

**RELEASING MESSIAEN'S BIRDS FROM
THEIR MUSICAL CAGES: USING
DELEUZIAN THEORY TO UNLOCK NEW
PERFORMANCE FRAMEWORKS.**

A thesis submitted in accordance with the requirement of the
University of Liverpool for the degree of Doctor of Philosophy in
Music

Megan Rowlands

Department of Music
University of Liverpool

Word Count: 106, 586

26th May 2023

Table of Contents

<i>Acknowledgements</i>	<i>i</i>
<i>Releasing Messiaen’s birds from their musical cages: Using Deleuzian theory to unlock new performance frameworks</i>	<i>iii</i>
<i>Abstract</i>	<i>iii</i>
Keywords	<i>iv</i>
<i>Glossary of Terms</i>	<i>v</i>
<i>List of Figures</i>	<i>xiv</i>
<i>Introduction and Methodology</i>	<i>1</i>
Messiaen as ‘creator’, performers as ‘readers’	<i>2</i>
Methodology for the combination of analysis and performance practices.....	<i>7</i>
<i>Preliminary Philosophy – Towards a philosophical methodology</i>	<i>10</i>
Information, Entropy and Disorder	<i>10</i>
The Inhabitation of Territory and its subsequent Deterritorialization.....	<i>13</i>
Deleuzian Milieus: The Inhabitation of Territorial Space	<i>20</i>
Summary.....	<i>24</i>
<i>Chapter 1: Messiaen’s Musical Language: Communication through the Territorial Body</i>	<i>27</i>
The Construction of Language and the Interior Milieu.....	<i>28</i>
Language as a Force of Chaos.....	<i>31</i>
The Added Value	<i>38</i>
Hindu Deçitalas	<i>50</i>
The harmonic-rhythmic synthesis.....	<i>55</i>
Serialism.....	<i>55</i>
Harmony	<i>64</i>
Modes of Limited Transposition	<i>64</i>
Summary.....	<i>70</i>
<i>Chapter 2: The Blackbird, Melody and the Three-note Motif</i>	<i>72</i>
<i>Le Merle Noir: Becoming Blackbird</i>	<i>80</i>
The Flourishing Blackbird: Establishing its place in Messiaen’s Oeuvre.....	<i>93</i>
<i>Réveil des Oiseaux</i> (1953).....	<i>94</i>
<i>Des Canyons aux Étoiles</i> movement 2 (1974)	<i>99</i>
Summary.....	<i>103</i>
<i>Chapter 3: The Musical Machine: Entropic or Deterritorializing (or both)?</i>	<i>105</i>
The Piano – How can Messiaen’s birds escape their notated machine?.....	<i>110</i>
How does the piano blend with the orchestra?	<i>122</i>
Summary.....	<i>142</i>

Chapter 4: Messiaen, Synaesthesia and Birdsong Perception	144
<i>Des Canyons aux Étoiles</i> (1974): Composer’s Chromesthesia and its Impact on non-synaesthetic performers and listeners.	152
An experiment to determine the interpretations of performers in relation to proposed colour changes within <i>Les Orioles</i>.	167
Findings.....	169
Projected Chromesthesia	180
Summary.....	188
Chapter 5: The Musical Space-Time Paradox and Messiaen’s Spectral Technique.	190
Spectral Strings – <i>Réveil des Oiseaux</i> (1953)	193
The Piano	207
Summary.....	214
Chapter 6: Space and Time: Musical or Realistic?	216
Space as Place – <i>Catalogue d’Oiseaux</i> (1958)	223
The fusion of Musical and Realistic Time – <i>Réveil des Oiseaux</i>	235
Summary.....	246
Chapter 7: <i>Abîme des Oiseaux</i>: A look back at the emergence of Messiaen’s legacy.	248
Musical Language: Rhythmic and Harmonic Applications.....	254
Added Value.....	254
The Modes of Limited Transposition	262
Revisiting Blackbird and Nightingale Inspiration	269
Summary.....	278
Chapter 8: Discoveries, Implications and Progression for the Future.	279
Summary of Findings.....	279
Contribution to the Field.....	280
Analysis – Fresh insights into Messiaen’s oeuvre	280
Philosophy – New Frameworks, Syntheses and Applications.....	281
Performance – Unlocking new approaches and new possibilities for consumption.....	285
Limitations	289
Covid-19.....	289
Transcription Notebook Availability.....	290
Implications for Future Performances.....	291
Areas for Future Research.....	292
Messiaen.....	293
Philosophy and Performance.....	294
A Final Overview	296
Bibliography	297

Acknowledgements

There are countless people that have kept me focused and motivated throughout the past three years, but a few that I couldn't have completed this PhD without, and so I would like to extend special thanks to them.

As an undergraduate and masters student that specialised in performance, I came into this PhD having never written more than 5,000 words on a single topic. My supervisors Professor Kenneth Forkert Smith and Dr Lee Tsang have guided me through the process, encouraging me when I doubted my own abilities and pushing me to curate my own research and writing style that has finally come to fruition.

The NWCDTP believed in my project and in awarding me funding, have enabled me to get through the three years of research without the need for too much extra stress and work pressures. My 10 performance participants also invested their time into my research and provided invaluable experimentation that contributed to the conclusions of my work.

Extra thanks must be extended to Tom Verity, Richard Casey and Ian Gottschalk Costabile who worked with me to produce a concert of Messiaen's work, including a phenomenal light show based on the composer's synaesthetic experiences.

My parents have supported me throughout all of my studies, provided me with comfort and reassurance during the 2020 lockdown, and more recently my father in particular has contributed a lot to the proof reading of my work, checking for typos, grammar errors and made me hyper aware of my use of commas!

Finally, I would not have completed this PhD without my boyfriend Billy and my miniature schnauzers Schubert and Heidi. Billy has offered me constant support, has encouraged me throughout everything I do, listened to me complaining about other aspects of work and I can't wait to now offer the same to him throughout his own PhD. Without Schubert entering our lives in 2021 and Heidi joining him in summer 2022, I would have spent 15 hours a day staring at my laptop screen. Schubert and Heidi have forced us to get out for a walk, to leave work behind for an hour or so and have provided much needed entertainment just by being

their funny, clumsy selves. They have had an invaluable impact on my mental health throughout my studies and have helped me to avoid the conventional stresses of a PhD and instead I have actually enjoyed the process.

Thank you to all those named and everyone else that has had any input at all on my project, I couldn't have done it on my own.

Releasing Messiaen's birds from their musical cages: Using Deleuzian theory to unlock new performance frameworks
Megan Rowlands

Abstract

Many of Olivier Messiaen's later compositions have a foundation in the systematic collection and notation of birdsong. The integration of these songs into works such as *Le Merle Noir* (1952) and *Catalogue d'Oiseaux* (1958), was conducted through a dual transcription process, with the composer notating his works using a combination of live field sounds and a collection of birdsong recordings. While much music-theoretical research has explored the relationship between analysis and performance, the synthesis has rarely been made with relation to birdsong, with past research relating to *either* analysis *or* performance.

The primary aim of this study is to establish new possibilities and frameworks for the performance of birdsong and other equivalent sound sources. While Messiaen's birdsong works are the focus of this project, the theories and possibilities provided can be applied to any musical work. The study therefore seeks to answer the following questions:

1. In what ways are natural sound sources manipulated when employed in a musical work?
2. To what extent can performers overcome the 'limiting forces' of notation to communicate a 'natural' narrative as well as the technical format of a work?
3. How can new performance approaches unlock greater interpretative flexibility in a work with 'natural' origins (such as birdsong)?

To expand the current research beyond existing performance studies, the investigation takes a philosophical approach, using the work of Gilles Deleuze as a basis for other lines of enquiry. Deleuze and Guattari suggest that "birdsongs are often recognised as having a territorial function" (Bogue, 1999). In transforming them into music, the songs undergo 'relative deterritorialization', with written notation forming a discrete symbolic 'language' centred around fixed variables rather than the natural continuum of birdsong. Through a philosophical lens, this thesis employs a combination of primary and secondary research methods, working with performers and listeners of Messiaen's music to explore how a territorial approach may alter or expand their interpretations of both micro and macro aspects of the repertoire.

The current study expands on existing performance conventions through consideration of Messiaen's creative process, rather than his end product. In doing so, the project offers new interpretative possibilities ('territories') for future performance. These opportunities enable performers and listeners to further 'deterritorialize' Messiaen's discrete musical notation to maintain greater focus on its birdsong inspiration: a continual process which Deleuze insists should be our ultimate goal.

Keywords

Olivier Messiaen

Birdsong

Deterritorialization

Analysis

Performance

Glossary of Terms

<i>Glossary Term</i>	<i>Glossary Definition</i>
Alter-nature	The transfiguration of a natural object to a ‘human’ state. For example the transformation of natural birdsong into musical notation.
Annexed Milieu	‘Energy sources and action-perceptions’. An additional layer of interpretation that is added to a ‘territory’. The construction of the other milieus is maintained, but an additional opinion or interpretative possibility is added to the object.
Becoming	“Neither imitation nor resemblance” (Deleuze, 1980). An object ‘becomes’ a new product by undergoing evolution and development within a set of predetermined parameters. Development is not necessarily limited, but has a desired destination that it aims to reach.
Body	A “multiplicity of partial objects” (Crain, 2013). A musical ‘body’ would involve the combination of multiple parameters such as melody, harmony and rhythm, including all of the ways in which each parameter <i>could</i> be employed.
Circle of Control	The boundaries within which an object can be perceived. An object or message travels around the circle of control in varying forms throughout the process of deterritorialization.
Composer’s Chromesthesia	Coloured hearing as in Messiaen’s own experience. The coloured experiences of the

	composer may feed into his process of composition with relation to some works, and may be relayed to performers to provide direction for their performance approach.
Communication	The transmission of any information through the medium of a performer. There is not necessarily a defined ‘message’ to be transmitted, but instead a process is implied in which something is produced to be consumed.
Cyclic Absolute Deterritorialization	A continuous process of deterritorialization that opens Messiaen’s birdsong up to infinite <i>new</i> interpretative possibilities. By aiming to maintain recognisability in the birdsong qualities, the study aims for a cyclic process that is consistently linked to the original sound source.
Demetricalisation	A deliberately manipulated lack of metricality, such as through the use of polymetre, or in using the added value to reduce the sense of pulse within a phrase.
Difference	The potential to differ from a comparable stimulus. Two objects can never be completely different. In order to perceive difference there must be a novel series of comparisons that can be made between the two. Difference is therefore a measure of potential to be different from something else.
Differential Entropy	An occurrence of ‘difference’ between two objects, with a number of possible directions in which a change may be made. Referring to change as opposed to loss;

	‘disorder’ is triggered in a defined direction due to the controlled manipulation of the original information source.
Differential Potential	The potential or extent of variation between two comparable objects. Differential potential is determined by the manner or extent to which an object may be varied without losing its recognisable features. Deleuze employs the term ‘differential’ as an adjective with relation to ‘difference and repetition’, implying ‘differential’ as a state of being different.
Entropic Deterritorialization	A state of deterritorialization that moves in a direction away from the original sound source. This could be desirable in some circumstances in order to highlight change and development, but in relation to Messiaen, it would constitute an undesirable loss of identifiable birdsong qualities.
Entropy	The addition of ‘noise’ to a message – the addition, loss or alteration of material that is not spoken in the original message but becomes integrated with the message that is eventually received. An analogy of entropy comes with the game ‘pass it on’.
Exterior Milieu	The outer casing or skin within which a ‘body’ is held. This constitutes the context within which a body can be found.
Forces of Chaos	An interruption to the journey of the original information source. The forces of chaos open an object up to the possibility of entropic ‘noise’, and can be manipulated,

	altered or overcome in order to promote continuous deterritorialization.
Full Chromesthesia	An explicit experience of coloured hearing. When they hear a sound, full chromesthetes are able to associate a defined colour or colour palette with the aural experience.
Generative Grammar	A set of ‘rules’ that constructs a language and is open to the possibility of continuous variation. Music can move towards a state of generative grammar at the stage of performance, where deterritorialization away from the confines of ‘ordinary language’ can begin to take place.
Genotextual Interior Milieu (GIM)	The skeletal structure of a language – it has the potential for interpretative communication but at this stage is perceived as a static object. The GIM consists of technical notated features and functions as the syntax of a musical ‘language’.
Genus	The broadest category from which an object or being may be perceived. For example, the genus of Messiaen is ‘human’.
Hypernature	The dramatization of natural elements for the purpose of narrative recognition. For example the augmentation and accentuation of a recurring intervallic contour.
Imagined Chromesthesia	The performance approach that may be taken by non-chromesthetic performers by using composer’s chromesthesia as inspiration. Performers do not necessarily experience colour, but have related the composer’s experience to the overall narrative image of the piece.

Individual	The specific example of an object or being that is depicted. Messiaen himself is the individual.
Information	The material that makes up a message. Information can be added, taken away or changed within a message during communication.
Interior Milieu	The fundamental structure, or skeleton, that is enclosed beneath the outer casing. This is the milieu that is responsible for the organisation and therefore transformation, of a body into a defined territory.
Intermediary Milieu	Membranes that connect all fundamental features of the interior milieu to the act of communicating a message. For example, where a composition has been notated, the intermediary milieu may constitute the instrument on which the notation will be performed.
Involution	The development of a being within a set of boundaries. Related to both ‘becoming’ and ‘genus’, involution is not seen as a limitation, but rather as a method of something ‘becoming’ something else without losing its original essence. For example, a human can ‘become’ another living thing through creative processes, but could not ‘become’ an inanimate object.
Leitmotif	A thematic idea that develops with each iteration, but ultimately maintains recognisability in its relation to narrative placement.

Line of Flight	The journey, or process, that is taken in order for an object to be deterritorialized. The line of flight could be finite—as in a single act of relative deterritorialization—or infinite, with multiple territories being defined along the journey.
Literal Space-Time	Portrayals of real places or times of day. Messiaen uses explicit labels or programme notes to describe the settings that he attempts to portray.
Manufactured Synaesthesia	A mental image created in the mind of non-chromesthetic listeners through an attempt to draw on both composer’s and imagined chromesthesia. This image is not necessarily the true experience of the listener, but is what they believe should be experienced based on the information they have been given by composer and performer.
Milieu	A collection of components – the building blocks that together aid the formation of a body and, in turn, territories. Translated from French to mean “surroundings, medium and middle” (Massumi, 1987).
Musical Space-Time	The construction of a composition through parameters such as melody, harmony, rhythm and texture. Musical space-time is interpreted and to an extent bound by the notational system.
Phenotextual Annexed Milieu (PAM)	The communication or interpretation of a musical ‘language’. The original object is transformed for interpretation and thus is open to the continuity of deterritorialization. The PAM occurs at the level of performer

	and listener – an ex post-facto interpretation of the composer’s notated language.
Point of Order	Newly established territory(ies) following the creation of a new object. This can ‘stop’ with the forces of chaos, or can be a variety of possible territories formed by individual interpretations of an object.
Projected Chromesthesia	An external experience, such as a light show, which is used to accompany an aural experience. An almost ‘forced’ sense of coloured hearing where listeners are shown the colours that they could experience in relation to a set of sounds.
Real	A Lacanian concept constituting a state of existence beyond the limits of human expression. This could be birdsong as it is experienced by the birds themselves, something that humans could never hope to express through music. (Lacan, 1977)
Realistic	As read by Lacan: a fantasy that one convinces oneself is real (Lacan, 1977). A human could hear a musical interpretation of birdsong and think that it is birdsong, even though it is at best a representation of reality.
Refraction	A musical interpretation of birdsong that maintains recognisability in some motivic aspects while allowing the song to be adapted for the purpose of a musical, or human, work. Refraction promotes cyclic absolute deterritorialization by splitting birdsong down into its simplest

	components, each of which can be developed during musical performance.
Relative Deterritorialization	A single act of deterritorialization- reterritorialization. An object is taken out of its original territory and placed into a new one through a single act of interpretation.
Repetition	More closely related to the term ‘iteration’. Two objects can never be exactly the same, there is always a novel series of differences. Repetition is therefore a measure of similarities between objects, when compared with their level of ‘difference’.
Smooth Space (Time)	“Continuous variation, continuous development of form” (Deleuze, 1980). In music this is represented by more ‘flexible’ components such as rhythm and texture, that aid the communication of the striated melody and harmony but are left open to the interpretation of individual performers and listeners.
Species	A slightly more specific categorisation of a being, which still contains a number of different possibilities. For example, Messiaen’s species is ‘man/male’.
Spectralism	The use of the natural resonances of sound as a basis for composition. Harmonies within a composition take their basis from the natural harmonic spectrum, with harmonies being mathematically related by frequencies, as could be found on a spectrograph or similar.
Striated Space (Time)	A Deleuzian reading of the term that combines vertical and horizontal

	components. The foundational, structural ‘weave’ of an object that in music are represented by melody and harmony.
Subnature	A state of reduced or negated natural sounds for human performance. For instance the removal of microtonal birdsong intonation to suit the tuning systems of human instruments.
Territory	Constituents of a body that are organised to form a defined identity. The identity of a territory can be changed or developed by the external or environmental experiences of the original body.
The Machine	A set of conventions or boundaries through which something may be interpreted. Music <i>may</i> be bound by a notational machine, but human influence on the machine enables a break from its bounds into continuous interpretative processes.
Unmetrical	A naturally-occurring lack of metricality. This might occur within a cadenza section, or when listening to sounds such as birdsong as they occur in nature.

List of Figures

0.1	Entropic stages in the transformation of birdsong into performable music.	11
0.2.a.	The Deleuzian process of Relative Deterritorialization.	17
0.2.b.	The Deleuzian process of Absolute Deterritorialization.	19
0.3.	The relationship between various milieu components	22
0.4	The annexed milieu as part of the deterritorialization process.	23
1.1.a.	A representation of the ‘body’ in its entirety.	30
1.1.b.	The milieu components having been ‘portioned’ for use within a territory.	30
1.2.a.	The flight of a bird, interrupted by the ‘forces of chaos’ as found in nature.	32
1.2.b.	The ‘forces of chaos’ within the process of transforming birdsong into composed music.	32
1.3.	A table to describe the properties of the ‘genotextual interior milieu’ and ‘phenotextual annexed milieu’.	36
1.4.	The transformation of Messiaen’s musical language from genotext to phenotext.	37
1.5.	Different representations of how the added value may be employed.	40
1.6.	Examples of the ‘iambic’ or ‘trochee’ motif within <i>Le Merle Noir</i> .	41
1.7.	The use of the added value within the Presque Lent section of <i>Le Merle Noir</i> .	46
1.8.	Consecutive increments of semiquavers, with the feeling of a pulse controlled by the added value.	47
1.9.	Three iterations of the ‘cliffs’ motive from <i>Le Merle Bleu</i> , demonstrating Râgavardhana, Candrakala and Parvatilocana deçitalas.	53-54
1.10.a.	Messiaen’s serial tone rows within <i>Le Merle Noir</i> .	58
1.10.b.	The first bar of the piece foreshadows the tone rows employed later.	58
1.11.	Rhythmic serialism in the piano part of the last section of <i>Le Merle Noir</i> .	59

1.12.	Pitch frequency of grace notes during the ‘B’ section of <i>Le Merle Noir</i> .	61
1.13.	The seventh mode of limited transposition in its first form.	66
1.14.	Uses of the 7 th mode of limited transposition in the Presque Lent section of <i>Le Merle Noir</i> .	67
1.15.	A proposed cadence point within the Presque Lent section of <i>Le Merle Noir</i> .	69
2.1.	A comparison between ‘associative themes’ and the ‘leitmotif’.	74-75
2.2.	The parallels between ‘difference and repetition’ and the process of cyclic absolute deterritorialization.	77
2.3.a.	Deleuze’s progression in ‘difference’ from genus, to species, to individual.	78
2.3.b.	The roles of genus, species and individual when compared with cyclic absolute deterritorialization.	79
2.4.	The three-note motif within <i>Le Merle Noir</i> .	82
2.5.	The Pitch-Class Set of the three-note motif.	83
2.6.	Varied iterations of PC set 3-5 using A, E \flat and D.	84
2.7.	An extended iteration of PC set 4-9.	86
2.8.	Pitch frequencies during the bird cadenza sections of <i>Le Merle Noir</i> .	87
2.9.	The call and response style phrases associated with the Presque Lent section.	88
2.10.	A kinaesthetic representation of flute fingerings for the original three-note motif.	91
2.11.	Two iterations of the three-note motif in <i>Réveil des Oiseaux</i> .	96
2.12.	Comparisons of the blackbird in <i>Le Merle Noir</i> and <i>Réveil des Oiseaux</i> .	98
2.13.	The three-note motif within the Orchard Oriole character of <i>Les Orioles</i> .	101
3.1.	Paul Klee’s ‘Twittering Machine’ (1922).	106
3.2.	A visualisation of ‘entropic deterritorialization’.	108
3.3.	Uneven groupings of a single pitch within the nightingale motive of <i>Réveil des Oiseaux</i> .	114
3.4.	The most frequently used intervals within the nightingale motive.	116

