violin 1
violin 2
double bass

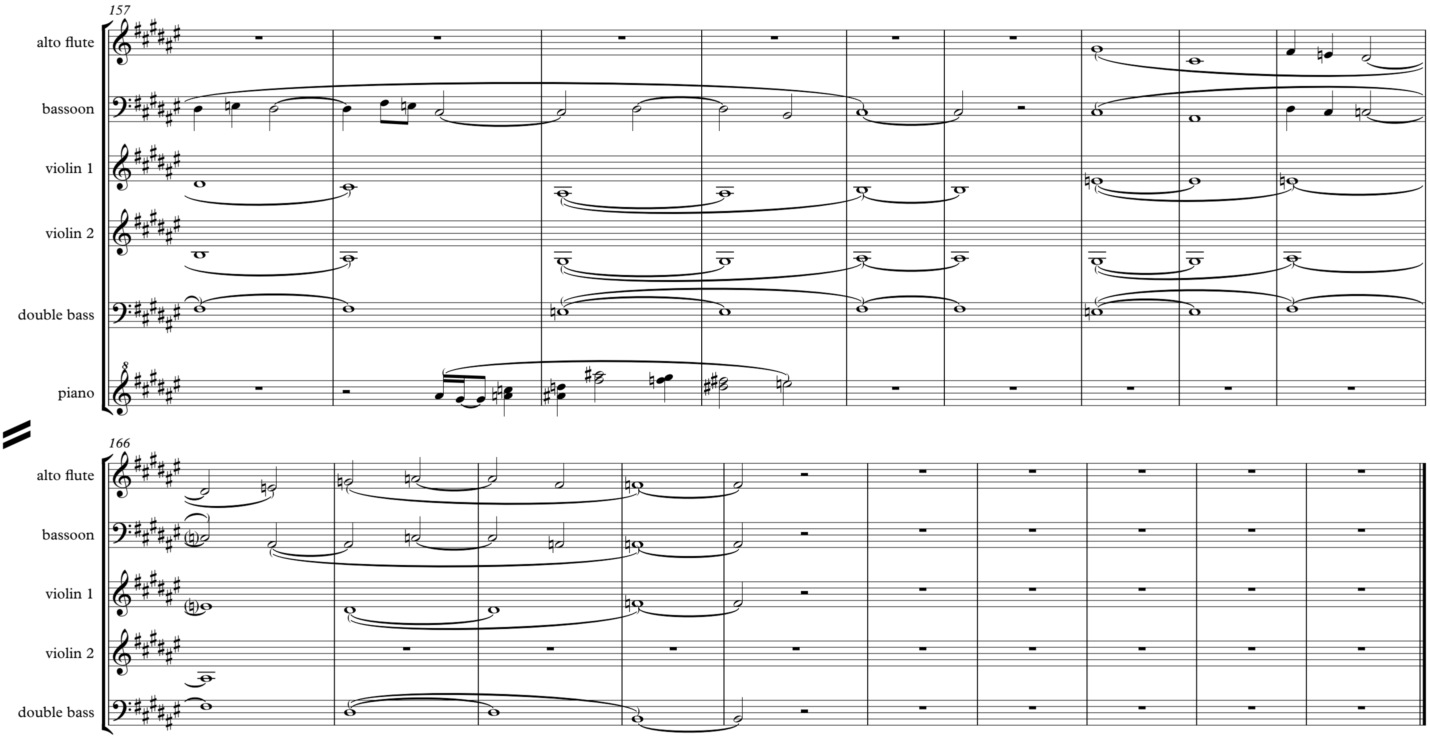
Through the Six Worlds
God realm (Deva) part 1

Geoff Geer


137 bpm
soughing, floating, tranquil, clock-like
car pass
rev. wind
scrape
air (2 bars)
grains falling (3.5 bars)
hollow echo (2.5 bars)
grains falling, roll dice for timbre lengths (8 bars)
spectral chord, roll dice for timbre lengths (8 bars)
concrète layer
violin 1
violin 2
piano
p
mp
17
bassoon
trombone
double bass
static spray swell (2 bars)
static spray (6 bars)
30
static spray, roll dice for timbre lengths (12 bars)
hollow winds passing (3 bars)
43
shorter static grains, roll dice for lengths(12 bars)
heavy grains (2 bars)