3.5.	A spectrograph depicting the harmonic resonance of the piano.	118
3.6.	Messiaen's composed conversation between two individual nightingales.	121
3.7.	Motivic similarities between the Orchard Oriole and the Blackbird.	124
3.8.	Drive theory in the Baltimore Oriole's motive. Key and graphics adapted from (Smith, 2021).	128-129
3.9.	Identifiable musical elements within the Scott's Oriole motive.	133
3.10.	The construction of the Bullock's Oriole motive.	135
3.11.	The intervallic structure of the oboe line of the Lichtenstein's Oriole motive.	137
3.12.	Intervallic consistency between all orchestral parts of Lichtenstein's Oriole motive.	139
3.13.	The 'legato' timbre of oboes and flutes within the Lichtenstein's Oriole motive.	141
4.1.	Proposed synaesthetic experiences and their impact upon each other during performance.	145
4.2.	Messiaen's proposed colour associations in relation to pitch class.	150
4.3.	Messiaen's colour associations in relation to the modes of limited transposition.	151
4.4.	The possible combination of composer's chromesthesia with inspired chromesthesia and manufactured synaesthesia during performance.	153
4.5.	The Orchard Oriole motive.	154
4.6.	The last chord of each bar of the Orchard Oriole motive.	155
4.7.	Female Orchard Oriole.	156
4.8.	A reminder of cyclic absolute deterritorialization with relation to synaesthesia.	157
4.9.	Defining features of the Baltimore Oriole motive.	158
4.10.	Defining features of the Scott's Oriole motive.	163
4.11.	Bullock's Oriole motive.	166
4.12.	A graph to show performers' perception of colour change throughout <i>Les Orioles</i> .	170
4.13.	Bar 6 of <i>Les Orioles</i> .	179

4.14.	Audience responses regarding the incorporation of a light show to a performance of Messiaen's birdsong works.	185
5.1.	The harmonic resonances in the string parts of the Song Thrush motive (<i>Réveil des Oiseaux</i>).	196
5.2.a.	A 'musical' logarithmic representation of the overtone series of the fundamental pitch E.	200
5.2.b.	A 'physics-based' linear representation of the overtone series of the fundamental pitch E.	201
5.3.	A demonstration of the relationship between frequencies and frequency ratios.	201
5.4.	Messiaen's notated monophonic octaves.	208
5.5.	The mathematical difference between frequencies in equal temperament and just intonation.	209
6.1.	A reminder of the relationship between various milieu components.	221
6.2.	Paul Klee's 'Twittering Machine' (1922).	222
6.3.	The palindromic shape of the arch form employed in <i>Le Merle Bleu</i> .	225
6.4.	The intervallic structure of Messiaen's Martinets Noirs motive.	227
6.5.a.	The added value within the Merle Bleu motive.	229
6.5.b.	The relationship between the Merle Bleu motive and motives representative of scenery.	230
6.6.	The first iteration of the Les Falaises motive.	232
6.7.	Messiaen's L'eau motive.	233
6.8.	The first two iterations of Messiaen's Les Vagues motive.	234
6.9.	An interpretation of David Kraft's (2000) arch form diagram (<i>Réveil des Oiseaux</i>).	238
6.10.a.	An example of Messiaen's Song Thrush motive.	245
6.10.b.	An example of Messiaen's 'late morning' section.	246
7.1.	The placement of the added value within the opening of <i>Abîme des Oiseaux</i> .	255
7.2.	The added value within the Presque Vif section of <i>Abîme des Oiseaux</i> .	257
7.3.	The second and third phrases of the opening section of <i>Abîme des Oiseaux</i> .	262

7.4.a.	The second mode of limited transposition, in its second transposition.	265
7.4.b.	The alignment of the half-whole octatonic scale against the diatonic major scale.	265
7.5.	Iterations of the minor 2 nd and the tritone within the opening section of <i>Abîme des Oiseaux</i> .	266
7.6.	The compositional style of the Presque Vif section.	269
7.7.	Blackbird and Nightingale features found within <i>Abîme des Oiseaux</i> .	271
7.8.	A subtle iteration of the three-note motif within <i>Abîme des Oiseaux</i> .	272
7.9.	Uses of the tritone in <i>Abîme des Oiseaux</i> and <i>Réveil des Oiseaux</i> .	275

Introduction and Methodology

As a devout Roman Catholic, Olivier Messiaen took a spiritual approach to much of his early output, as shown in a wealth of literature (Bruhn, 2007; Shenton, 2017) focusing on the composer's largest scale work: *Turangalila-Symphonie* (1949). As Messiaen's reputation as a teacher increased, his compositional style influenced a number of his students. With widespread use of his methods by students, Messiaen began to reconsider his relationships to originality. This, combined with the deteriorating health of his wife, prompted a renewal of his compositional style, this time taking inspiration from birds. As proposed by Matthew Guerrieri (2016), "Messiaen found his salvation in the part of his musical language that most collapsed the distance between him and creation; taking Christ's advice, he considered the birds". The ultimate aim of the current investigation is to consider how Messiaen took inspiration from 'creation'. With birdsong as his central concept, Messiaen as composer is the 'creator' of change, developing the potential for continuous reinterpretation of his musical products. Following the thread left by Messiaen, the current investigation considers the possible triggers for change, exploring them as opportunities for innovation in the practices of music performance and consumption.

In exploring opportunities for innovation, there are a number of key aims for the current study:

- i. To explore the ways in which natural sound sources have been manipulated by Messiaen during his composition process.
- ii. To investigate the relationship between analysis and performance, exploring how existing analytical methodologies could expand the approaches that performers could take to Messiaen's birdsong works.
- iii. To consider the extent to which performers can draw on the 'natural' origins of a work, furthering this by exploring how these performance approaches can expand interpretative possibilities for the listener.

In order to achieve these aims, the study will assume the following objectives:

- i. Deleuzian theory will underpin each of the above aims. Deleuze has himself discussed Messiaen's use of birdsong, and so his theories accord well when drawing on the natural sound sources during performance. While uses of his theory will vary in each

chapter of this thesis, Deleuzian philosophy will create an overarching process of ‘creation, change, interpretation and return’.

- ii. Existing analytical methodologies will be applied to a number of Messiaen’s works to explore how the composer has incorporated birdsong through a number of recognised musical techniques. These methods include Fortean set theory, serial tone rows and drive analysis.
- iii. Primary research with performers will be used to gather opinions around the flexibility of performance approach, supplementing analytical discoveries to consider the extent to which performers are open to drawing on natural sound sources during performance.

Messiaen as ‘creator’, performers as ‘readers’

Messiaen’s use of birdsong in much of his compositional output has come under scholarly scrutiny, particularly in relation to the ‘accuracy’ and relative ‘authenticity’ of his writing (Hold, 1971; Nichols, 1975). These cross-examinations, however, frequently discuss Messiaen’s compositional *process*, rather than his end products. Take the opinion of Robert Sherlaw Johnson, for example, who states outright that “one of the most problematical aspects of Messiaen’s birdsong is the accuracy of his transcriptions” (Johnson, 1975, p. 117). Messiaen himself has additionally stated that “those who are truly familiar with birds cannot recognise them in my music” (Johnson, 1975), but what has not been considered is that perhaps in stating this, Messiaen suggests that not all of his birdsong works are *intended* to convey accuracy over musicality. While we may never know for sure without an interview with Messiaen himself (and even this might mislead us), this thesis will evaluate the existing evidence to unlock a variety of approaches through which one could interpret Messiaen’s birdsong works. Theorising Messiaen’s ‘intentions’ for his compositions is not the end game however, and serves only to explicate the first in a multi-stage process that will be designated and explored in due course as ‘**cyclic absolute deterritorialization**’, partly following the work of philosopher Gilles Deleuze.

Within the present study, the idea of interpretative flexibility is paramount. In increasing the possible approaches that can be taken to the performance of a musical work, the study aims to increase the ability to draw an image, character or narrative from a musical work. The current investigation does not demonstrate a single interpretation that *should* be made from a

performance, but rather explores the subjectivity of interpretations that *could* be made by each individual performer, or perhaps listener. Despite the focus on Messiaen here, the models of interpretative flexibility that will be offered are applicable to all musical works that have taken inspiration from a natural sound source or that possess an explicit internal narrative. One may argue that the specific models explored in this study are less applicable to ‘absolute music’, although the importance of interpretation from the listener in a more generalised way is maintained nonetheless. I have chosen to focus on Messiaen’s use of birdsong thanks to the wide array of compositional methodologies that are employed in his works. Each chapter of this thesis will take a different approach to analysing Messiaen’s composition process, such as music as language, the leitmotif, spectralism and synaesthesia. The findings of each of these explorations can be applied to other relevant musical works, as a new model for developing new performance approaches.

Throughout the current investigation, I do not aim solely to communicate Messiaen’s proposed ‘intentions’ for a work, but nor do I aim to completely remove the composer’s interpretations in favour of the ‘natural’ bird character. The study instead aims for an acknowledgement of both the composer’s own writing and the original source of the sound, with the term ‘acknowledgement’ highlighting that this form of communication will be different for each performer or listener. Roland Barthes’ *Death of the Author* (1967) serves as a background model to my theory of interpretation. Barthes’ *Death of the Author* is used as ‘inspiration’ for the current investigation, explaining why such a study is relevant within the field and uncovering the possible impacts of an altered approach to music performance. As will be outlined in due course, however, philosophical methodologies will be developed to combine score analyses with performance approaches that will be so crucial to the study overall.

As outlined by Laura Seymour (2018), previous Marxist and Romantic theorists proposed “the notion of the author as a capitalist ‘owner’ or proprietor of their texts who controls their use and consumption by limiting the ways in which they can be interpreted” (p. 22). Barthes’ essay, however, presented a possible interpretation of a literary (or in this case musical) work that is not ‘contained’ by the author’s intentions. Developing the ideas raised by the New Criticism movement (*la nouvelle critique* as known to Barthes in France), Barthes emphasises the reader (performer or listener) as the interpreter of texts, therefore “liberat[ing] readers from having to interpret texts according to authorial intention alone” (Seymour, 2018,

p. 23). Barthes highlights that “the removal of the author [...] utterly transforms the modern text” in such a way that “the modern scripter is born simultaneously with the text, is in no way equipped with a being preceding or exceeding the writing” (Barthes, 1967, p. 145). By removing or reducing the impact of the author’s history or legacy on a piece of writing, Barthes suggests that writing, and specifically notation, is no longer an operation, but rather becomes “a performative, a rare verbal form in which the enunciation has no other content than the act by which it is uttered” (Barthes, 1967, pp. 145-146).

Of course, as with many literary movements, Barthes’ work has met with criticism, with scholars such as Raymond Picard following the Freudian theory that “an author’s text is intimately bound up with that author’s life” (1969). The current study, however, aims to uncover a ‘middle-ground’ between both modernist (Barthes) and Freudian approaches. The specific works that will be explored have two possible ‘authors’: the bird, in producing the initial sound sources, and Messiaen as composer of the notated works. This study aims to reduce the specificity of both authors, instead allowing interpretations that either combine both the bird and Messiaen as ‘co-authors’, or that are created by the subjective ‘reading’ of the performer. Messiaen left a legacy of explicit score labelling and programme notes, which demonstrate the bird characters and narratives that are incorporated in his works. While these labels may inform the interpretations of the performer, they are written from a stylistic rather than a music-theoretical perspective, and therefore do not and cannot dictate any technical specificity regarding the performer’s overall approach. Messiaen as author therefore remains at the level of the writing itself, and while he provides the basis to unlock interpretations, Messiaen’s own ‘intentions’ will not necessarily extend beyond the performer to reach the listener. The current study therefore suggests that the ultimate flexibility of interpretation stems from the interpretations of performers as readers, not of Messiaen as author. The focus here is on the addition of the new – nothing that Messiaen has left behind is being removed, but I instead aim to add justified additional interpretations to the information that has already been provided.

Barthes’ literary movement provides a basis for the fundamental aim of this investigation, explaining *why* a reduction in authorial ownership promotes an increase in interpretative flexibility for performers and listeners. The question therefore arises, however, as to *how* this premise can be applied to a performance of a musical work. The below methodology examines the exploratory approaches that will be employed throughout the current study,

introducing the primary and secondary methods through which Messiaen's birdsong works will be analysed in relation to performance. As the methodology and study progresses, priority will be given at many points to the interpretations of performer and listener. When prioritising interpretations in this way, the study considers *The Death of the Author* (1967), highlighting the performer and listener as readers of Messiaen's texts.

Methodology for performer collaboration

A number of case studies have been chosen for use in the present study, all of which demonstrate Messiaen's use of birdsong. These case studies - *Abîme des Oiseaux* (1941); *Le Merle Noir* (1952); *Réveil des Oiseaux* (1953); *Le Merle Bleu* (1956) and *Les Orioles* (1974) - have been chosen thanks to the wide variety of compositional approaches that have been employed, each providing a model that can be applied to different musical settings. Using the five given case studies, this investigation will explore performance approaches related to (1) **musical language**, (2) **the leitmotif**, (3) **the instrumentation 'machine'**, (4) **spectralism**, (5) **synaesthesia**, (6) **space and time**. Each of these topics will be discussed in a three-fold way. First score analyses will be conducted to explore how Messiaen has employed each of the above techniques within his scores. Collaboration with performers has taken place to consider instinctive performance approaches, before thirdly experimenting with these approaches in combination with the findings of score-based analyses. This experimentation aims to establish additional performance approaches that can prioritise the narrative and stylistic content of a work more so than the context of its creator (author).

Throughout the investigation, discussions with performers will be separated into the six topic areas outlined above. From a set of ten participants, each topic will be discussed with those performers that are most familiar with the relevant birdsong case studies. For example, flautists will spend more time discussing *Le Merle Noir*, where clarinettists will concentrate on *Abîme des Oiseaux*. This concept of 'specialism' has been employed so that a comparison can be formed between performance approaches that participants have used in the past and new possibilities for the future. Participants were chosen due to their familiarity with Messiaen's compositions. Not all participants had necessarily performed the given case studies, but they all demonstrated preference for 20th century styles and appreciated the incorporation of birdsong to the given works. The methodology used was a semi-structured interview technique, in which I planned in advance the topic areas that were to be discussed,

but ultimately allowed the interviews to progress in a natural conversational way. Participants somewhat took the lead during discussion, with my questions becoming an instinctive reaction to the opinions of the participants, rather than a set of pre-planned questions.

Prior to discussion, participants were provided with a full score of the relevant case studies. Discussions began by considering a performer's existing experience of a specified section of music, exploring how they would instinctively approach a performance and examining the factors within the score that have led them to that decision. Following this initial conversation, I provided participants with analytical information regarding the topic at hand. For example, if discussing the leitmotif, I identified the chosen leitmotif in the participant's score, before describing how it has been developed across this piece and Messiaen's oeuvre. Once this information had been provided, discussion turned to how performers might alter their approach as a result of the given information. Performers were not forced to change their approach, but were instead asked to consider the possibility for new approaches that might increase the interpretations that can be made by listeners. Of course, this investigation is primarily concerned with Messiaen's use of birdsong. By highlighting a single compositional technique within each chapter, experimentation with performers employs an approach that can be applied to other musical works, exploring the technique itself rather than the specificity of its use within a single work.

All of the semi-structured interviews that are part of this research took place between October 2020 and March 2021, and because of this all discussions were conducted on zoom. With the permission of participants using consent forms, all zoom meetings were recorded, allowing me to collect audio data that could be transcribed for use within the thesis. The data set for this qualitative methodology is therefore stored as audio recordings. After the interviews took place, quotations from the zoom recordings were split into sections depending on which of the above six topics they referred to. Relevant quotations were then employed throughout the thesis, with choices being made to avoid duplications where opinions were very similar between multiple participants. The semi-structured interview with recorded audio data was suited to the sample size in this case, as the number of participants was small enough that all of the presented data could be analysed meaningfully. This methodology is employed throughout the thesis. In chapter 4, additional methodologies will be observed that were employed for larger sample sizes. These methodologies will be explained within the individual chapter.

Methodology for the combination of analysis and performance practices

In combination with performer collaboration, music-theoretical analysis is a major component of the primary research methodology throughout this investigation. Analytical details will be employed to supplement and justify the opinions of performers, providing contextual insight into how and why new performance approaches can be developed. The analytical methodologies employed are not innovative to the current study, but instead provide a platform for innovation in performance practice. The study will employ existing analytical methods such as Fortean set theory, serial tone rows and harmonic drive analysis to explore Messiaen's use of parameters such as pitch, rhythm, harmony and structure. These analyses therefore provide a stepping stone to discussion of interpretative flexibility for both performers and listeners.

Of course, much literature has previously explored the possible combinations of analysis with performance. Many approaches have been taken to this field of research, although many, as highlighted by John Rink, follow the assumption that "analysis as applied to performance is a 'serious' activity without much room for intuition or interpretation" (Rink, 1990, p. 320). Rink suggests that "attempting to recast the findings of analysis into a performance mould seems not unlike translating a book into another language word-for-word, without regard to the second language's particular idioms, inflections, grammar and syntax" (1990, p. 320). Despite the 'negative' tone of both of Rink's statements, the scholar's later work developed a more favourable approach. The key statement of Rink's 1990 work is the discussion of analysis *as applied to* performance, rather than analysis *for/of* performance. By 2002, however, Rink took inspiration from scholars such as Janet Schmalfeldt (1985) and Eugene Narmour (1988). Where Schmalfeldt emphasises that "there is no single, one-and-only performance decision that can be dictated by an analytic observation" (1985, p. 28), she highlights that analysis is a process during performance practice, rather than a method of uncovering a single end product. Similarly following Eugene Narmour's theory that "performers, as co-creators [...] must acquire theoretical and analytical competence [...] to know how to interpret" (1988, p. 319), Rink (2002) developed the concepts of 'performer's analysis' and 'informed intuition', which have since evolved through the work of Nicholas Cook (2013). Rink and in turn Cook suggest that performer's analysis is an aural rather than a written culture that presents "a means of identifying and conceptualising the building and dissipation of tension" (Cook, 2013, p. 43). Where Rink's earlier work appeared to follow the

Freudian approach of the ‘author’ as dictator or proprietor of a work’s outcomes (as outlined by Roland Barthes), performer’s analysis and in turn informed intuition begins to break down the ‘barrier’ of the author by highlighting the “importance of intuition in the interpretative process but also that considerable knowledge and experience generally lie behind it” (Rink, 2002, p. 36). Rink appears to form a ‘bridge’ between Romantic and Modernist conceptualisations of the ‘author’. The former suggests that the author dictates and contains the possible readings of a text, whereas the latter proposes that the author be disregarded during interpretative processes. Rink however, sits in between, indicating that interpretative intuition from the performer is necessary, but that it is determined by their knowledge of the author’s (composer’s) background.

Rink’s ‘bridge’ forms the basis of where the current study lies. The investigation aims for an acknowledgement of both Messiaen and birds as ‘authors’, but also to allow the performer, as ‘co-creator’, to employ any performance approach that they consider to be most efficient in communicating the expressive style of a piece. Of course, the expressive style of a musical work may have originally been created by its ‘author’, but a performer’s interpretation of style is not necessarily dictated by the author’s original vision. In order to diverge from the ‘single pathway’ of the author’s ideal, analysis is employed. As explored by Edward Cone (1968) and Eric Clarke (2002), “every valid interpretation thus represents, not an approximation of some ideal, but a choice” (Cone, 1968). An ‘approximation of some ideal’ would suggest that performers aim to imitate the content of a score as closely as possible, without deviating from the composer’s own ideals. By labelling the interpretative process as a ‘choice’, however, Cone’s discussion aligns with that of Eric Clarke who states that “the artistic expression of feeling in music consists of aesthetic deviation from the regular (the score)” (2002, p. 63).

As Rink rightly expressed, deviation from a score can only occur through prior knowledge of the score itself. The current study approaches analysis through collaboration with performers, combining ‘theorist’s analysis’ of the score, with ‘performer’s analysis’ (Cook, 2013) of past performances and options for the future. In order to unlock interpretative flexibility from the performer, one must first develop multiple interpretations of the score-based theoretical analysis. As indicated by Joel Lester, “a performance is necessarily only a single option for that piece, delineating some aspects while excluding others – just like a single analysis” (1995, p. 199). There are two interpretations that one could make of this statement. Firstly, it

might be suggested that multiple analyses are required in order to create multiple performances, in which case each analysis would explore an individual parameter that is present during performance. When considering a broader analysis that incorporates both content (taken from the score) and context (information around the author), however, Lester could indicate that performers can interpret a single analysis in different ways. The current study follows this approach, placing the performer in the role of co-creator to emphasise the creation of the new. The creation of new models and approaches for performance stem from an interpretation of analysis, and the methodologies employed throughout the current study will allow performers to experiment with analytical findings, discovering the interpretations that most closely suit their own intentions for performance.