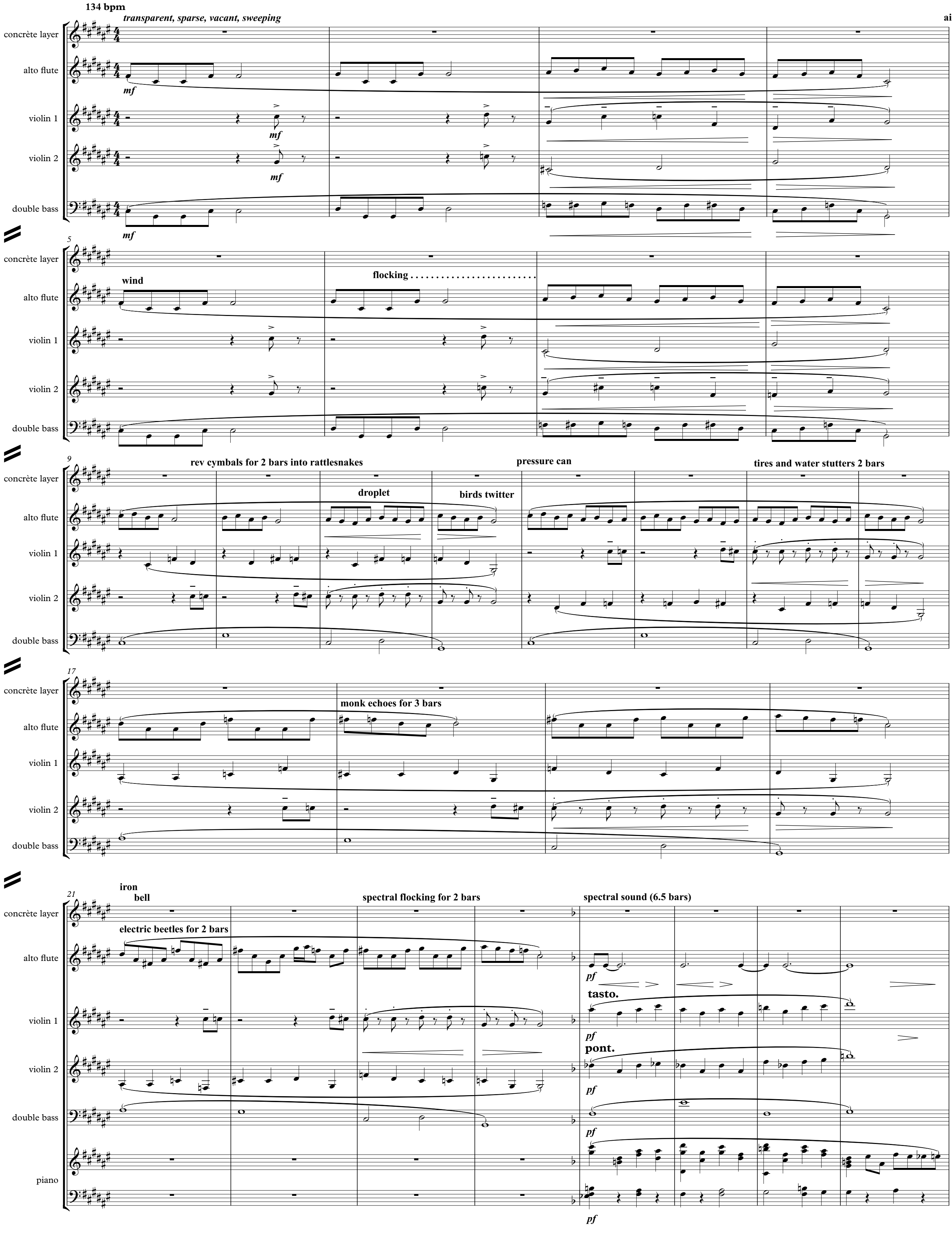

56
shifting grains, roll dice for lengths (4 bars)
spectral chord, roll dice for timbre lengths (8 bars)
concrète layer
heavy grains
violin 1
violin 2
double bass
piano
mp
mp
mp
mp
3
3
66
tink
china cymbal swell (3 bars)
shifting grains, roll dice for timbre lengths (17 bars)
concrète layer
bassoon
violin 1
violin 2
double bass
piano
76
alto flute
bassoon
trombone
violin 1
violin 2
double bass
piano
mp
p
86
wind rustling (till b. 123)
concrète layer
alto flute
bassoon
trombone
violin 1
violin 2
double bass
piano
p
pp
p
p
p