All of the current literature surrounding analysis and performance practices will play a part in the present investigation. In order to develop existing theories, however, the fundamental approach of the study will be explored through the use of philosophical theories, which will now be introduced.

Preliminary Philosophy – Towards a philosophical methodology

The above introduction outlined the aim of the current study in relation to the addition of the new, widening the focus from a single ‘correct’ interpretative pathway to instead emphasise the flexibility of subjective interpretations from individual performers or listeners. Roland Barthes was earlier used as an explanation or justification for this investigation, reducing the containment of authorial ‘ownership’ to instead place the interpretative power with the reader (performer in this case). The current study does not aim to return exactly to the proposed intentions of either Messiaen or the bird, but instead aims to acknowledge their roles in the creation of a work. These roles may then inspire, rather than dictate, the approaches that performers may choose to take in communicating the stylistic narrative of a musical work. Where Barthes’ theory explains *why* a study of this kind is influential on its field, the below philosophical methodologies will uncover *how* the study aims to achieve interpretative flexibility from both performer and listener.

Information, Entropy and Disorder

Entropy as a facet of Information Theory (Shannon, 1949), is derived from a mathematical hypothesis but has distinct resonances with many musicological processes, particularly in the vein of the current study. The theory as a whole explores the communication of a message¹ from an initial source, through a transmitter to a final destination. As inferred by Joel Cohen, “information relates not so much to what you do say as to what you could say” (1962, p. 140). Related to a multitude of possibilities for ‘reinterpretation’, information theory on the broadest scale is tied to the musical communicative processes of composition and performance, in which information is shaped and manipulated for interpretation by a third party (analyst, performer or listener). The study at this stage, however, is more specifically concerned with the *ways* in which information may be manipulated during the communication process, and the impact that this has on the perception of the message at its destination. Defined by Cohen as a “lack of order or predictability, [a] gradual decline into disorder” (1962), **entropy** records the extent to which ‘noise’ has been added to a message, where ‘noise’ constitutes additional material that is not spoken in the original message but

¹ Throughout this study, the term ‘communication’ will not be employed to imply communication in its conventional form, and will not be focused on the direct communication of Messiaen’s own vision. Information theory is therefore employed to emphasise communication as the transmission of *any* information, therefore unlocking maximum possibilities for how this information may be perceived by a listener.

that becomes integrated with the message that is eventually received. This is particularly relevant to the current study when considering Olivier Messiaen's transcription process, conducted to translate natural birdsong into a performable musical product. Fig.0.1 sets out the various stages of entropy that are triggered during the processes of composition, performance and consumption (listening). I will refer to these levels of entropy throughout the remainder of the investigation, commencing with Messiaen's own interpretations of audible birdsong.

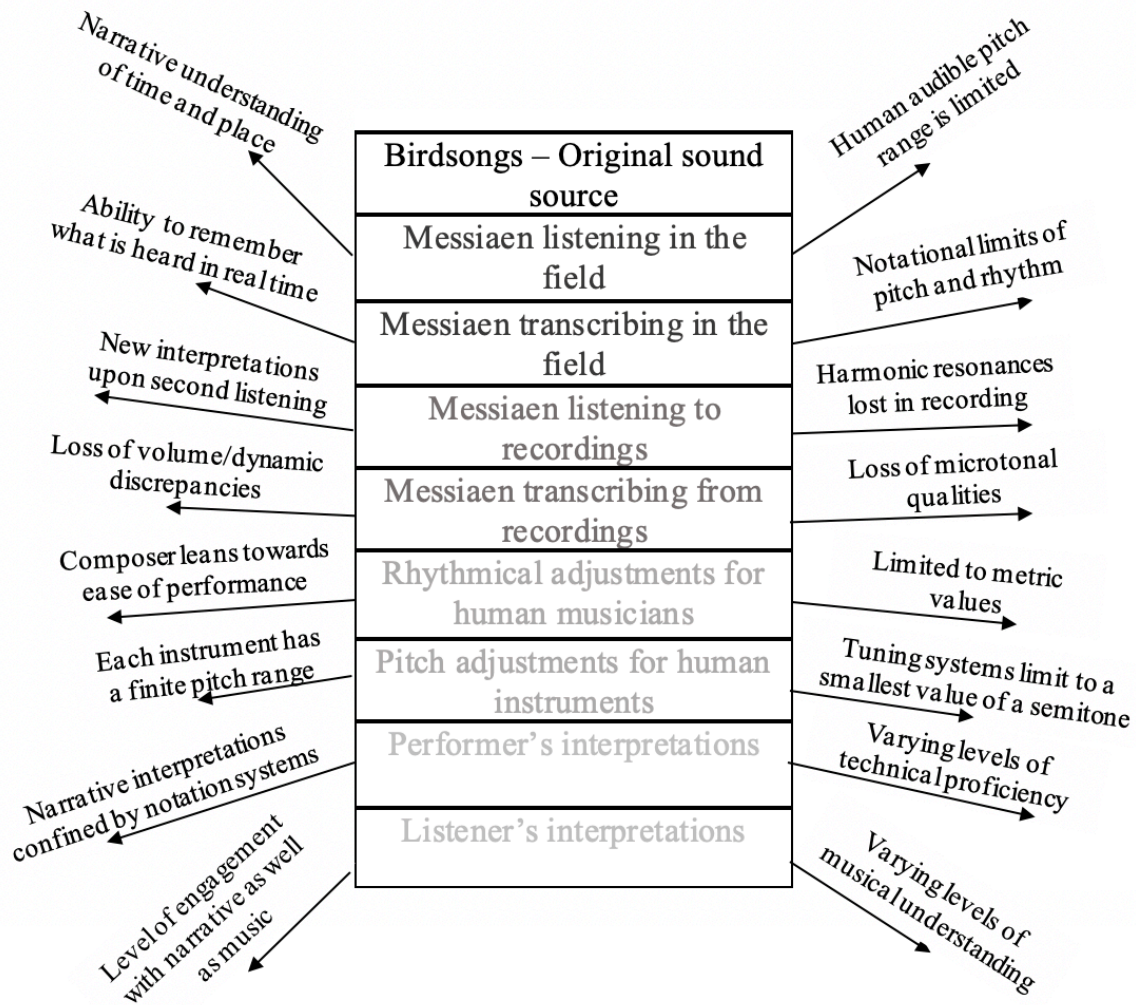


Figure.0.1. The transformation of birdsong into performable music, accompanied by the triggers of entropy at each stage. The arrows leading away from the central process denote opportunities for an 'escape' of information, whether through the manipulation or addition of 'noise' to a message. Simultaneously, the fading shade of each 'level' demonstrates a gradual reduction of information taken directly from the initial sound source, implying a change in the message that reaches the final destination.

The present study expands on existing interpretations that can be made of Messiaen's birdsong works, experimenting with each stage of the entropic process to develop innovative methods of communicating something 'new' (manipulated or changed information) through performance. While acknowledging that entropy is concerned with 'disorder' in relation to a "lack of predictability" (Cohen, 1962), the current investigation focuses on the entropic process as a *positive* process that expands rather than limits performance possibilities. During the process of analysis, new 'information' is uncovered that is incorporated into the communication of a message, thus increasing the overall level of entropy that has occurred. Here, however, the fundamental aim is for entropy to expand the complexity of the message, with new information taking it into new realms of communicative potential. Within this thesis, it will never be implied that analysis presents one piece of information from which I develop the 'correct' method of performance. I instead demonstrate new possible ways to consider a musical passage, exploiting increased entropy in order to unlock increased opportunities for performance. The 'disorder' of an entropic state therefore promotes a positive change that results in increased opportunity and potential. As the study progresses, I will explore this increased opportunity, considering how performers might choose to exploit an entropic state to promote 'cyclic absolute deterritorialization', as will be investigated in due course.

Before reaching this stage, however, the study will investigate Messiaen's transcription and composition processes as they have been explored in much past literature (referenced in due course). It is through these processes that one can investigate thoroughly the extent of entropy at each of the stages laid out in fig.0.1. While the extent of entropy is acknowledged, the present study is primarily concerned with 'manipulating' and 'editing' the triggers of each entropic stage. The study may not reduce the entropy of the composition process, but instead aims to alter and indeed increase the number of interpretations that can be formed by the resultant product.

In the words of Hollis Taylor "music transcription entails the subjective and the reductive [...] listening cannot be classified as an objective act. Furthermore, neither a recording nor a sonogram can be deemed an unassailable fact, and both can be problematized" (2014, p. 65). While not specific to Messiaen, Taylor offers an insightful take on the process of transcription, highlighting the subjectivity of the process, and the necessity of the transcriber (composer) to add their own interpretation of the harmonic spectrum of sound. Through one

act of transcription, one can thus observe *at least* three instances of entropy, with the act of human listening transforming the song as sung by the birds to the song as heard by the ear. It is therefore possible that Messiaen *aimed* for accurate birdsong transcriptions, but even this will be, at most, accurate in accordance with Messiaen's personal experience of the individual birdsong. One might thus suggest that in the performance of these works, this subjectivity adds a degree of malleability to the communication of birdsong, placing the personal interpretation of the performer on par with that of the composer and in turn, the listener. As shown in fig.0.1, entropy, at each of these stages—composer, performer and listener—will be triggered by varying factors related to the experience and engagement of the individual. Each of these triggers will be explored in detail as the study progresses, considering possible methods of unlocking potential within each stage of the composition-performance process. This potential ultimately stems from the formation and communication of new 'interpretations' of each of the entropic acts (fig.0.1).

The Inhabitation of Territory and its subsequent Deterritorialization

Entropy is concerned with *change*: a change of information, of a message and of possibilities for interpretation. As touched upon, the current investigation aims to develop the concept of entropy towards what I call, following Deleuze, 'cyclic absolute deterritorialization'. Deleuze has been chosen as a framework for this thesis because his theories apply to all of the topics discussed throughout the investigation. While other philosophers and theorists will be referenced, such as Lacan and Kristeva, Deleuze's theories are more focused on processes, whether finite or continuous, which closely aligns with the processes of composition and performance that are discussed throughout. In unpacking the term 'cyclic absolute deterritorialization', entropy is maintained in relation to a manipulation of the entropic process. In relation to Messiaen, this manipulation alters the 'noise' that has been added to a musical message for the benefit of the interpretation of birdsong. As the study progresses, 'change' as an umbrella term will relate more closely to change in a defined direction, highlighting the variety of stages within the entropic process, but forming a 'closed loop' in order to accentuate the birdsong with which Messiaen is concerned.

In an attempt to systemise the ‘information’² contained within his compositions, Messiaen has frequently stated his proposed intentions using programme notes, or in an interview following the publication of a work. Of course, these statements span the entirety of the composer’s career, and so describe varying approaches to the transcription process. An articulation from 1967, however, is particularly pertinent to the present investigation, stating:

I’ve used bird songs in two different ways: either by trying to outline the most exact musical portrait possible, or by treating the bird song as malleable material [...] Personally, I’m very proud of the exactitude of my work [...] I assure you that everything is real; but, obviously, I’m the one who hears, and involuntarily I inject my reproductions of the songs with something of my manner and method of listening (Messiaen & Samuel, 1994, p. 94).

Messiaen here tells readers that even within his ‘exact musical portraits’, elements of personal preference or interpretation will inevitably be absorbed into the transcription. Taylor has hypothesised that Messiaen “actively and with ‘characteristic thoroughness’ adapts birdsong into his personal and distinct musical language at the moment of transcription” (Taylor, 2014, p. 68). Performers and listeners are now presented with a completely different musical product, one not of ‘birdsong’ per-se, but of ‘bird character’ or ‘becoming-bird’, as coined by Ronald Bogue (2003) in his personal interpretation of Messiaen’s work. The idea of ‘becoming’ will therefore serve as the basis of the upcoming philosophical approach; the concept of continual processes, of infinite development that places the composer, the performer and the listener simultaneously as the central focus of interpretation in composition, performance and consumption.

The concept of ‘becoming’ relates in music to “render[ing] sonorous the non-sonorous forces that play through nature” (Bogue, 2003, p. 129), through which a ‘natural feature’ is represented in a form that is recognisable for humans. This combined with the idea of continual development draws us to the crux of the present investigation; that of the deterritorialization of language and nature, the specifics of which will be analysed throughout chapter 1. Primarily related to Gilles Deleuze and Felix Guattari (1980), the theory of

² The term ‘information’ is used here in relation to Information Theory, as explored throughout (Shannon, 1949).

deterritorialization is one of extreme complexity, with multiple ways in which it can be comprehended. Briefly at this stage, deterritorialization relates to the act of an object becoming “detached from its native context and rendered artificial” (Bogue, 2003, p.116), an act relevant to the transformation of birdsong into music. During conversion, the birdsong is detached from the territory in which it is initially understood, that of the natural habitat of the bird. In doing so, the song is therefore translated, or *reterritorialized*, into a new territory; that of the human comprehension of music, becoming artificial in the sense that it is likely never to be understood in terms of its initial territory again. Rather than an understanding of or return to the initial territory, the current study aims for an acknowledgement of this territorial origin; some recognition of its existence that might inspire interpretations of the initial sound source. This is only the first stage of deterritorialization, however – the first transcription stage in the table of entropic phases. For Deleuze, the aim of deterritorialization is not reterritorialization, and he believes that we should rather aim to continually deterritorialize. I will, in due course, explore the varying levels of deterritorialization that can be achieved, considering the fundamental acknowledgement and reinterpretation of birdsong that aims to be accomplished.

Territory itself is built from multiple features; Deleuze states that “what defines the territory is the emergence of matters of expression” (Deleuze & Guattari, 1980, p. 314). In this regard, the presence of territories within the current investigation relies on expressive understanding: the communication of a narrative both in the natural (bird-based) and the musical form. Not only am I concerned with the idea of the natural versus the musical (notated), but the study must also consider the importance of the animalistic narrative to the formation of territory. Deleuze “engages the subject [of territory] via an analysis of music’s relation to animal ethology” (Bogue, 2003, p. 125). Animal calls—and particularly those of birds—relate to music in terms of a spectrum of sounds over time, and the specifically musical applications of sonic spectra will become an integral component of this investigation.³ While applications of the term ‘spectrum’ differ across the fields of animal calls and music, it is an understanding of the term in its broadest form that enables us as human performers and listeners to form an expressive territory. Take, for example, the mating call of the common blackbird, a bird that will become a large influence as the study progresses. Mating calls do not occur in isolation; they are a competitive asset, and will therefore be experienced through a wide array of

³ A more detailed investigation of the spectrum of sound can be found in chapter 4 of this thesis.

timbres with exorbitant dynamic variation, broad pitch ranges and nuanced tempi. In the initial context of animalistic behaviour, one might understand this to be a contention for dominance and may therefore assign an expressive territory based on this premise. Vital to the current investigation is thus the ability to draw parallels between these natural phenomena and music; to identify the similarities between these assertions of dominance and, for instance, the endeavour for a rooted harmony within a layered polyphonic texture. The study therefore explores not only territory, but the full process of deterritorialization both as a finite and a continuous act.

The process of deterritorialization is discussed within the confines of a ‘circle of control’, which is inhabited by a number of variable processes that detach the sound source from its initial territory and define the direction(s) in which it will be reterritorialized (Deleuze & Guattari, 1980). Deleuze’s ‘circle’ does not necessarily inhabit the literal shape that one may envisage, but in reference to the present investigation, the nature of the ‘*circle* of control’ presents a method of understanding the cyclic potential of deterritorialization that I am aiming to achieve. In fig.0.2.a below, the original sound source is positioned at the top, or the ‘start’ of the journey around the circle of control. Deleuze depicts this journey between territories as the ‘line of flight’, through which a multitude of transformations are made to create a new, defined territory, as depicted earlier with relation to entropic stages (fig.0.1). Fig.0.2.a, however, highlights that there are a number of lines of flight that could be taken from any one starting point, with the cyclic nature of the current study highlighted as one of many possible journeys. The line of flight created by Messiaen’s notated compositions is, within fig.0.2.a, limited by the ‘forces of chaos’—the ‘transformational’, or in the current circumstances notated features that interrupt the ‘journey’ of the original sound source, accelerating the possibility for entropic ‘noise’ through the placement of sound into a new territory. A single act of deterritorialization-reterritorialization has therefore occurred, in which the original sound source is ‘interrupted’ and thus reaches a single new destination where it is to be understood in its simplest form. Deleuze (1980) refers to this process as *relative* deterritorialization, with emphasis that the relativity invites translation *away* from the original sound source. This conceptualisation is not the optimal choice, as it transports the birdsong into a territory far away from its original habitat, while suggesting an inevitable ‘single’ point of reterritorialization. In actual fact the possibilities are much less limited. While an understanding of relative deterritorialization is integral to the transformative processes of composition and performance, the aim of the current investigation is realised

through fig.0.2.b, taking the concept of deterritorialization even further by converting it into a continuous process, coined by Deleuze as *absolute* deterritorialization.

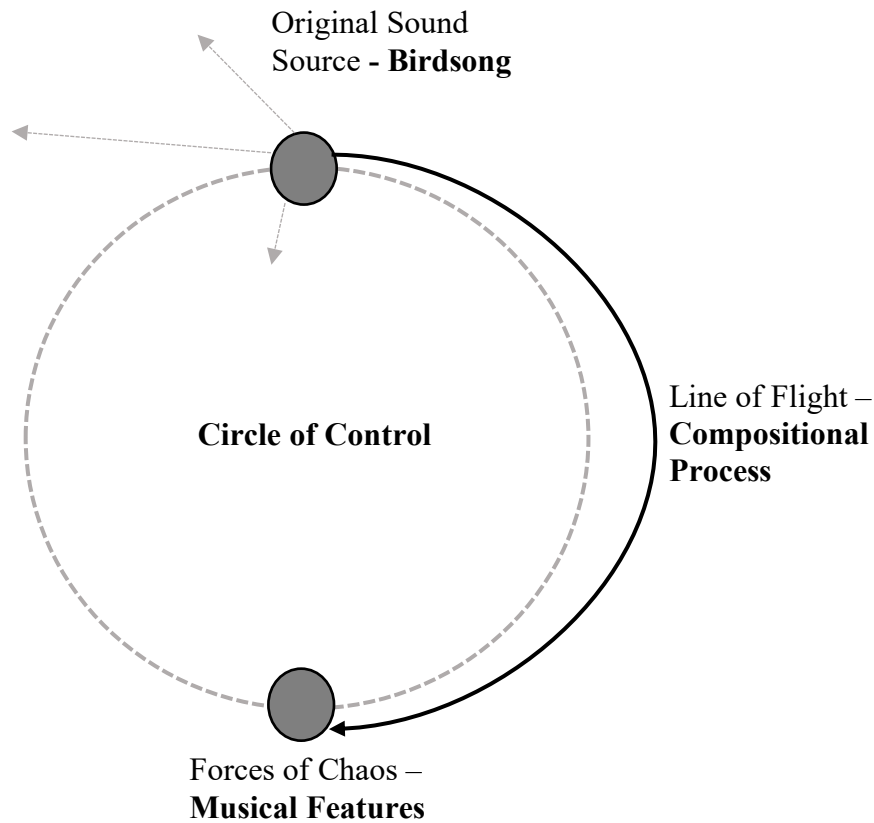


Figure.0.2.a. Author's own interpretation of the Deleuzian process of Relative Deterritorialization, in which a sound source is removed from its initial territory and placed into a new one created by the 'forces of chaos'.

Deleuze refers to the 'point of order' as a newly established territory following the creation of a new object. Within fig.0.2.a, this point of order lies with the forces of chaos. In this musical investigation this could mean the technical demands that inhibit performers from communicating a narrative that stretches beyond the notated product. Fig.0.2.b, however, employs an extended line of flight, opening a spectrum of new possible territories, all of which may be inhabited by the interpretations of individual performers or listeners. This extended line of flight—while not immune to entropy as demonstrated in fig.0.2.b—stems from the act of communication, in which the performer transforms the musical product into a malleable being through varied narrative interpretations. It is this concept that is the aim of

the current investigation, with the fundamental goal of expanding narrative communication during performance. In doing this, one may create new interpretative territories that employ a cyclic motion through the recognition and re-exploration of their internal birdsong character. By no means am I expecting to achieve a full 360° rotation around the circle of control, and it is apparent that the musical ability of human instruments and in turn musicians will not allow for an exact replication of birdsong material – nor would it be desirable. I therefore emphasise the *new*, the creation of innovative prospects and possibilities from which the performer and indeed the listener might choose to approach Messiaen’s birdsong output. This cyclic approach is not altogether congruent with Deleuze’s conception of absolute deterritorialization, in which the continuity of deterritorialization forms a line of flight that travels in any number of directions away from the original sound source. The specific cyclic nature of the current approach is emphasised however, in the sense that birdsong becomes the delimiting factor – it stops an unending flow of deterritorialization from taking us too far from the composition (or score) as presented by the composer. The combination of performance-based interpretations with naturally-occurring entropic stages and with the unlocking of new territories is therefore integral to the fundamental aim of this inquiry, and an abundance of Deleuzian ideals will now be considered. Interpretations of these ideals will aid the ultimate (de)territorial aim by highlighting the infinity of perceptive possibilities from within the compositional⁴ circle of control.