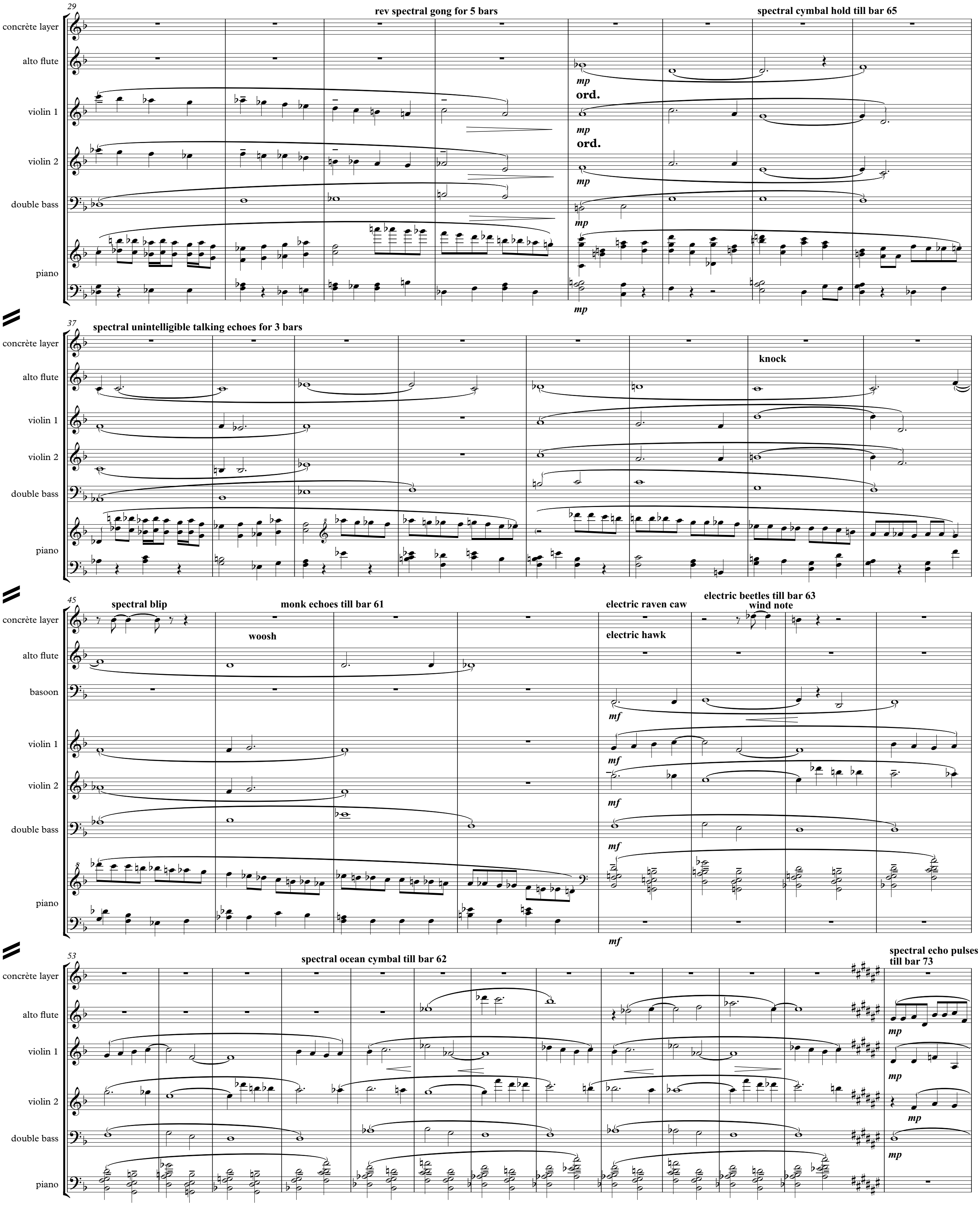

100
alto flute
bassoon
violin 1
violin 2
double bass
p
115
alto flute
trombone
violin 1
violin 2
double bass
p
131
wind picks up and fades (8 bars)
static, changing timbre each bar (4 bars)
concrète layer
alto flute
bassoon
violin 1
violin 2
double bass
piano
mf
p
mf
mf
mf
p
142
high static (2 bars)
static, changing timbre each bar (4 bars)
high static
long spectral electrical sound till b. 171
concrète layer
alto flute
bassoon
violin 1
violin 2
double bass
piano