⁴ ‘Compositional’ refers here, and throughout the study, to features that are formed as a result of Messiaen’s process of composition. These could be features determined by their notated format such as chordal harmonies or tonalities, or features that have changed from the original birdsong to satisfy ideals of the notation system such as a reduced pitch range or limited rhythmic values.

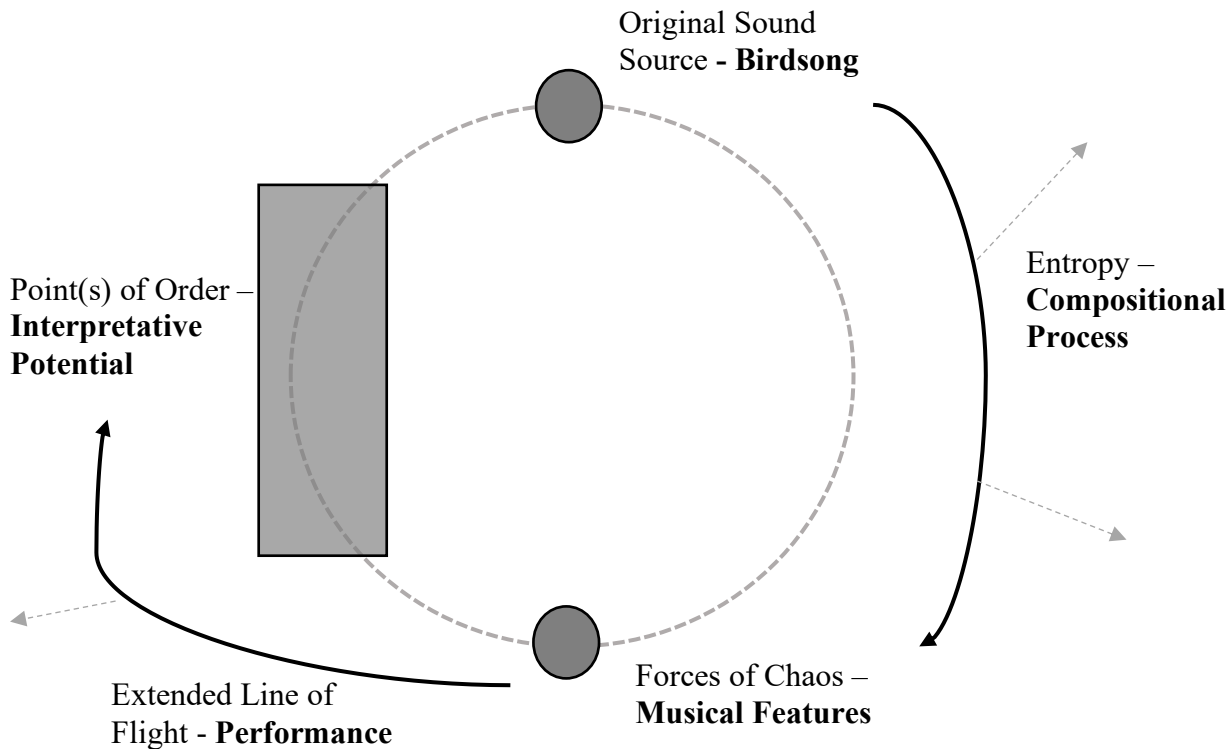


Figure.0.2.b. Author's own interpretation of the Deleuzian process of Absolute Deterritorialization, proposed here as 'cyclic absolute deterritorialization', in which a performer is able to communicate the music in a way that creates a new spectrum of possible territories, each of which may be inhabited by the interpretation of an individual listener.

As suggested by the concept of cyclic absolute deterritorialization, this study will aim to uncover possible methods of performance which will expand the territories or 'points of order' from which one may interpret Messiaen's translation of birdsong. Referring back to Messiaen's 1967 statement regarding his personal interpretations of birdsong, it is clear that as a composer he intended to create accurate images of the birds in question, but he also acknowledges that once the act of consumption occurs, the created image becomes subject to reinterpretation due to the varying levels of communication between composer, performer and listener. In relation to deterritorialization, I will thus refer to the *refraction*⁵ of birdsong: a musical interpretation that maintains recognisability in some motivic aspects while also allowing the song to expand its territories into the spectrum of 'points of order' between

⁵ When discussing refraction, one may benefit from a more contextual understanding of the implied process. Consider a science classroom, where an experiment takes place to shine light through a glass prism. This light will, for the sake of explanation, enter the prism as 'white' light and leave as a full rainbow, having been refracted by the prism. Refraction is therefore the bending of a ray upon a change of speed.

those of the musical product and the original birdsong. Of course, when concerned with music, the act of refraction is to divide sound into its basic elements, bringing the music's internal structure to the fore of the interpretative process. While the concept of refraction does align with *relative* deterritorialization in terms of the division and detachment of an object from its initial form, there are a number of stages of refraction within the overall desirable process of cyclic absolute deterritorialization. Refraction therefore does not replace the Deleuzian deterritorializing ideal, but rather provides a specific process or direction through which the cyclicity and continuity of cyclic absolute deterritorialization can be achieved. Initially, "Messiaen's approach is to translate from nature, inventing parallels or 'metaphors' which have their own purely musical integrity" (Hill, 1994, p. 552). In this way, his transcriptions have refracted the original birdsong in terms of translating them into comprehensible notation, maintaining the internal structure of the song but "now lower, slower and based on a smallest melodic interval of a semitone" (Nichols, 1975, p. 57). Additionally, if a performer then intends to refract Messiaen's initial birdsong transcription then they are able to simultaneously convey the inner structure of the songs *and* the music, highlighting the spectrum of new territories by allowing the entropic process to occur. With each element of change (entropy) during the process of refraction, one can induce 'loss' from the *original* birdsong, but at the same time will increase the possible interpretations of Messiaen's *metaphorical* birdsong, by highlighting each of the fundamental elements of its internal structure.

Deleuzian Milieus: The Inhabitation of Territorial Space

The refraction of birdsong is concerned with its translation into a human-consumable product, undergoing entropy for the benefit of cyclic absolute deterritorialization. This process of refraction can be stripped back to the five w's: who, what, where, when and why. Thus far I have uncovered the context behind the 'who', in the connections between composer (Messiaen), performer and listener; the 'what', through explorations of the original birdsong, the musical product and the line of flight that is created between the two, and I have introduced the 'where', by depicting the varying territories and 'habitats' that can be formed through relative and absolute deterritorialization. While later chapters will connect these factors together through investigations of the 'when' and the 'why', I first expand on the 'where' to consider varying circumstances of territorial inhabitation.

Human reactions to birdsong trigger deterritorialization by transposing the songs into a new space-time continuum, one created on the premise of human processing. While this will later be explored in relation to time, the inhabitation of space is first understood through a Deleuzian theory that contributes directly to the overall deterritorialization process, and to the more specific process of refraction: that of the *milieu*. Derived from the French language, Brian Massumi interprets that “in French, milieu means ‘surroundings’, ‘medium’ [meaning tool or transmitter] and ‘middle’”, adding that “in the philosophy of Deleuze and Guattari, ‘milieu’ should be read as a technical term combining all three meanings” (1987, p. xvii). The milieu is therefore a collection of components: the building blocks that together aid the formation of various territories. The milieu is not the territory itself, and deterritorialization cannot occur through the transformation of a single milieu component. It is instead the combination and, again, *communication* of each milieu element that ultimately promotes reinterpretation and deterritorialization. Taking the original birdsong as an example, the song itself is built of numerous components, whether they be the season in which the song is sung, the gender of the bird singing or the use of the song to attract another bird, as has been discussed. Each of these components is a milieu element, and it is only when all of these components are combined that the true ‘territory’ of the birdsong can be comprehended. The current study will expand the proposed milieu to consider the role of each component in creating a ‘living thing’, considering how each of these roles are vital within the multi-stage process of deterritorialization.

As suggested by Deleuze, “the living thing has an exterior milieu of materials, an interior milieu of composing elements and composed substances, an intermediary milieu of membranes and limits and an annexed milieu of energy sources and action-perceptions” (Deleuze & Guattari, 1980, p. 313). Within this initial context, ‘the living thing’ is the final product, our perception of Messiaen’s published piece of music. Returning to the specific placement of the milieu, one can therefore comprehend each ‘type’ of milieu as an element of the deterritorialization process, each of which could be considered responsible for a level of entropy between the birdsong and the musical product. Relating to the current study, the ‘**exterior milieu**’ is constructed of the original birdsong material, the inspiration and outer casing for the final product. As the composition process is undertaken, the remaining milieus will be formed. The ‘**interior milieu**’ will house Messiaen’s compositional (notated) techniques, responsible for the ‘interruption’ of the original birdsong by the forces of chaos described earlier. Additionally interrupted by the ‘**intermediary milieu**’ of the instruments

involved in performance, one may observe increased entropy owing to the limited capability of human instruments and indeed human musicians to replicate birdsong techniques. Finally, the ‘**annexed milieu**’ is inhabited by both performers and listeners: those who add another layer of interpretation based on their narrative understanding of the birdsong content within the music.

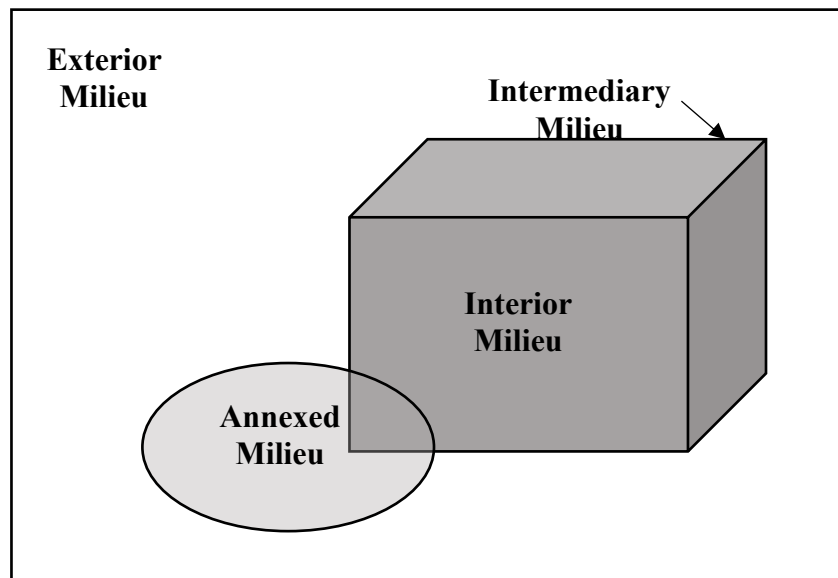


Figure.0.3. A visualisation of the varying milieu components, emphasising their connections to each other in the formation of a ‘living thing’. With the exterior milieu denoting the outer casing of the ‘living thing’, the interior milieu depicts the innermost functions of the being, ‘protected’ by the skeletal casing of the intermediary milieu, and connected somewhat to external or ‘environmental’ influences of the annexed milieu.

Explorations around the milieu enable an additional break-down of the deterritorialization process, referring back to the five w’s in the sense of explaining *when* and how each level of entropy occurs. Despite the complexity of the overall process, the present study is primarily concerned with the annexed milieu: the addition of new interpreters who have the potential—given a sufficient depth of experimentation—to increase the extent of *cyclic* absolute deterritorialization and manipulate the entropic stages through a journey beyond the forces of chaos, as explored in fig.0.4. Deleuze’s term ‘annexed milieu’ places these components ‘on the side’, with the term *annexe* relating to an additional or extra part of an object. In this way, the current study acknowledges that the performers and listeners of the annexed milieu form a secondary stage of deterritorialization, with their own interpretation occurring after the

completion of the initial composition process. One may therefore construe that the individual new territory formed by the musical product is constructed of the exterior, interior and intermediary milieus, from which one can only travel as far as a single act of relative deterritorialization. It is only once the annexed milieu is adjoined that the possibility of absolute deterritorialization can be considered, with the annexed milieu becoming responsible for the creation of its own copious interpretative territories.

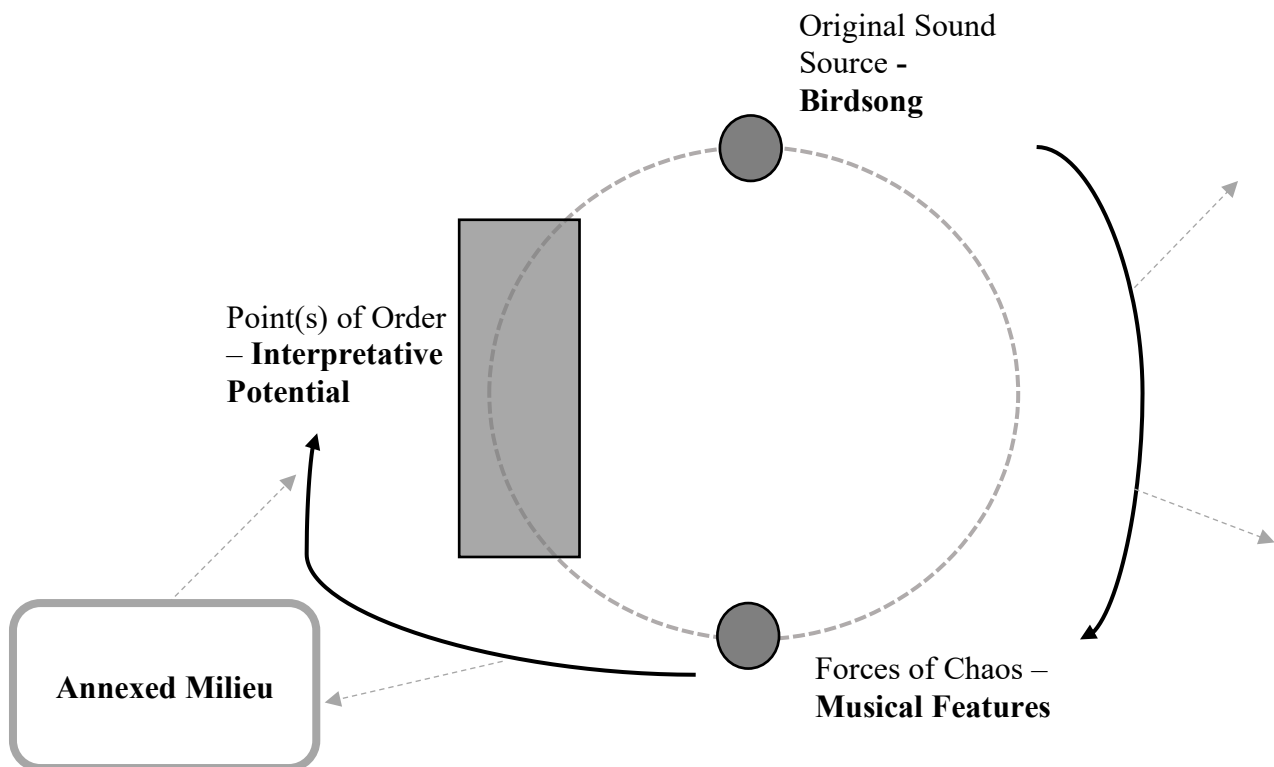


Figure.0.4. The addition of the Annexed Milieu ‘on the side’ of the Line of Flight, demonstrating an additional entropic level before returning to the points of order through the reinterpretation of the listener.

Linking the performer and the listener to the annexed milieu might seem to be the most logical connection in relation to deterritorialization as a ‘multi-stage’ process. One may, however, also infer a multi-stage process for the composer, with Messiaen himself conducting varying manipulations of nature and naturally-occurring sound forms. Considering the entropic stages of fig.0.1, Messiaen manipulates birdsong when adding his own inflexions to the sounds as heard in nature; he then manipulates the way in which these sounds are heard by taking field recordings. In transcribing both live and recorded sounds into notation, Messiaen had to consider the capabilities of the human performer and the

experience of the human listener. Birdsong was therefore manipulated further in curating a recognisable experience for human performers and listeners, whether altering the pitch and rhythm range of a melodic line, emphasising a birdsong motive within an orchestral timbre, or reducing the natural qualities of the birdsong for the sake of a ‘human narrative’.

Sander van Maas (2013) has explored these manipulations in relation to three forms of nature: *Alter-nature*, *Hypernature* and *Subnature*, which constitute the processes of transfiguration, exaggeration and negation respectively. With relation to the current study, one might interpret *alter-nature* (transfiguration) as the conversion of nature (birdsong in our case) to a ‘human’ or performable state; *hypernature* (exaggeration) as the dramatization of natural elements for the purpose of narrative recognition; and *subnature* (negation) as the reduction of natural sounds for human performance. All of these conditions are extremely similar, and all contribute to a sense of entropy between original sounds and composed music. However, “Messiaen used such [techniques] not to recreate nature as he may have encountered it in the woods but to create a surplus: a ‘denatured’ nature” (Maas, 2013, p. 179). As individual elements, each of these techniques promotes entropy and a single act of relative deterritorialization by reterritorializing the original sounds into a territory with reduced recognition and affiliation with the initial sound source. When considered in combination, however, the ‘surplus’ that is created becomes the optimal aim; the ‘denatured nature’ does not place the sound source into a single new territory, but instead promotes a continual process of varied interpretations, all of which create a spectrum of new territories and an overall process of cyclic absolute deterritorialization.

Summary

The crux of the ensuing investigation is to extract each of the explored theories from Messiaen’s work, in a consideration of new performance approaches that accelerate the process of cyclic absolute deterritorialization. As highlighted by Bogue, “both literature and music are experimentations on the real, means of capturing, dissolving and transmuting existing relations of force and then reshaping and reconstructing them in new configurations” (Bogue, 2003, p. 130). The current theories will therefore be explored in relation to the *realistic* as opposed to the real, with the concept of reconstruction and even deconstruction becoming the goal to promote absolute deterritorialization. In conducting an experiment

surrounding the deconstruction and refraction of birdsong into its fundamental elements, I will investigate the multi-stage process of deterritorialization in relation to the milieus of the composer, performer and listener respectively. The ultimate concern, however, is with *experimentation*, with the creation of new possibilities rather than new rules and with the expansion rather than the limitation of our current understanding surrounding Messiaen's use of birdsong within his compositions. Through the use of case studies of Messiaen's works, alongside first-hand experimentation with performers of his music; technical, musical and natural features will be explored that are most integral to the promotion of deterritorialization, adopting a 'point, evidence and explain' approach to establish the incorporated theories as respected opportunities within performance practice.

Chapter 1 first explores Messiaen's conception of a musical language, considering how, when approached linguistically, the communication of a notated message can become more apparent to performers and listeners. The chapter will build on Deleuze's interior and annexed milieus to investigate the transformation of a notated 'language' into a communicated 'message'.

Chapter 2 'zooms in' to a micro element of Messiaen's compositions: the leitmotif. Using Sander van Maas' (2013) reading of a 'denatured nature', this chapter explores various uses of a leitmotif to represent the blackbird across Messiaen's oeuvre. The chapter considers the impact of a recognisable melodic element on the experience of performers and listeners, using Maas' theory as a basis for measuring possible deterritorialization of the blackbird character.

Chapter 3 investigates Deleuze's reading of Paul Klee's *Twittering Machine* (1922). With a 'machine' as a feature that enables or enacts deterritorialization, this chapter particularly explores the 'instrumentation machine', considering how Messiaen's instrumentation choices (particularly the piano) impact the performer's and listener's conception of bird within his compositions. Revisiting entropy as a component of the deterritorialization process, this chapter explores the level of flexibility that can be gained from human influence on the instrumentation machine, particularly when concerned with the representation of bird character.

Chapter 4 presents new approaches to the concept of synaesthesia and, more specifically, coloured hearing. While still underpinned by the aim for deterritorialization, existing philosophical tenets take a backseat in this chapter, with synaesthesia standing on its own as an experience that can impact the composer, performer and listener. Beginning with an investigation of Messiaen's own experience of synaesthesia, this chapter will propose new methods through which synaesthesia can be appreciated by performers, considering in turn new performance approaches that can invite synaesthetic experiences for listeners.