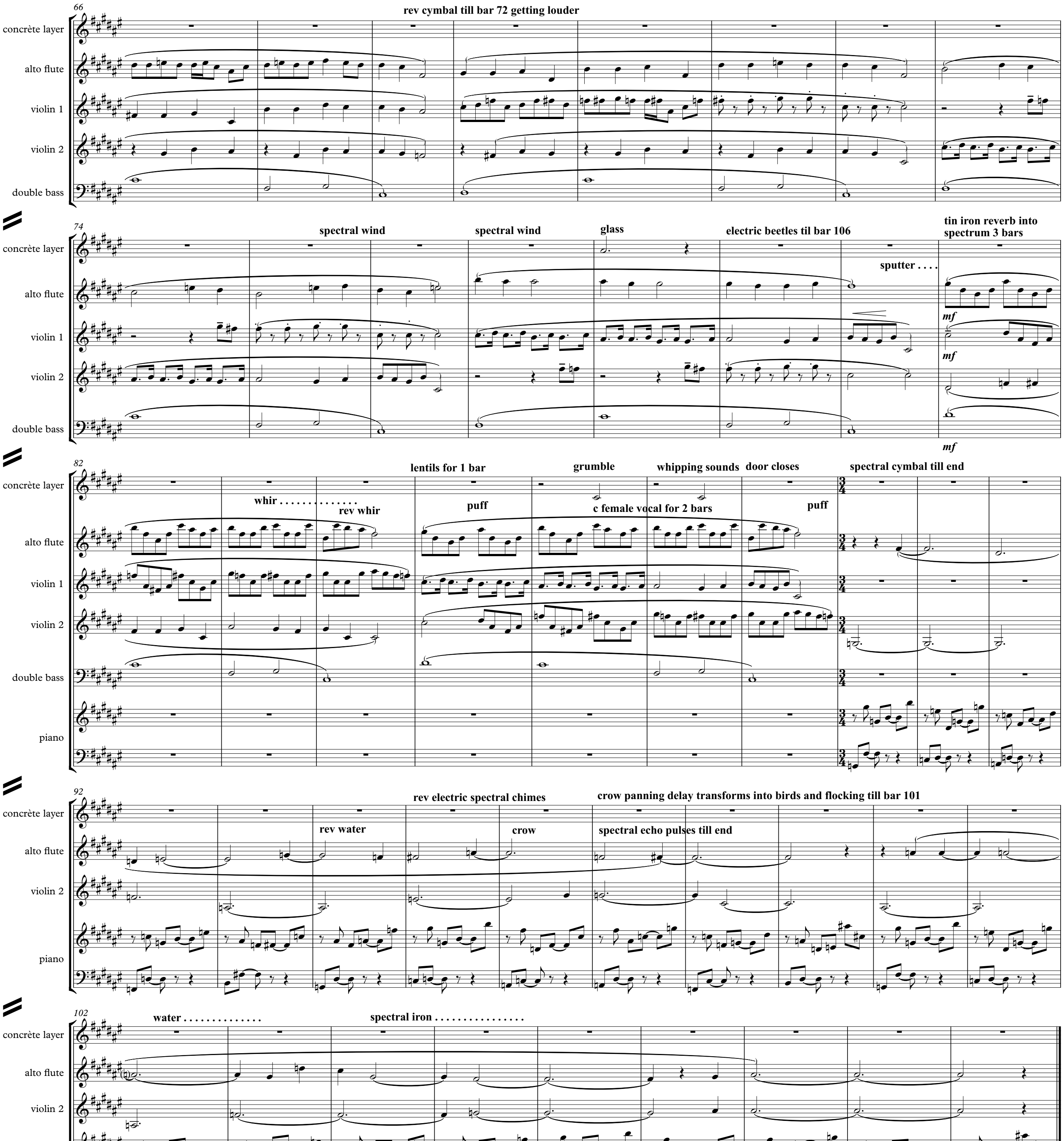

157
alto flute
bassoon
violin 1
violin 2
double bass
piano
8
166
alto flute
bassoon
violin 1
violin 2
double bass

Through the Six Worlds
8 God realm (Deva) part 2

Geoff Geer


134 bpm
transparent, sparse, vacant, sweeping
air
concrète layer
alto flute
violin 1
violin 2
double bass
mf
5
wind
flocking
9
rev cymbals for 2 bars into rattlesnakes
pressure can
tires and water stutters 2 bars
droplet
birds twitter
17
monk echoes for 3 bars
21
iron bell
spectral flocking for 2 bars
spectral sound (6.5 bars)
electric beetles for 2 bars
pf
tasto.
pont.
piano


29
rev spectral gong for 5 bars
spectral cymbal hold till bar 65
concrète layer
alto flute
violin 1
violin 2
double bass
piano
mp
ord.
mp
ord.
mp
mp
mp
37
spectral unintelligible talking echoes for 3 bars
knock
45
spectral blip
monk echoes till bar 61
woosh
electric raven caw
electric hawk
electric beetles till bar 63
wind note
bassoon
mf
mf
mf
mf
mf
53
spectral ocean cymbal till bar 62
spectral echo pulses till bar 73
mp
mp
mp
mp


66
concrète layer
alto flute
violin 1
violin 2
double bass
rev cymbal till bar 72 getting louder
74
spectral wind
spectral wind
glass
electric beetles til bar 106
tin iron reverb into spectrum 3 bars
sputter . . . .
mf
mf
mf
82
lentils for 1 bar
grumble
whipping sounds
door closes
spectral cymbal till end
whir . . . .
rev whir
puff
c female vocal for 2 bars
puff
piano
92
rev electric spectral chimes
crow panning delay transforms into birds and flocking till bar 101
rev water
crow
spectral echo pulses till end
102
water . . . .
spectral iron . . . .
5