Chapter 5 returns to a deeper harmonic analysis in an exploration of spectral technique. Considering Gérard Grisey's operational and perceptible value, this chapter explores spectralism in relation to a space-time dichotomy, in which the harmonic expanse of spectral technique inhabits a vast musical space. Exploration of performance practice falls in this chapter to investigations of why Messiaen chose to employ spectral technique in relation to birdsong, considering how the harmonic expanse can be aligned to the portrayal of bird during performance.

Chapter 6 focuses on a broader Deleuzian philosophy through considerations of 'smooth and striated space (and time)' (1980). Much past literature has explored the alignment between music and time. This chapter, however, examines the incorporation of 'literal space and time' into Messiaen's compositions, constituting the portrayal of recognised places or images and the passing of time within a day. By analysing the musical construction of smooth and striated space, this chapter proposes new performance approaches that enable the communication of place or imagery to listeners.

Chapter 7 draws together all of the topics explored in earlier chapters to produce an investigation of *Abîme des Oiseaux* (1941). This chapter is employed to 'look back' at an earlier composition, considering how each of the techniques explored has developed across Messiaen's oeuvre. Comparisons will be made to many later works already discussed in relation to new performance approaches that might also apply to the 1941 composition.

Chapter 1: Messiaen's Musical Language: Communication through the Territorial Body

Language is, in its broadest form, a system of communication. How many times in life do we fall foul to 'crossed wires' or 'miscommunication'? In being communicated, language is left open to interpretation and therefore to entropy: a change of information. Language thus becomes a central component of the deterritorialization process; the communication of language constitutes a message that is taken out of the context in which it is originally spoken, to be reterritorialized by those who hear or interpret it. Although language may form part of the deterritorialization process, the question remains as to how it fits with the current study. Messiaen's publication *Technique de mon Langage Musicale* (1944) aligns the composition process with the formation of a language. Language therefore becomes an integral part of the current investigation when considering how performers and listeners might interpret Messiaen's works. As in the introduction of this thesis, 'communication' refers to the transmission of any information. The current study suggests that meaning, or at least 'feeling', can be communicated through music performance. While all listeners could infer different meanings from a piece of music, the presence of emotion or 'feeling' suggests that information has been transmitted from performer to listener, and therefore communication has taken place. While the 'communication' of language (or feeling) through performance situates language within the process of deterritorialization, Messiaen's inference of a *compositional* language forms an additional alignment with the construction of territory itself. In order to explore the impact of a musical language within Messiaen's birdsong works, the current study first needs to unpack in more detail the components of deterritorialization that can be considered through a linguistic lens. At the level of composition, language becomes part of the **milieus** that form a composed territory. Once a notated score is 'transmitted' to a performer, language becomes a **force of chaos** that interrupts the overall process of deterritorialization upon reaching the listener. When interpreted by a listener, language as a force of chaos can either stop at a single act of relative deterritorialization, or can be 'overcome' to invite the continuity of absolute deterritorialization. While both of these concepts have been introduced during the philosophical introduction of this thesis, they will both be unpacked through a linguistic lens, in order to incorporate Messiaen's musical language into the deterritorialization of his birdsong works.

The Construction of Language and the Interior Milieu

Gilles Deleuze refers to the ‘living thing’ as a ‘body’: a “multiplicity of partial objects” (Crain, 2013) that are assembled from structural components into a defined identity. A language functions in this same way: a language is a ‘multiplicity’ of terms that are arranged into phrases to be communicated and understood. The current investigation explores Messiaen’s conception of ‘musical language’, considering how composition as a linguistic process may impact the communication of a musical work, along with the idiosyncratic ‘language’ of the original birdsong sound source. Where a ‘body’ as a multiplicity of partial objects aligns with the construction of a language, a ‘musical body’ will be considered through a linguistic lens as a ‘starting point’ for the overall process of deterritorialization. The question therefore arises as to how the ‘body’ as an assemblage of milieu components relates to the territorial setting of the fundamental deterritorialization process. As inferred by Crain (2013), the concept of ‘territory’ “responds to the problem of identity” through the organisation of its milieu components. Thus, where a ‘body’ constitutes the assemblage of milieus with a maintained sense of disorder or ‘chaos’, a ‘territory’ stems from their organisation into an identifiable ‘self’. Deterritorialization therefore depicts the inevitable *change* of ‘self’ that occurs with every experience or interpretation of the original ‘body’. If the features that make up a composition constitute a ‘language’, then the current study forms a coalescence of musical and linguistic ‘bodies’, exploring how a piece of music can be interpreted as a ‘system of communication’ (language). While it has been acknowledged that language at the level of composition is part of the milieus, exactly how are these milieus formed during the composition process?

In a more general form as shown in fig.1.1.a, the study has thus far encountered: (1) the ‘**exterior milieu**’ (the outer casing or skin within which our ‘body’ is held); (2) the ‘**intermediary milieu**’ (membranes to connect all fundamental features to the act of communication); and (3) the ‘**annexed milieu**’ (every unique perception that adds subjectivity and malleability to the original ‘body’). In addition (4), the ‘**interior milieu**’, which relates most closely to the construction of a language, inhabits that which remains: the skeleton, the fundamental structure which is enclosed beneath the outer casing, binding the components of the ‘body’ into an organised, territorial identity. By combining the Deleuzian conception of the ‘living thing’ with that of the ‘body’, a body need not be a human body.

Deleuze clarifies that “a body can be anything”: a body of water, of ideas, or of matter, and this link between a ‘living thing’ and a ‘body’ has its origins in Deleuze’s reading of Baruch Spinoza (1663). With Spinoza’s model of a ‘body’ instilling a sense of *parallelism* between body and mind, Deleuze develops this to suggest that “the body surpasses the knowledge that we have of it, and that thought likewise surpasses the consciousness that we have of it” (Deleuze, 1970, p. 18). Deleuze in this sense draws his ‘body’ even further away from the skeletal structure of a human body, instead encompassing all milieu components and the relations between them. This extends Spinoza’s model of a ‘body’ to expand thought as a singular process and indeed language as a fixed identity, into a much broader and indeed subjective sense of consciousness and morality.

Despite the breadth of the Spinozan model of a ‘body’, perhaps more relevant to the current study would be to consider the body as music itself; the milieu components then comprise the ‘linguistic’⁶ features from which a musical product is constructed. When considering the ‘body’ as music in its broadest form, the milieus are at full capacity; the interior milieu housing all possible choices for the composition process, related to parameters such as melody, harmony, structure or orchestration (fig.1.1.a). The present investigation, however, is primarily concerned with the relation *between* the milieu components and the formation of smaller ‘organised’ territories. This organisation stems from the composition process, in which musical parameters (melody, harmony, texture for example) are combined into a linguistic format that can be communicated and interpreted. Here the totality of the ‘body’ undergoes a transformative process during which, according to Deleuze, “a territory borrows from all of the milieus and [...] is built from aspects or *portions* of milieus” (Deleuze & Guattari, 1980, p. 314). This chapter will refer to territorial applications of the interior milieu, considering the milieu not in its entirety, but as an organised portion of a larger ‘body’ that Messiaen has extracted for use within his musical language (fig.1.1.b).

⁶ The term ‘linguistic’ is employed here in relation to Messiaen’s conception of a musical language.

The Living Thing (Body)

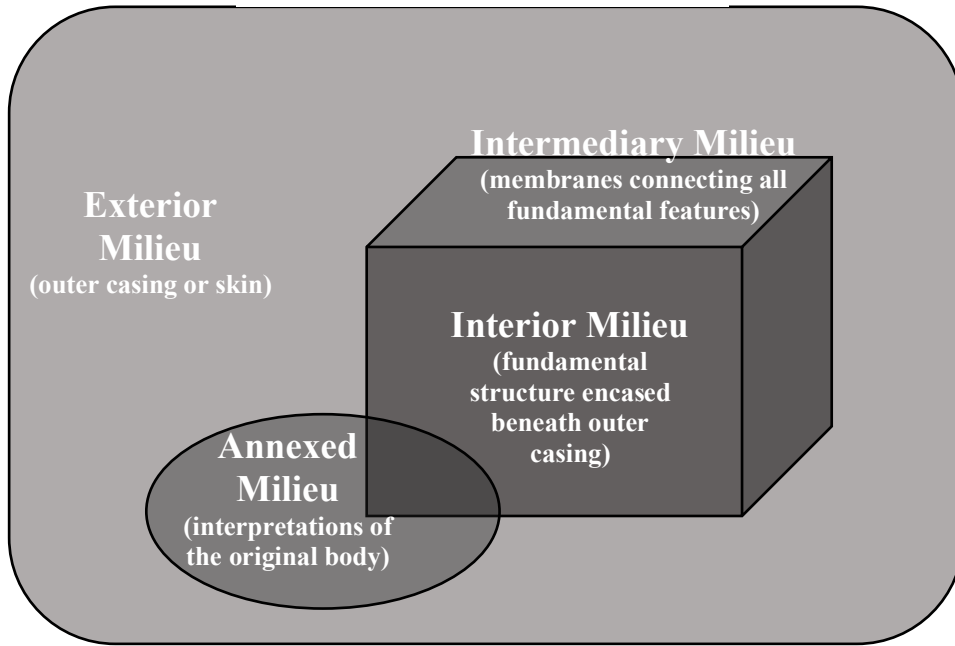


Figure.1.1.a. A representation of the 'body' in its entirety, with all milieu components at full capacity.

A Manipulated Body (Territory)

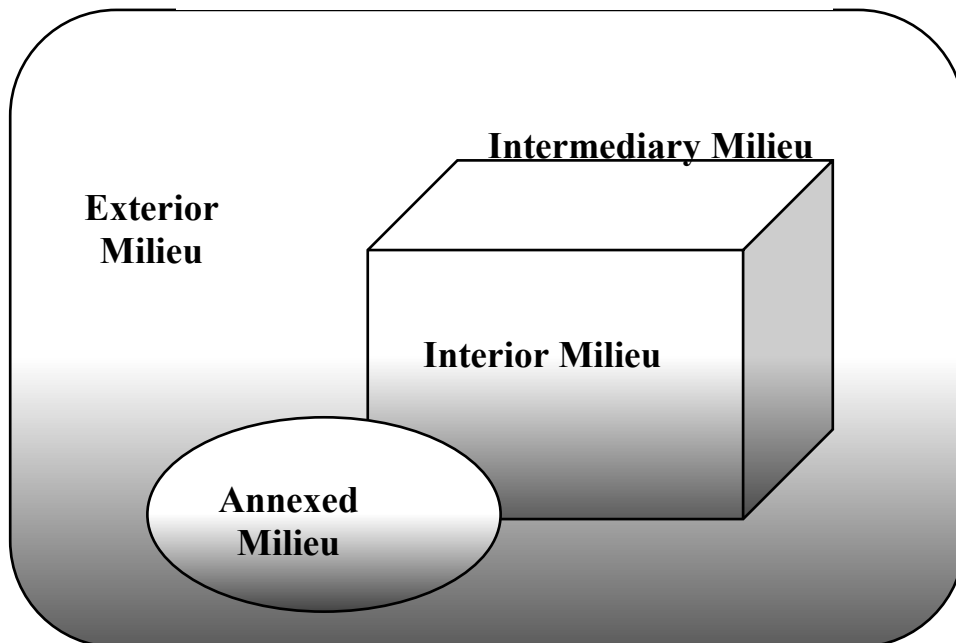


Figure.1.1.b. The milieu components after having been 'portioned' for use within a territory, all still holding the same shape or function within the territory, but 'filled' to a much smaller capacity.

The ‘**interior milieu**’: “the composing elements and composed substances”
(Deleuze & Guattari, 1980, p. 313) from which a ‘living thing’ is constructed.

Given that the investigation is concerned with a musical product, the concept of ‘composing elements and composed substances’ accords well. The interior milieu thus corresponds to the techniques that are employed during the composition of a work, which Messiaen calls his ‘musical language’. With the conception of a ‘portioned’ territorial milieu comes the potential for deterritorialization, and with that the study continues the transformative process through which “the living thing continually pass[es] from one milieu to another, and the milieus pass into one another” (Deleuze & Guattari, 1980, p. 313).

The remainder of this chapter will be concerned with Messiaen’s composed interior milieus, considering how when combined they may function as a ‘linguistic body’. I will in turn explore the extent to which the ‘fixed’ elements of a musical language (notation) may initiate entropy and ‘chaos’ within the overall process of deterritorialization. While the performer could be considered in one sense as the ‘reader’ of the composer’s notated ‘message’,⁷ in order to advance from relative (singular) to absolute (continuous) deterritorialization the performer will here be considered as the *transmitter* of the message. In this way, the current study will exploit the compositional techniques⁸ of the interior milieu to manipulate the ‘force of chaos’ that is Messiaen’s musical language. This manipulation aims to promote a representation of bird and its song to the listener as second-level consumer.

Language as a Force of Chaos

As with any transformative journey, deterritorialization is persistently subject to the ‘forces of chaos’, with a sense of disorder being an almost inevitable component of the transformative *process*, even if not part of the final product. Deleuze reinforces that “the forces of chaos are kept outside as much as possible, and the interior space protects the germinal forces of a task to fulfil or a deed to do” (Deleuze & Guattari, 1980, p. 311). In relation to a ‘musical language’, the transformative process comes with the performance of a

⁷ We refer to the term ‘message’ in a metaphorical sense here, relating to the transformative process of Information Theory (refer to introduction chapter of this thesis) rather than a clear or explicitly labelled message.

⁸ A reminder that the term ‘compositional’ here refers to notated techniques (chordal harmony, dynamic markings, notated rhythms for example) that are created during the composition process.

musical work, in which the ‘language’ is communicated by a performer to a listener. Considering Messiaen’s birdsong specifically, the interior milieu of the composed ‘body’ (composed or notated techniques) becomes a force of chaos: an interruption to the overall perception of birdsong (fig.1.2). While not necessarily a ‘negative’ component of the deterritorializing process as framed by Deleuze, the current investigation highlights a fundamental aim for *cyclic* absolute deterritorialization—a continuous process that manipulates, alters⁹ or even *overcomes* the forces of chaos to continually challenge the territorial identity of the original sound source. The study will therefore explore how Messiaen’s musical language has been conceived, in turn exploring the extent to which it becomes a ‘force of chaos’ within the process of deterritorialization.

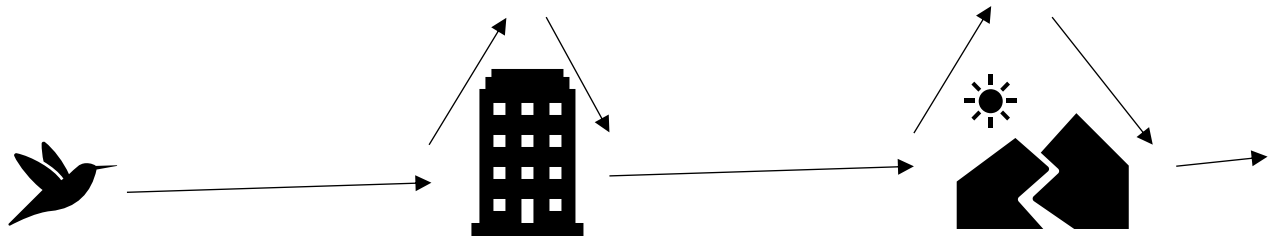


Figure.1.2.a. A visual representation of the flight of a bird, interrupted by the ‘forces of chaos’ as found in nature, which can be overcome by a change of direction. This is mirrored in a more figurative, musical sense by the investigation of deterritorialization, focused more closely on the song rather than the flight of the bird.



Figure.1.2.b. The song of a bird is deterritorialized upon composition, with our ability to recognise the song interrupted by the ‘musical language’ of notation. A performer has the ability to ‘overcome’ this interruption in order to communicate a recognisable ‘musical bird’ character, not returning exactly to the original, but promoting understanding from the listener.

⁹ Manipulations and alterations of the interior milieu constitute the presence of the *annexed* milieu, with such alterations being made through the experience of outside influences – in the current case, through the performers and listeners of a musical work.

Olivier Messiaen's well-renowned publication *Technique de mon Langage Musicale* (Messiaen, 1944, *The Technique of my Musical Language*) lays the foundation of 'musical language' from a three-part perspective: rhythm, melody and harmony. There exists an abundance of literature on the relationship between music and language (Feld, 1994; Jäncke, 2012), but I will follow the Deleuzian angle that is maintained throughout this investigation. As evaluated by Stefano Oliva (2019), Deleuze suggests that musical language is a combination of "ordinary language and generative grammar" (p. 224), through which "music is a deterritorialization of the voice, which becomes less and less tied to language" (Deleuze & Guattari, 1980, p. 302). While not a direct relation to linguistic processes, Messiaen's discussion of musical language is warranted due to the "primacy of continuous variation" that is involved in the deterritorialization process. During composition, the 'voice' has been deterritorialized once, transforming it away from 'ordinary language' but not yet untying it completely from linguistic processes. Only during performance, therefore, may one argue that sufficient deterritorialization has occurred to untie music from ordinary language and move instead towards a state of Chomskian generative grammar.¹⁰

Messiaen is extremely explicit regarding his uses of musical language, with the composer stating that a discussion of language is neither a treatise on composition nor on timbre or sentiment (1944). Language in itself is, of course, a method of communication and as Noam Chomsky claims, it inhabits "finite systems with infinite power" (2016). The coexistence of finite and infinite processes is of distinct relevance to Messiaen's separation of language from composition. One may argue that composition involves compliance with finite boundaries in the sense of the flexibility of notation systems and instrumental techniques. Messiaen, however, appears to propose that by instead considering his 'techniques' as language, he is transporting his work out of its finite notated system to present it with the power and subjectivity of communication and perception, in which every performer or listener can form their own interpretation of the 'message'. Adam Szczegielniak similarly suggests that "when you know a language, you can speak and be understood by others who know that language" (Szczegielniak, n.d.). While this maxim may hold true of the spoken word, one must question its veracity for music. By no means am I suggesting that even those unfamiliar with Western music can understand that four semiquavers make a crotchet, or that E is the dominant of A,

¹⁰ Noam Chomsky claims that 'generative' grammar is a specifically formulated set of rules that "animates the life of language itself" (Oliva, 2019) – it is the internal composition of a language that is open to continuous variation (Chomsky, 2016).

and I must acknowledge yet another existing ‘pandora’s box’ surrounding the concept of ‘universality’. While a flexibility for different interpretations might reduce any sense of universality in music, a performance *can* be appreciated and thus interpreted (and in an infinity of ways) even by those who do not understand its internal components, therefore indicating that the *sentiment* of the ‘language’ can develop some level of ‘shared understanding’ even where the technical structure may not. The current study will therefore investigate the transformation of a notated technique (interior milieu) into a communicable language (annexed milieu), considering how performers can exploit their ‘shared understanding’ of musical language to overcome the forces of chaos created by the finite nature of technique.

As acknowledged, Deleuze’s concept of a body of milieus is extremely broad, and one may readily default to a mental image of physical matter with mechanised construction. The breadth of the theory, however, does allow an application to linguistics, in reference to a body of language. Parallels can be drawn between the milieu components and linguistic function, but at the same time Deleuze is not wholly a philosopher of language and semiotics, despite his acknowledgement of their relevance. When considering the ‘chaos’ instilled by the interior milieu, one may jump to a Lacanian view of linguistics, in the sense that the unconscious is structured as a language (Lacan, 1977); a language with limits that forms a barrier between ‘reality’ and ‘the real’,¹¹ that is manipulated and, perhaps, overcome in a similar way to that of the forces of chaos. While mirroring in many ways the organisation and thus deterritorialization of the interior milieu, Lacanian theory explores the structure of language *after* its initial formation. The current study is more concerned, however, with the process of achieving a linguistic structure, considering approaches that are taken to construct the interior milieu. This study could maintain a semiotic trajectory in the theories of Lacan or Spinoza, for example, but the esthetic process of these composers is concerned more so with ‘post-compositional’ perceptions of language. The work of casting the Deleuzian milieu *process* in linguistic terms has been performed more closely by Julia Kristeva, though without a clear Deleuzian intention. Kristeva—while influenced more closely by Lacan and Barthes—has created linguistic theories that align closely with the transformative process of composition and performance that this study is concerned with. While Deleuze’s milieu

¹¹ Lacan depicts ‘reality’ as a fantasy that one convinces oneself is existing around them, with ‘the real’ then constituting a state of existence beyond the limits of human expression (Lacan, 1977).

components will serve as the crux of the latter chapters of this thesis, the linguistic focus of the current exploration warrants a philosophical genealogy from Deleuze to Kristeva due to the transformative and ultimately communicative nature of language. Deleuze recognises that “the living thing continually pass[es] from one milieu to another” (1980, p. 313), but his depiction of each milieu component is largely static (as with Lacanian theory), conveying a mechanised object rather than a transformative subject. Kristeva therefore presents a specifically linguistic nuance to the current investigation that clarifies *how* milieu components may transform from one to another, specifically of relevance here, from the interior to the annexed milieus, the objective to the subjective and the technical to the communicative. The present study will thus employ Kristevan concepts to mirror Deleuze’s milieus to an extent, but maintaining a transformative *process*, rather than a static milieu space.

Julia Kristeva proposes a ‘genotext and phenotext’ (1984), two components of language consisting of the foundation or structure of a language and its method of communication respectively. First considering the genotext, Kristeva is careful to emphasise that the genotext “is not linguistic. It is, rather, a process which tends to articulate structures that are ephemeral and non-signifying” (Kristeva, 1984, p. 86). This bears similarity with the ‘composed substances’ of the interior milieu. The genotext is not concerned with the communication or even the presentation of a message, it is rather the structural formation of the message itself, much like Messiaen’s musical (technical) language and, indeed, the interior milieu which *enables* but does not *enact* communication. Much like Chomsky’s (2016) linguistic theories touched upon above, the genotext mirrors the formation of generative grammar. Where the genotext presents the internal composition of a language, it maintains the *potential* for continuous variation through a number of possible interpretative pathways. Just as the interior milieu has been referenced as the skeletal structure of a piece of music, the genotext is the skeleton of a language. The phenotext is thus the point that creates an integral crossover between language and the existing philosophical tenets of the investigation. The phenotext is “a language that serves to communicate, which linguistics describes in terms of ‘competence’ and ‘performance’” (Kristeva, 1984, p. 87). Within the current investigation, the phenotext aligns with Deleuze’s annexed milieu; the post-compositional communication between performer and listener. I therefore propose the concepts of the ‘**genotextual interior milieu**’ and the ‘**phenotextual annexed milieu**’ for the purpose of this investigation (fig.1.3),

highlighting linguistic specificity and acknowledging the sense of continuous transformation and thus *detrterritorialization* that the study is aiming for.

Genotextual Interior Milieu (GIM)	Phenotextual Annexed Milieu (PAM)
The skeletal/foundational structure of a musical language	The communication/interpretation of a musical language
A static object with the potential for continuous interpretative communication	A transformative process that enables infinite possibilities for deterritorialization
Consists of technical notated features, functioning as the syntax of the musical language	Occurs at the level of performer and listener – an ex post-facto interpretation of the composer’s language

Figure.1.3. A table to denote the properties of the ‘genotextual interior milieu’ and ‘phenotextual annexed milieu’.

Of course, the current study is ultimately concerned with the phenotext’s relation to the genotext. Where the genotextual interior milieu (GIM) and the phenotextual annexed milieu (PAM) may mirror the Deleuzian-Kristevan linguistic vision, the necessity for both philosophical schools here stems from the transformative nature of language and, specifically, *musical* language. Despite the non-signifying nature of the GIM, a performer’s or listener’s perception of each foundational element is generative, creating constant motion for the performer to pass to the communicative realm of the PAM (see fig.1.4 for visual representation). Fig.1.4 highlights that the genotext (or GIM) of a piece of music lies with its notation, and a ‘transmitter’ is required to trigger its transformation to a phenotextual state. The ‘transmitter’ in this case is the performer, with their interpretations of the score allowing the GIM to travel through one level of deterritorialization (the territory of the performance itself) to reach the communicative state of the PAM. Of course, the PAM itself is generative, with musical performance being interpreted in an infinite number of ways by listeners. One may therefore suggest the deterritorialization of the GIM during performance, considering the number of new territories that may be created by the performer’s interpretation of the structural GIM (the score) and, indeed, by the listener’s interpretations of the communicative PAM (the performance). Of course, with deterritorialization comes the potential for transformation in a number of directions, and this is once again present here. As argued by

Kristeva, “every signifying practice does not encompass the infinite totality of that process” (1984, p. 88), thus suggesting that the progression from structural to communicative and from objective to subjective unlocks the potential for territories that inhabit an infinite number of interpretative spaces. The current exploration of deterritorialization will therefore be taken from this position, exploring the ways in which linguistic elements may be manipulated to maintain maximal amounts of the original narrative during performance and interpretation. While I will draw comparisons between the work of Deleuze and Kristeva throughout this chapter, their individual relevance is nevertheless highlighted within the broader philosophical plane of thought, and I will thus consider both parallels and variations between their theories, then synthesised with Messiaen’s own thoughts.

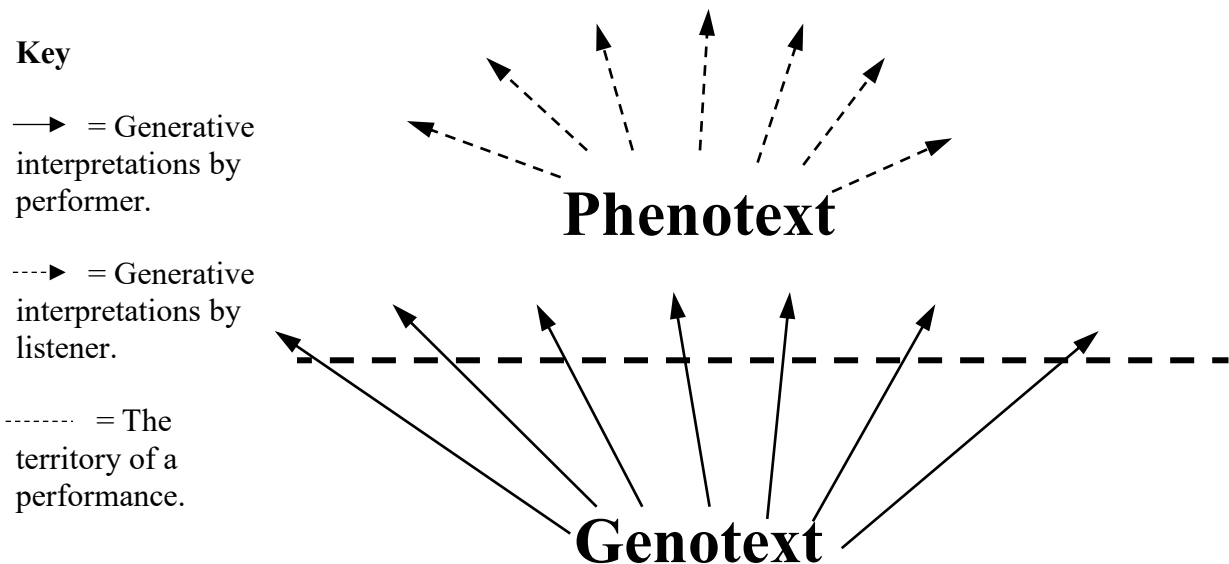


Figure.1.4. The transformation of Messiaen’s musical language from the structural genotext to the communicative phenotext.

So how do these philosophical approaches synthesise with Messiaen’s school of thought? The remainder of this chapter will consider Messiaen’s language, as articulated in three different domains: (1) rhythm, (2) harmony, and (3) melody. Using case studies from the composer’s body of works, I will unpack the techniques associated with the **added value**, **Hindu deçitalas**, **serialism** and the **modes of limited transposition**, employing the Deleuzian-Kristevan vision to explore possibilities for the communication of Messiaen’s musical language. This communicative interpretation will facilitate a continually

detrterritorialized consideration of performance possibilities, aiming to expand the opportunities for interpretation through a linguistic frame, while maintaining connection with the idiosyncratic language of the original birdsong.

Rhythm as Language

Rhythm is an integral component of Messiaen's writings on musical language, but the question still remains as to how rhythm can be perceived as a component of language in the current study. Deleuze's smooth and striated time (1980) will be explored in greater detail in chapter 6, but it is pertinent here to consider Deleuze's reading of rhythm within this context. Relating to striated time, Deleuze suggests that melody and harmony are fixed components, as notation systems dictate to an extent how pitches and harmonic progressions should be performed. Deleuze's smooth time, however, denotes "continuous variation, continuous development of form; it is the fusion of harmony and melody in favour of the production of properly rhythmic values, the pure act of drawing a diagonal across the vertical and the horizontal" (Deleuze & Guattari, 1980, p. 478). Here it is implied that rhythm allows development to take place, and so in the context of a 'language', rhythm is the catalyst for communication; it is the feature that allows music to be transformed out of the fixed form of its notation (GIM) into a 'message' that can be interpreted in an infinite number of ways (PAM). Messiaen also discusses rhythm as a component of his musical language that is separate from other musical parameters, creating a 'voice' that is unique to each performance of a given work. While features such as melody, pitch and contour will be explored in due course, Messiaen's rhythms will be explored as a variable element of performance in the ensuing study.

The Added Value

Messiaen himself defines the concept of the added value as "a short value, added to any rhythm whatsoever, whether by a note, or by a rest, or by the dot" (Messiaen, 1944, p. 11). Most commonly associated with the addition of a single semiquaver to a bar or phrase (see fig.1.5 for context), the added value has a varying impact on the extent to which a phrase may be deemed 'metrical'. Existing literature explores the concept of 'metrical consonance and dissonance', based on the alignment of different pulse layers within a piece. Where metrical

consonance is built from a complete alignment of all pulse layers, metrical dissonance describes “a state in which at least two pulse layers are not aligned” (Santa, 2020, p. 53), whether due to syncopated rhythmic features such as hemiolas, or due to the use of polymetre. The current exploration, however, extends this to consider metrical dissonance within a *single* instrumental part, as well as across a full score. Two terms are therefore proposed to better depict the more insular process involved here, that are rarely found within current literature. Firstly, a state of ‘un-metricity’, with the prefix ‘un’ referring to ‘a lack of’. A state of un-metricity refers to a naturally-occurring lack of metre, a state of being that will be explored in relation to the natural birdsong involved in Messiaen’s compositions. I will investigate the extent to which un-metricity may be maintained within composed music, and indeed the extent to which it is manipulated or otherwise lost. This process of manipulation is proposed as ‘demetricalisation’, representing a sense of *deliberate* loss of metricity during the process of composition. Given the current philosophical inquiry, this manipulation takes place at the level of the GIM. Here technique is exploited during composition to break apart the continuity of interpretation within the PAM through the promotion of a pre-determined interpretative destination (territory). As a musical coefficient of deterritorialization, demetricalisation manipulates the original territory to promote an initial force of chaos. This force of chaos may not impact the communication of a *musical* narrative.¹² When concerned with the communication of a *birdsong* narrative, however, the presence of demetricalisation reduces the process of deterritorialization to a single relative act with a predetermined destination (territory). The method of overcoming the manipulating force of demetricalisation will therefore be explored, aiming to reinstate the continuity of the PAM (and of absolute deterritorialization) through increasing interpretative and therefore deterritorializing potential.

The present investigation will consider Messiaen’s use of the added value through the lenses of un-metricity and demetricalisation, to examine whether his birdsong inspiration may have possessed a natural un-metricity, or whether Messiaen’s consideration of musical language may have triggered a tendency towards demetricalisation. Pertaining to the overall aim, the following investigation will explore the added value as “an independence of rhythm from metre”, additionally considering Robert Sherlaw Johnson’s assertion that “Messiaen’s

¹² The term ‘musical’ is used here to refer to composed or notated music as opposed to the natural song of the birds.

own discussions of rhythm concern themselves with the short duration of individual sounds rather than with phrases or whole sections” (Sherlaw-Johnson, 1975, p. 38). This ‘independence’ of rhythm will be explored in relation to the deterritorialization of birdsong. Where the added value may have been employed in numerous compositional circumstances, the rhythm will be explored in relation to the notated GIM (triggering relative deterritorialization through a notated territory) and the communicated PAM (‘independence’ of rhythm mirroring the ‘freedom’ of birdsong and therefore the ‘freedom’ of absolute deterritorialization).



Figure.1.5. Different representations of how the added value may be employed within a phrase.

In relation to birdsong, the consideration of smaller durations over phrases may promote the creation of recognisable motifs from which one can identify birdsong characters. The following exploration will consider the emergence of the added value within one of the earliest birdsong case studies: *Le Merle Noir* (1952). With its title translating to ‘The Blackbird’, it may come as no surprise that this work contains two cadenza sections that are primarily concerned with the songs of a blackbird. Within the first of these cadenzas, there is one small phrase that particularly warrants exploration with relation to the added value. Fig.1.6 demonstrates a motif consisting of a single semiquaver followed by a quaver. This motif is not preceded or followed by any rests that would form metric consonance; therefore the semiquaver in both instances may be considered an added value. Due to the use of a shorter followed by a longer value, there has been some debate amongst scholars as to how this motif can be identified. David Kraft has referred to the rhythm as an “iambic figure” (2000), highlighting its inclusion of an unstressed (semiquaver) followed by a stressed (quaver) unit. Tiana Gris  (2012), however, argues that when considered in the context of the larger phrase, the rhythm should in performance follow more of a ‘trochee’ metre, due to the accentuation of the semiquaver as marked on the latter iterations of the motif. This ‘trochee’ approach draws into question the communication of the added value at this stage. While the employment of a single semiquaver may suggest demetricalised phrasing, the accentuation of

the shorter value augments its importance within the phrase, far beyond that of a simple ‘addition’ to an otherwise metric grouping.



Figure.1.6. Examples of the ‘iambic’ or ‘trochee’ motif that is employed within the flute cadenza of *Le Merle Noir*. These examples are taken from bar 4 and 7 respectively.

The instance of the added value within fig.1.6 sits within a larger cadenza, drawing into question the macro level function of the phrase. While performance practice in relation to iambic and trochee methods will be explored in due course, it is first important to explore the impact of the added value on the overall communication of musical language. Placed within a broader frame of a cadenza, the study considers how the cadenza might function linguistically in composition and performance. The cadenza itself is considered by some as a “musical parenthesis”, inferring that “although [it] certainly adds something to the music, removing [it] does not damage the harmonic-contrapuntal syntax” (Bribitzer-Stull, 2006, p. 214). Bribitzer-Stull’s interpretation of the cadenza may for some align with the function of the added value, with the latter being a ‘surplus’ that adds to the rhythmic direction of a phrase, but may not alter the overall melodic or harmonic direction. While this interpretation is a possibility rather than fact, the current investigation will follow Bribitzer-Stull’s theory in relation to both the cadenza and the added value.

When seen as a macrocosm of the added value, cadenzas can be regarded as more integral to the work’s narrative and sentiment than they are to formal function. As a rhythmic component of the GIM, the added value initially serves a static syntactical function (fig.1.3) when considered in relation to the iambic-trochee dichotomy above. When incorporating the cadenza as a macrocosm of this function, however, the traditional ‘freedom’ of the cadenza unlocks the communicative and interpretative potential of the added value in relation to the PAM. Where the added value is initially ‘syntactical’, the parenthetical function of the surrounding cadenza opens the phrase to different interpretations by each listener, inviting

absolute deterritorialization through the transformation from objective GIM to generative PAM.¹³

I therefore consider an un-metrical function of the added value, with the parenthetical cadenza placement suggesting a certain natural state to its employment through the consideration of small rhythmic groupings over larger phrasing. The incorporation of the added value within the cadenza setting therefore builds on the *lack* of “hypermetric regularity” (Bribitzer-Stull, 2006, p. 219) to transform the genotextual composed language into a perceptible or interpretative phenotextual state. The investigation will therefore move to consider how the placement of the added value within different compositional contexts may impact performance possibilities and thus opportunities for cyclic absolute deterritorialization.

Surrounding the added value, the iambic-trochee debate has been discussed with a number of performers, forming various possibilities for performance that may promote cyclic absolute deterritorialization.¹⁴ During discussion, three flautists and I explored the contrasts between their instinctive approaches to performance and the alterations that they may make to their approach after exploring analytical and narrative details. Before discussion developed, participants were shown fig.0.2.b and were given an overview of cyclic absolute deterritorialization, including a definition of ‘territory’ and what it means to take something out of its original territory through deterritorialization. It was emphasised that the aim was not to return or replicate exactly the original birdsong, but rather that deterritorialization was used as a model to explore how far human musicians could really get in creating an impression of bird character. There was initially some uncertainty amongst participants as to why relative deterritorialization is undesirable, but after explaining the benefits of a continuous process to the interpretations of the listener, participants were happy to move on with the discussion.

Before demonstrating any details of fig.1.5 or fig.1.6 to participants, they were first shown a blank score for *Le Merle Noir*, and asked how they would instinctively approach the added

¹³ The terms ‘objective’ and ‘generative’ here refer back to Chomsky’s reading of ‘ordinary language and generative grammar’.

¹⁴ Interviews and discussions were conducted with 10 performers between October 2020 and March 2021. The views expressed within these discussions will be employed at relevant points throughout the remainder of this thesis, based upon the instrumental specialism or experience of each individual performer.

value motifs during performance. Instinctively, there was a tendency amongst performers to take a trochee approach to the added value within the cadenza section, with the semiquaver increment adopting an equal or more important role than the quaver within the phrase. Participant 2 (27/10/2020) in particular discussed the fact that the notated beaming within the score implies that the added value be treated as the start of a beat, and thus that Messiaen composed with this particular beaming as he would have wanted the accentuation to be conducted in a trochee manner. Participant 4 (05/11/2020) similarly suggested a preference for the trochee approach with the implication that due to the tenuto and fortissimo markings on the first iteration, it would be extremely difficult to get the full value out of the semiquaver without accenting it in some form.

When the differing articulation marks of later iterations were highlighted, and information was provided regarding Kraft (2000) and Grisé's (2012) past remarks of iambic and trochee approaches, participants began to consider other possibilities for the phrase. Participant 4 first discussed the placement of the added value within the broader phrase. While initially choosing a trochee approach when presented with this short motif, their opinion was impacted by a comparison of later iterations of the added value. Participant 4 stated that, given the written accent and slur on the second iteration (refer to fig.1.6) "there should be a real discernible difference" between each iteration, with the focus becoming less on the iambic-trochee debate and more on "just really trying to get the proportionate values" of each rhythmic increment. Despite the conventional 'free time' approach of a cadenza section, the emphasis of both of these performers on the notated format and proportionate length of the added value indicates a demetricalised approach. This therefore promotes the technicality of the GIM which, as proposed earlier, may be considered a force of chaos within the overall process of cyclic absolute deterritorialization. As earlier, the forces of chaos are interruptions that create interpretative territories in a direction *away* from the initial sound source. While not necessarily 'wrong' in the context of absolute deterritorialization, the cyclic nature of the current investigation is emphasised, therefore exploring how one might alter the communication of this force of chaos while prioritising the original bird character.

The parenthetical function of the broader cadenza suggests an unmetrical nature, adding a natural surplus to the overall phrase structure. Accentuation of the notational format by the performer however, implies *demetricalisation*, with the visual aspects of notation such as beaming taking precedence over the aural territory from which the sounds were originally

sourced. Exploring this philosophically, there is a distinct ‘shortening’ of the line of flight when considering deterritorialization from the performer’s demetricalised trochee approach. Fig.0.2.a demonstrated that the forces of chaos interrupt the line of flight and result in a finite act of deterritorialization-reterritorialization. In the case of the added value, performers’ instinctive trochee approach allows the forces of chaos to determine the overall performance method, as their interpretation incorporates a pre-existing tendency towards notational metricality. The current study therefore contemplates the methods through which cyclic absolute deterritorialization can be increased through performance of the added value, whether by forming a new approach to the phrase, or by manipulating the trochee approach to expand stylistic possibilities.

As part of the current investigation, after hearing the instinctive reactions of performers, we (participants and myself) discussed the placement of the added value within a ‘musical language’, to explore the multitude of interpretative territories that could be created depending on the variety of contextual knowledge. Participant 4—who expresses interest in ornithology and is familiar with the typical components of the blackbird’s song—suggests that whether determined by notational format or by birdsong, their approach to the cadenza would be the same. In this sense, participant 4 is in favour of maintaining strict accuracy to Messiaen’s transcriptions here, with the added value in particular being fairly realistic to natural blackbird songs and therefore a feature of the cadenza that can be perceived as unmetrical.¹⁵ It was suggested that a performer’s use of phrasing can increase the realism of birdsong and therefore the proportionality of the added value *promotes* rather than reduces cyclic absolute deterritorialization. As a result, one may hypothesise that Messiaen deliberately beamed and articulated his added values as expressed in fig.1.6 to emphasise musical features *other* than pitch, therefore suggesting that performers should exploit the given phrasing and articulation to reinforce the realism of the overall blackbird motive. Additionally, participant 2 proposes that the narrative basis of *Le Merle Noir* warrants a connection between performer and nature, and thus each performance will be unique, with performers forming their *own* relation and understanding of the work’s natural setting. Participant 2 suggests that they would avoid listening to existing performances or recordings during their preparation phase, to prioritise the inspiration behind the composition rather than

¹⁵ It is highlighted here that unmetrical refers to a human perception of metricality. It is not suggested that the way we perceive birdsong is necessarily unmetrical to the birds themselves.

its purely musical content. The approaches of both performers certainly promote cyclic absolute deterritorialization, with multiple methods being explored in which the bird stands at the fore of the interpretation. I therefore question the extent to which these approaches extend the line of flight around the cycle of deterritorialization with consistent acknowledgement of the initial sound source (fig.0.2.b). In this specific scenario, the insistence of participant 4 surrounding the accuracy of Messiaen's transcriptions suggests that should a performer take this cadenza at 'face value'—combining the intricate notation of the composer with the typical parenthetical nature of a cadenza—then the resultant performance will at the very least emulate the overall bird character. Of course, the pitch range of a flute does not replicate the range of a blackbird completely. The timbral quality of the instrument combined with the approaches depicted here, however, enable performers to reach a level of deterritorialization where they can be confident that listeners will recognise the importance of birdsong within the performance, therefore enabling the continuous, absolute deterritorialization that this study ultimately aims for.

The question therefore arises as to how the added value may function as a 'linguistic' component *outside* of the cadenza. Remaining with *Le Merle Noir*, the most explicit employment of the added value comes with the 'Presque Lent' section of the work; a section which overall is "controlled through the compositional techniques of additive rhythms, Greek irrational patterns and the modes of limited transposition" (Priore, 2001, p. 2). While the modes of limited transposition will be explored later, I am first concerned with the use of additive rhythms (including the added value), once again at the degree of a semiquaver, which at this stage appear most prevalently through the addition of the dot (fig.1.7). Given the steady quaver pulse that is employed throughout this phrase, the added dots appear to be demetricalised at this stage, drawing the performer and indeed the listener away from the natural pulse. Owing to the call and response between the flute and piano, participants 2 and 9 (11/03/2021) proposed that the 'Presque Lent' section of this work is not representative of birdsong in the same way as the cadenzas and the 'Un Peu Vif' section, therefore suggesting a deliberate manipulation of the section's metricality during composition.

Fig.1.7 also demonstrates the simultaneous use of the semiquaver increment as both a note and a dot. While the use of a single semiquaver note can function in the same way as the dot discussed above, there are some instances in which the note and the dot are combined within a single bar. Where this occurs, an unusual sense of metricality is created through dual

demetricalisation, with the two iterations of the added value cancelling each other out to create a bar with a recognised metre, albeit shaped in a ‘syncopated’ form. The use of the term ‘syncopated’ invites a reconsideration of Roland Barthes’ *The Death of the Author* (1969). In fig.1.7, it is unknown whether Messiaen intended to compose a regular metre with syncopated rhythm, or for an overall sense of demetricalisation with no definable metre. While some may suggest that the composer’s intentions are of vital importance to a performance of the phrase, the current study reduces the ‘ownership’ of the author (composer), instead focusing on the performer’s own interpretations as ‘reader’ of the text. The performer may therefore choose to interpret the given phrase as syncopation within a recognised metre thanks to the combination of two additive rhythms within a single bar.

The figure displays three staves of musical notation in treble clef, each starting with a key signature of one sharp (F#). The first staff begins at measure 12, the second at measure 19, and the third at measure 23. A key legend on the right side of the first staff defines the annotations: a circle represents the 'Addition of note' and a square represents the 'Addition of dot'. In the first staff, a circle is placed around a note in measure 14, and squares are placed around notes in measures 14, 15, and 16. The second staff shows a circle around a note in measure 19 and squares around notes in measures 20, 21, and 22. The third staff features circles around notes in measures 23, 24, and 25, and squares around notes in measures 26 and 27. The annotations illustrate how semiquaver increments are added to the rhythm in various ways across the phrases.

Figure.1.7. A demonstration of the use of the added value within the *Presque Lent*, with the addition of semiquaver increments as a note and as a dot.

Considering written notation as language, Messiaen has employed the added value with a certain mechanistic tendency at this point, particularly when considering the first two phrases of the ‘*Presque Lent*’ section (fig.1.7). Each of these phrases construct rhythmic patterns with stepwise alterations of semiquaver increments (fig.1.8). While this is very subtle, it is nonetheless integral to Messiaen’s own distinction between composition and language, placing the added value within a broader context than that of the single note on which it is employed. The added value as a single note represents the structural foundation of the language (GIM). Only once placed within a broader metric context does the added value begin its generative journey towards the PAM. This placement therefore triggers absolute

detritorialization. Where the added value within the GIM serves a single function (a note, a dot or a rest), its placement within a phrase can be interpreted in a number of ways by performers and listeners, as explored here. Consequently, while Messiaen has not employed a set metre within this section of the work, the use of stepwise rhythmic increments provides metric structure to the PAM, in which the interpretation of pulse can be *controlled* by the added value. The sense of control within the added value thus converts it from a compositional technique to a component of language, presented with a metrical¹⁶ function within the broader phrase of the music. Once the added value has become a feature of communication with a phenotextual function, it adopts a linguistic function: the added value has become a surplus (a parenthesis) which takes the finite metric system and presents it with infinite interpretative potential. Whether demetricalised or unmetrical, whether part of a syncopated metre or not, performers can take a number of approaches to the phrase. When the overall phrase is communicated to a listener (PAM), the added value has been detached from its initial rhythmic territory, and is instead considered through a metric (or otherwise) lens. The presence of interpretative potential triggers the ability for cyclic absolute detritorialization of the added value during performance, with performers as ‘readers’ having the choice to promote the cyclic element of this process. Upon first glance at the score, the likelihood of observing the stepwise increments of semiquavers is tenuous at best. I therefore question how performers might interpret this phrase, and what impact these interpretations will have on detritorialization.

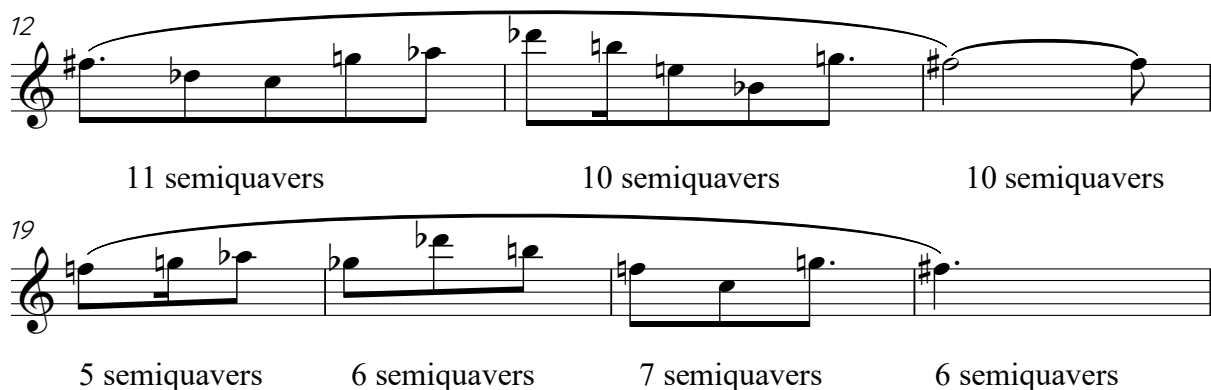


Figure.1.8. Consecutive increments of semiquavers in each bar presenting the feeling of a pulse controlled by the use of the added value.

¹⁶ Note that the term metrical in this instance suggests an *essence* of metricality rather than a literal presented metre.

There is once again a fairly similar consensus among performers that the analysis of metricality discussed here will not necessarily *change* their approach to performance but will *inform* and impact the ways in which they consider their stylistic tendencies. Instinctively, both participants 2 and 4 suggested more of a demetricalised *feel* to the Presque Lent, with the ‘echo’ effect between the flute and piano creating more of a ‘scripted’ feel due to the identical pitch and rhythm shared between both instruments. Participant 4 additionally emphasises the instinct of demetricalisation, with the importance of rhythmic proportionality prevailing from the cadenza into the Presque Lent section. Participant 4 suggests that during performance preparation, performers will be concerned with Messiaen’s use of the bar line, with the added value being treated as an ‘interruption’ to the metric potential of the phrase. With the concept of an ‘interruption’ here mirroring the Deleuzian force of chaos, metric deterritorialization takes place for the performer, with the continuity of the process stemming from the varied metric approaches that performers could choose to take. Participant 4, for example, suggests that if the piece was written by Mozart, one would treat the added value as an upbeat to the rest of the phrase. While participant 4 is inclined to “subdivide and have it be metric”, they are also explicit that here we are aiming to have no distinction between the “imaginary” upbeats and downbeats, thus reducing the sense of pulse *without* reducing the accuracy to the scored notation. Despite the acknowledgement of demetricalisation in the composed structure of the Presque Lent section, participant 4 indicates a fusion between demetricalisation and un-metricality. In combining these approaches, we invite cyclic absolute deterritorialization but perhaps not to the extent that we are ultimately aiming to achieve. The intention to maximise cyclic absolute deterritorialization thus stems from the latter half of participant 4’s interpretation. If we take Messiaen’s notated bar lines at face value by treating the added value as exactly that—an additional ‘upbeat’ in an otherwise metric phrase—then the resultant performance will take on a demetricalised approach promoting *relative* deterritorialization with the forces of chaos of the GIM bringing an end to the line of flight. The levelling of upbeats and downbeats into two indistinguishable components of an overall lyrical passage, however, maintains accuracy to Messiaen’s notated intention, but draws away from the written composition towards the PAM, thus renewing the ability to unlock an infinite number of interpretative territories. It is emphasised that neither of these approaches is ‘right’ or ‘wrong’; deterritorialization is a process, not a concrete performance direction, and so the choice that a performer makes would be determined by the feature that they wish to communicate to the listener. If they are keen to communicate accuracy in music theory and logical phrasing, then the accentuation of upbeats (relative

deterritorialization) provides a clear destination (territory) for the listener. If, however, they are more inclined to allow the listener to create their own interpretation of the performance, then a transformation towards the PAM would be preferable.

The fusion between unmetrical and demetricalised approaches is reinforced by participants 2 and 9 who, while similarly emphasising the demetricalised notational structure of the phrase, aim to highlight the unmetrical components through a somewhat quicker path than that of participant 4. More than the bar lines themselves, participant 2 highlights the relationship between flute and piano within the *Presque Lent*, stating that while they do not feel the need for the piano and flute to be exact replicas of each other, it is inevitable that “there should be a sense of cohesion”. Participant 2 explains their stylistic instinct that in nature, birds of a single species have the same song ingrained within them, but each bird takes a unique approach to the song. Despite previous assertions that the *Presque Lent* represents scenery rather than birdsong, the instinct of participant 2 nonetheless promotes cyclic absolute deterritorialization. A glance at the score highlights the echo effect between the flute and piano. Participant 2 does not explore this as a technical component during performance but rather considers it a stylistic feature of the birdsong narrative. Even after acknowledging the portrayal of setting (landscape) rather than bird in this section, participant 2 did not demonstrate any alterations to their overall approach, suggesting that “the landscape is still spontaneous and unpredictable” just like the birdsong. Similarly, participant 9 (11/03/2021) suggests that the flute could mirror the piano within this section, with the opening piano phrase allowing a different stress to be added to each note than would otherwise be instinctive of a “flutey” phrase.

Unlike participant 2, however, participant 9 interprets bird *flight* during the *Presque Lent* section, promoting a different performance approach that aims for a consistency of flow in phrasing throughout the section. Participant 9 therefore suggests that for a flautist, air flow becomes the most important performance component here, with the performer using their air to mirror the way in which the bird would flow through the air. The performance therefore draws on the falling and floating of the bird’s flight where the added value “feels like you are waiting for something to happen”. Considering the approaches of all of these performers, there are a multitude of ways through which one can trigger cyclic absolute deterritorialization, therefore achieving the ‘absolute’ continuity of interpretation that is the ultimate aim. Through the performer’s translation of the added value from the notated

technique of the GIM to the linguistic syntax of the PAM, one can perceive the interpretative potential of the phrase, maintaining accuracy to the score while at the same time manipulating the accentuation of phrasing through the formation of individual interpretative territories.

As stated above, when considering language, one explores amongst other things the concept of syntax: the construction of phrases into their communicable form. The added value functions syntactically throughout Messiaen's oeuvre, becoming the surplus descriptive point of the 'sentence' that really allows Messiaen as author to 'get his point across' to performers and listeners as readers. Exploring this in relation to the GIM, the function remains the same. The added value serves as a building block in the rhythmic skeleton of the work, through which this skeleton can be transformed from a technique to a communicable language (PAM). One may question how an increment as small as a semiquaver could inhabit such an integral milieu. However, given that the dichotomy between un-metricity and demetricalisation is such a vital element of communicating the work's narrative, the added value is conceivably responsible for not only the communication but also the foundational construction of the work's narrative. This syntactical function can be inhabited by any number of musical techniques, but the current investigation will first progress to consider another rhythmic feature. The rhythmic features explored demonstrate syntactical and linguistic functions as their foundational structure remains constant no matter how they are interpreted thematically by a performer. As was introduced at the start of this investigation, rhythm can be responsible for "continuous variation, continuous development of form" (Deleuze & Guattari, 1980). While this stems from broader tempo and phrasing choices within the PAM, the added value as a smaller rhythmic technique allows the proportionality of individual rhythms to remain consistent amongst the majority of performers.

Hindu Deçitalas

Hindu deçitalas, or rhythms, arose from thirteenth-century theorist, Çârngadeva, who created a table of one hundred and twenty deçitalas from which Hindu music was most commonly constructed (Lavignac & Laurencie, 1913-1931). In Messiaen's *Technique of my Musical*

Language (1944), the composer claims that his use of un-metricity and demetricalisation¹⁷ stems from the Hindu *deçitalas*, and there is evidence of this in a large quantity of his compositional output. Combining Messiaen's inference with multiple references to the *deçitalas* by Deleuze (as will be explored in due course), the rhythmic technique is explored in relation to its potential for deterritorialization within Messiaen's birdsong works. The rhythmic techniques that are associated with Messiaen are largely concerned with the distortion of a metric pulse. Where both un-metricity and demetricalisation are concerned with pulse across a larger phrase, however, this does not negate the need for "precise rhythmic rules" (Messiaen, 1944) in relation to the value of individual notes. Consequently, as with the added value, Messiaen's use of Hindu *deçitalas* will be considered not metrically but rhythmically; "arising from an extension of durations *in* time rather than from a division *of* time" (Sherlaw-Johnson, 1975, p. 32).

I first investigate the *Râgavardhana*, the 93rd *deçitala* to be offered within *Cârngadeva*'s design and the most frequently employed in Messiaen's music. Primarily concerned with the "stretching or contraction of the time values in a passage which is basically metrical" (Sherlaw-Johnson, 1975, p. 33), the *Râgavardhana* is comparable with the added value in the sense of using a small rhythmic increment to augment a passage inexactly, thus triggering its demetricalised nature. There are small examples of the added value being employed like *Râgavardhana* within *Le Merle Noir*. As shown in the second phrase of fig.1.8 above, a metrical bar of three quavers is preceded by a bar that removes a single semiquaver to create a diminution of the metrical rhythm, and is followed by the addition of a dot to augment the original metre. The transformation from diminution to augmentation defines here the use of the *Râgavardhana*, although the positioning of the added value at different points in each bar promotes an inexact augmentation; a "rhythmic variant rather than an augmentation or diminution properly so called" (Messiaen, 1944, p. 16). This therefore suggests more explicitly the use of an added value above that of the *deçitala*. The ensuing investigation will therefore consider Hindu *deçitalas* through the medium of Messiaen's later works. Consistently focused on language, the study will refer to linguistic uses of the *deçitalas* in terms of their communication during performance. With relation to linguistic triggers of deterritorialization, I consider Hindu *deçitalas* as part of their pre-existing territories. The

¹⁷ A reminder that these are not Messiaen's terms specifically. Where Messiaen refers to general manipulations of metricity, un-metricity and demetricalisation are my own terms to refer to a naturally occurring lack of metricity, and a deliberate loss of metre respectively.

origins of the *deçitalas* in thirteenth century theory results in initial associative territories related to their original use within Çârngadeva’s design. The current study therefore investigates Messiaen’s manipulations of the Hindu *deçitalas*, employing them as a rhythmic component of his compositional language and therefore unlocking the potential for interpretative territories that move away from the ‘traditional’ connotations of the rhythms.

Hindu *deçitalas* are most clearly apparent within Messiaen’s 1958 work, *Catalogue d’Oiseaux*. *Le Merle Bleu* is the third of thirteen movements in the composition. While contentious opinions have already been explored regarding the accuracy of Messiaen’s birdsong transcriptions, the composer himself has stated that in this work he “actually notated the transcriptions in a specific time and place, presenting it as if it were a precise documentary work” (Chiat, 2005, p. 1). The birdsong transcriptions therefore take on a role much greater than the birdsong itself; they are tasked with providing a representation of scenery, season and culture which together symbolise an individual region of France. This will be explored in greater detail later, but at this stage the study acknowledges Messiaen’s programme notes for *Le Merle Bleu*, which highlight Côte Vermeille—specifically Banyuls sur Mer—on the Southern coast of France as principal inspiration for the movement. As suggested by Roderick Chadwick and Peter Hill, “[Messiaen’s] cahier entries upon arrival show that he was immediately struck by the contrasting shades of blue” (2017, p. 146). This emphasis on colour and scenery highlights Messiaen’s main inspiration for the movement (as stated by the composer himself), with thematic representations of scenic features sitting on par with those of the birdsong.

The Hindu *deçitalas* are used as part of Messiaen’s motif ‘les falaises’, representative of cliffs and therefore an integral constituent of the portrayal of scenery. The initial iteration of this motive is based on the Râgavardhana (fig.1.9.a). As demonstrated in fig.1.9, Messiaen has employed an exact augmentation of Çârngadeva’s originally published Râgavardhana, using rhythmic doubling to emphasise the breadth of the musical phrase and mirror the vast expanse of the cliffs. Messiaen additionally exploits each iteration of ‘les falaises’ to depict a number of different *deçitalas*, each of which is treated differently. The second iteration introduces the Candrakala, a much longer *deçitala* than the Râgavardhana (fig.1.9.b). In the same way that the Râgavardhana was treated with exact augmentation, Messiaen has employed exact diminution in this case, with the expected rhythmic values of the Candrakala having all been halved for this motivic iteration. The combination of augmentation and

diminution across both iterations highlights the relation between the two motives, manipulating the conventional *deçitalas* to promote a quaver as the principal beat in both cases. Where the first iteration demonstrated the breadth of the cliffs, the extended length and descending contour of the *Candrakala* mirrors the vast height of the cliffs in question. The final *deçitala* experienced within the cliffs motive is *Parvatilocana*, employed to convey the third and longest iteration of the motive within the first ‘A’ section of the work (fig.1.9.c). While partial diminution does occur within this *deçitala*, this iteration possesses Messiaen’s most accurate use of the rhythmic phrase, with the majority being based around a crotchet beat as would conventionally be expected. The partial diminution is therefore likely employed to manipulate the metricality (or lack thereof) of the phrase. A sense of demetricalisation here blurs the imagery that has been formed so far, at the same time highlighting unpredictability and constant change within a natural environment such as the cliffs.

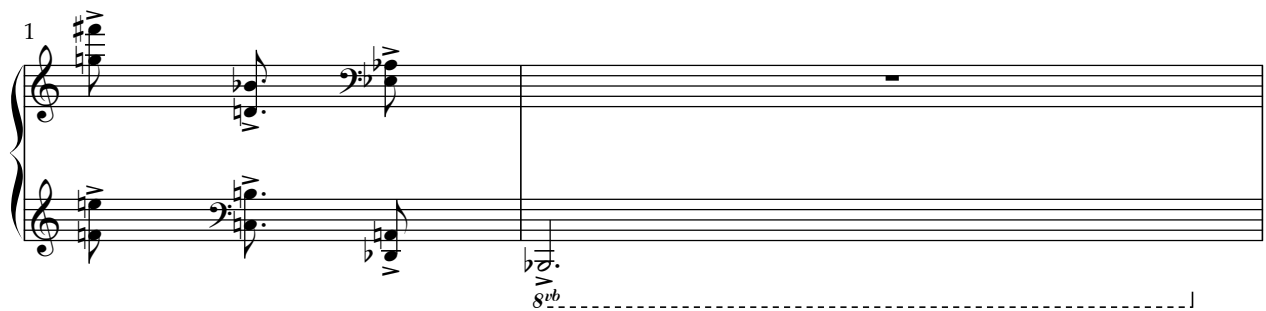


Figure 1.9.a. The first iteration of the ‘cliffs’ motif, representing the Râgavardhana deçitala.

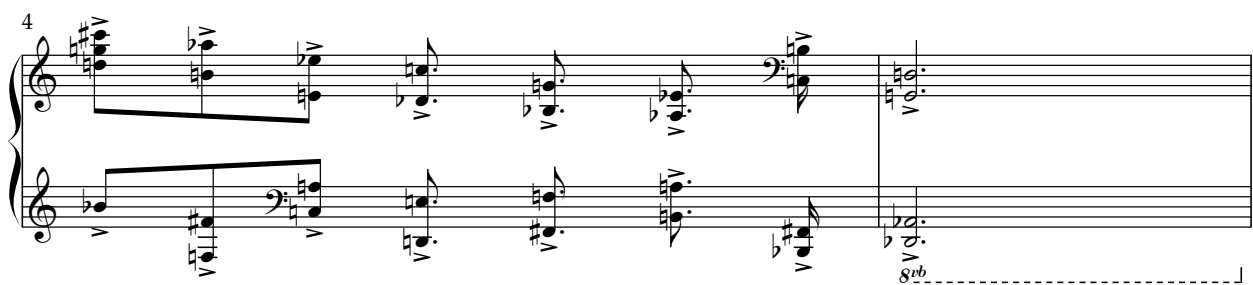


Figure 1.9.b. The second iteration of the ‘cliffs’ motif, representing the Candrakala deçitala.



Figure 1.9.c. The third iteration of the ‘cliffs’ motif, representing the *Parvatilocana deçitala*.

Deleuze and Guattari related Hindu deçitalas to deterritorialization (Deleuze & Guattari, 1980), suggesting that their roots in Hindu tradition present the rhythmic techniques with a cultural ‘territorial’ function. Discussing the use of birdsong within a compositional platform, the theorists state that “the bird sings to mark its territory. The Greek modes and Hindu rhythms are themselves territorial, provincial, regional” (Deleuze & Guattari, 1980, p. 312). There is an implication here that the use of a technique with its own cultural heritage may impact the ability of the birdsong to be deterritorialized cyclically. In this sense, the listener could be inclined to attach a territory to the music that is more concerned with the rhythmic techniques than any narrative meaning behind the work. Considering the Kristevan parallel here, however, the deçitalas develop a phenotextual function as a result of Messiaen’s image-based portrayals of landscape, with their use in the GIM being immediately concerned with communicating image, rather than inhabiting a static, non-signifying role. Where other rhythmic techniques such as the added value require interpretations by performers and listeners in order to be transformed into the PAM, the Hindu deçitalas possess a pre-existing territorial (cultural) connotation. As explained by Deleuze, this connotation infers *context* as well as *content* for the technique within the composition. Due to this, one might suggest a simultaneous inhabitation of both the GIM and the PAM, with two territories being created upon the notation of the rhythms: one based on the cultural placement in Hindu tradition, and another based on the function of the rhythmic unit within Messiaen’s composition.

During discussion with performers, I first gave them an explanation as to how cyclic absolute deterritorialization works and the potential that it has within the current investigation (fig.0.2.b). Following this, I explained the cultural significance of the Hindu deçitalas, highlighting the pre-existing territory that they inhabit. None of the performers were aware that the Hindu deçitalas had been used in Messiaen’s composition, although the majority

suggested that they would be interested in conducting further research, and that the cultural relevance might provide a different performance approach for the future. Participant 1 (19/10/2020), however, suggested that deterritorialization will be more flexible (continuous) for the performer and listener if the *deçitalas* are considered from the context of the composition rather than their cultural placement. Participant 1 noted that “the performer will take the score as the only necessary material to play the music”. Once performers notice the ‘les falaises’ label, this will provide sufficient inspiration for their performance approach, demonstrating “a very clear indication of strength and irregularity”. Participant 1 therefore suggested that while the Hindu connotation is interesting, “the musical takeaway is the jaggedness and the asymmetry of the rhythm”, and this is the clearest image that could be communicated to a listener. While a representation of the cliffs image may facilitate *cyclic* absolute deterritorialization more clearly for listeners, discussion has shown a number of possibilities for the exploration of the *deçitalas* by performers, promoting nonetheless a continuity of deterritorialization in a number of contrasting directions.

The harmonic-rhythmic synthesis

Serialism

Serialism as a technique takes the dodecaphonic use of twelve pitches and organises them into ‘tone rows’. Whereas dodecaphony may maximise deterritorializing potential due to the unpredictability of its pitch organisation, serialism “provides a flexible basis for aesthetic construction so that the work is not the result of random events but gains a grammatical structure with little sacrifice of expressive freedom” (Riley, 1961, p. 35). Serialism thus involves the enumeration of pitches to create tone rows that do not repeat any given pitch until all twelve increments have been employed. Important to note in the current study, is that there is not necessarily reduced potential for deterritorialization here, much the opposite in fact. In organising pitch structures, the overall possibilities of the GIM (fig.1.1.a) are manipulated during composition (fig.1.1.b). While this occurs with all sets of composed pitches, the ‘rules’ involved with serialism form a higher level of ‘organisation’. When considering communication to a listener, however, this organisation may not be perceived, with the produced sound instead being defined by a constant change of pitch. Deterritorialization may therefore be promoted by the transformation from GIM to PAM,

where the latter is defined by a consistent change of individual pitches, albeit in a highly organised way. Considering Riley's 'grammatical structure', serialism takes the expressive freedom of dodecaphony and places it within a mode of transmission that manipulates the 'chaos'¹⁸ of the GIM through the introduction of order. In terms of language, one may propose that the systemisation of pitches is an attempt to create a 'shared understanding'; to form a message that can be communicated efficiently to any audience through the same fundamental narrative features. Serialism therefore represents the transformation of dodecaphony from the GIM to the PAM – from a non-signifying element with a high level of 'randomness' and entropy, to an organised system that provides a clear communicable 'message'. I will therefore explore the efficiency of Messiaen's employment of serialism in serving a linguistic purpose, satisfying the role of communication through the medium of his birdsong narratives.

Messiaen foregrounded within his own publication (1944), his criticism of 'traditional' pitch-based serialism, highlighting its one-dimensional, static quality. He therefore developed a tendency to "generalise the serial principle to include all four sonic constituents: pitch, duration, intensity and attack, and timbre" (Forte, 2002, p. 4), coined in this form as 'total serialism'. The current exploration will examine this combination of rhythmic and harmonic language, with particular study of its use within *Le Merle Noir*.¹⁹ The work is structured in an 'AAB' bar form, and while the earlier sections of this chapter explored the 'A' sections of the piece, the study now considers the final 'B' section, proposed by some as having a coda function in the sense of drawing musical conclusions through the combination of new and existing material (Priore, 2001). Messiaen's use of serialism in this work is not overt, being hidden in the piano accompaniment, nor is it explicitly stated as part of the birdsong transcription, and so the current study is not concerned with the translation of birdsong material into a serial passage. The placement of serialism within the piece, however, will nonetheless have a profound impact on the deterritorializing aim of the investigation.

As demonstrated by fig.1.10.a, Messiaen employs the prime and retrograde-inversion forms of the tone row, employing multiple transpositions of each row. These forms are shared between the upper and lower parts of the piano line, with the upper part opening with the

¹⁸ The term 'chaos' is used here with reference to the 'forces of chaos' as explored earlier in relation to the GIM.

¹⁹ *Le Merle Noir* (1952) is repeatedly the most relevant case study to the subject of this chapter, due to the proximity of its publication to that of Messiaen's *Technique de mon Langage Musicale* (1944).

prime (P0) form and the lower part with the retrograde-inversion (RI5). The rows are subsequently exchanged halfway through the section in the style of “invertible counterpoint” (Priore, 2001). This is, of course, a somewhat rudimentary description of the serialist techniques that Messiaen employs. The remainder of the present study will instead extend this description to consider the ‘unifying’ function of the tone rows, exploring their use in ‘tying together’ the work through subtle and inexplicit references to earlier aspects of the composition. Fig.1.10.a shows that the tone rows are transposed upwards by a semitone with each rotation, forming a collection of rows that allude to a chromatic scale. Fig.1.10.b then demonstrates the ‘unifying’ relevance of the chromatic scale to the overall structure of the piece. Highlighting the chromatic nature of bar 1, listeners experience a deep rumbling in the piano that performers 2, 4 and 9 (all flautists) relate to the creation of scenery in the form of a thunderous landscape. When considering the work in its entirety, this opening bar is linked to the closing section by the starting pitch of each tone row, with the right hand emphasising the prime rows and the left hand the retrograde-inversion forms. Messiaen’s use of serialism therefore gains its linguistic and territorial purpose by looking back from the final section to the opening bar. The relation between the tone rows and the chromatic opening draws on scenic portrayal, forming additional narrative territories for both performers and listeners. In isolation, the tone rows can be considered linguistically to be a non-signifying component of the GIM. Reflecting on bar 1 enables Messiaen’s use of serialism to become generative, unlocking possibilities for narrative interpretation through the communication of the PAM.

	I0	I5	II1	I6	II	I9	I7	I3	I4	I2	I8	II0	
P0-	A	D	G#	D#	B _b	G _b	E	C	D _b	B	F	G	-R0
P7-	E	A	D#	B _b	F	D _b	B	G	G#	G _b	C	D	-R7
P1-	B _b	D#	A	E	B	G	F	D _b	D	C	G _b	G#	-R1
P6-	D#	G#	D	A	E	C	B _b	G _b	G	F	B	D _b	-R6
P11-	G#	D _b	G	D	A	F	D#	B	C	B _b	E	G _b	-R11
P3-	C	F	B	G _b	D _b	A	G	D#	E	D	G#	B _b	-R3
P5-	D	G	D _b	G#	D#	B	A	F	G _b	E	B _b	C	-R5
P9-	G _b	B	F	C	G	D#	D _b	A	B _b	G#	D	E	-R9
P8-	F	B _b	E	B	G _b	D	C	G#	A	G	D _b	D#	-R8
P10-	G	C	G _b	D _b	G#	E	D	B _b	B	A	D#	F	-R10
P4-	D _b	G _b	C	G	D	B _b	G#	E	F	D#	A	B	-R4
P2-	B	E	B _b	F	C	G#	G _b	D	D#	D _b	G	A	-R2
	RI0	RI5	RI11	RI6	RI1	RI9	RI7	RI3	RI4	RI2	RI8	RI10	

Figure.1.10.a. Messiaen's serial system within *Le Merle Noir*. The tone rows that are employed within the 'B' section of the work are highlighted here.

A, B_b, B and C are the starting notes of the four employed prime (P) tone rows

E, F, F# and G are the starting notes of the four employed retrograde inversion (RI) tone rows

Figure.1.10.b. The first bar of the piece foreshadows the selection of tone rows that will be employed later in the work.

As explored above, Messiaen favoured a more ‘complete’ approach to serialism, incorporating all four technical constituents (pitch, rhythm, intensity and attack, and timbre) into his serial methodology. Irna Priore suggests that there are ‘opposing forces’ in this final section of the piece, in that it “represents a multitude of birds singing at the same time and is the most controlled section of the piece, because both pitch and rhythm are strictly determined through twelve-tone technique and rhythmic permutations” (Priore, 2001, p. 2). When listening to the piece, one may interpret this ‘multitude of birds’ as ‘sporadic’ or unorganised, but Priore highlights the simultaneity of meticulous written organisation owing to the ‘total serialism’ technique. Therefore, where Messiaen’s original narrative image may constitute an unorganised ‘body’,²⁰ his total serialism technique opens the section up to territorial organisation, and with it unlocks the potential for cyclic absolute deterritorialization for performers and listeners. This potential will be explored in due course through discussions with performers.

Rhythmically, Messiaen has employed serialism through the creation of rotating rhythmic series, each of which contain increments of 1-4 semiquavers in varying orders (fig.1.11).

Prime

1 2 3 4 | 1 2 4 3 | 1 3 2 4

Retrograde Inversion

Figure.1.11. A demonstration of the rhythmic serialism that is employed between the two tone rows of the piano part within the last section of Le Merle Noir. Bars 91-94 are used as an example here.

²⁰ I refer to a ‘body’ in a Deleuzian sense here, as in the opening section of this chapter.

While Messiaen's rhythmic sequences create the impression of a syncopated 2/4 metre, the combination of tone rows in pitch and rhythm invites consideration of deterritorialization in relation to both the flute part and the remainder of the work. As already established, the flute part at this point of the work portrays a 'multitude of birds', all of which combine into a cacophony of song. While the serial aspects are integral to the overall scenic narrative, they will not develop a true narrative function unless considered in combination with the birdsong elements of the section. As will be explored in later chapters, the earlier cadenza sections accentuate pitch frequency in relation to both pitch classes and interval structures. Despite the opposition between the birdsong flute and serial piano, one may draw comparison between these two parts through further consideration of their pitch organisation. The melodic notes of the flute part are reminiscent of the cadenza sections explored earlier, with the pitches D \sharp (E \flat), G \sharp and A being the most frequently used (refer to chapter 2 for full details on the cadenza sections). The definitive link between the flute and piano parts, however, comes with a consideration not of the melody but of the grace notes; the smallest rhythmic unit but nonetheless an integral part of the bird character within the flute line. Fig.1.12 demonstrates that the grace notes of this section highlight A \flat_5 and B \flat_5 in particular. When considered in isolation, this pitch centre may appear insignificant given that B \flat was not one of the cadenza's most frequent pitches. Despite this, these grace notes are employed throughout the closing section, to precede a melody note of the pitch A $_5$. The interval of a tone (major 2nd) between the two grace notes creates a line of symmetry on the pitch A; the same line of symmetry than can be observed within the tone rows of the accompaniment (fig.1.10.a). The study has explored three aspects of 'unity' created by Messiaen's use of serialism: the chromatic scale created by the starting pitches of the tone rows to mirror bar 1 of the piece; the combination of pitch-based and rhythmic serialism across the piano part; and the unification of the flute and piano parts through a line of symmetry on the pitch A. In order to explore the possibilities for deterritorialization that could be created, each of these aspects was discussed with a number of performers.

<i>Pitch Class</i>	<i>Frequency used as a grace note</i>
C	6
C#/D \flat	4
D	0
D#/E \flat	2
E	6
F	0
F#/G \flat	0
G	4
G#/A \flat	13
A	6
A#/B \flat	13
B	0

Figure.1.12. (Grisé, 2012) – the pitch frequency of Messiaen’s grace notes during the ‘B’ section of *Le Merle Noir*.

In discussion, performers were shown fig.1.10.a, providing the same baseline of information for all participants and ensuring that all were aware of the presence of tone rows throughout the final section of the work. While in previous discussions performers shared similar instinctive approaches to Messiaen’s work, there was increased disparity in their opinions regarding the use of serialism. Even considering only the small piano excerpt of fig.1.11, this section of the work is the most technically virtuosic for both instruments, with the complexity of rhythmic serialism in the piano combining with the flute’s grace notes to create a significant challenge in timing and coordination between the parts. Perhaps predictably, performers often prioritise this technical difficulty, with participant 4 stating that “without the analytical information, the job is to realise [the flute line] and realise where you are meant to be in relation to the piano line”. Technique seemingly takes precedence in performance approaches prior to the inclusion of information regarding the tone rows and rhythmic series that have been employed. This ‘total serialism’ (combining pitch and rhythm) and its placement against grace notes in the flute form the GIM, inhabiting the skeletal structure of the ‘musical language’ for this section. The addition of analytical information regarding the contextual placement of this technique (such as the shared line of symmetry between the flute

and piano) begins the transformation to the PAM, with performers beginning to think about the message that might be incorporated within the section. The consideration of a message rather than the technique itself triggers communication and interpretation, with performers exploring the relation between the tone rows and the first bar of the piece, for example. The occurrence of communication therefore triggers deterritorialization, with the interpretations of performers unlocking infinite possible interpretations for listeners. I therefore consider the ways through which the transformation from GIM to PAM—and in turn cyclic absolute deterritorialization—occurs within this section of the work.

Despite concentrating on coordination and timing, performers are also instinctively drawn to the correspondence between flute and piano, consistently emphasising that their relationship must be highlighted through performance. How to go about this, however, was less of a certainty amongst performers, until our experimentation around the proposed line of symmetry took place. Upon realising the correlation between the grace notes of the flute and the line of symmetry of the piano, participant 2 immediately highlighted that there is reason to accentuate the pitch class A within the flute line, stating that “the bird is connected to the landscape so [the flautist] needs to be connected to the piano”. Just as in the earlier sections of this chapter, participant 2 is naturally drawn to the narrative components of the work in their performance approach, emphasising the PAM before realising the structural relevance of the GIM. This approach of course promotes absolute deterritorialization, with the communication of style and narrative being given more importance in order to prioritise the reader’s interpretation more so than the author’s own propriety over the notation.²¹ One may argue, however, that there is a certain disregard for the technical genotext in this approach, and the study acknowledges that while the aim is to experiment with a narrative *closer* to the initial sound source with less containment from the author, performers must at the same time ensure that changes are only made within the PAM, and that the structural foundation of the message (GIM) is consistently maintained.

Participant 4 proposes an approach which, while not dissimilar in essence to that of participant 2, is more specific in its combination of technique with narrative communication. As explored in fig.1.12, Messiaen’s use of grace notes within the flute line is frequent and

²¹ The idea of a reader’s interpretation provides a reminder of Roland Barthes’ *Death of the Author* (1969), where a stylistic narrative can be communicated most strongly through aural performance more so than through the written text (notation).

conceivably an inherent component of the flute melody. During interviews surrounding other elements of birdsong, performers have generally stated that their instinct when considering birdsong in music would be a high pitch register with a profuse and somewhat erratic use of ornamentation including grace notes. It may therefore appear unusual that participant 4 implies *less* of a bird-like character to this flute line, suggesting that, while it makes more sense when considered as a multitude of birds, it does not contain the melodic fluidity that is typically associated with the blackbird's song.

During our interview, participant 4 was intrigued by the A_b-B_b grace notes, with the opinion that had they been incorporated within a different section of the piece, they would have been notated as part of the main melody line. We are therefore presented with two possible triggers for cyclic absolute deterritorialization. Participant 4 firstly suggests that the grace notes draw the performer to accent the A-G semiquavers over the A_b-B_b of the grace notes, highlighting the serial line of symmetry and ultimately uniting the bird with the landscape. Narratively we experience deterritorialization of the PAM here, with the separate territories of bird and landscape being united into a single territory with increased deterritorializing potential. This potential stems from the composer's lack of clarity as to the *exact* landscape or 'multitude of birds' that are involved in this section of the piece. Although the unification of the line of symmetry may appear to be an efficient performance approach, a lack of clarity from the composer here allows performers and listeners to interpret the phrase in a number of ways. Through this, one creates additional interpretative and thus territorial potential, with the unification of flute and piano into a single territory maintaining the potential for additional deterritorialization during performance.

In addition to the deterritorialization of the PAM here, one cannot forget the notated components of the GIM that have allowed the study to reach this stage of analysis. Where the PAM has united bird with landscape, participant 4 suggests that the serial line of symmetry allows for unification of the flute and piano throughout this section of the piece, emphasising the absolute deterritorialization suggested above. Participant 4 infers, however, that the grace notes themselves (A_b-B_b-A) should be treated as a condensed form of the three-note motif²² that opened the initial flute cadenza, uniting once again the flute of this closing section with the work's opening statement. The continuity of deterritorialization therefore originates from

²² This three-note motif will be explored in detail throughout chapter 2 of this thesis.

the interpretative potential of a ‘repetitive’ or recognisable phrase, acknowledging both the notated technical implication and the interpretative flexibility in performance, whether highlighting the unification of narrative, of instruments or of structural sections of the work.

Messiaen’s use of serialism within *Le Merle Noir* unites his entire composition into a technical *and* a narrative totality. While performers are instinctively aware of the importance of unity *within* the closing section of the work, analytical findings that compare the ‘A’ and ‘B’ sections of the piece provide new ‘information’ to be considered in performance preparation. Performers may of course choose not to explore this information in detail, but in introducing it, the closing section of the work is exposed to increased cyclic absolute deterritorialization that can be manipulated into increased potential and opportunity for performance. As discovered above, participant 2 highlighted that the piano and flute should be connected in the same way that birds are linked to the landscape (territory) that they inhabit. By keeping this in mind during performance, one can maintain Messiaen’s technical notation (GIM) while at the same time employing the narrative intention to translate this technique into the generative, communicative totality (PAM) that is the aim of the current investigation.

Harmony

Modes of Limited Transposition

Much like the more commonplace Dorian or Mixolydian modes, the Modes of Limited Transposition come under the umbrella of ‘tonality’. It is a common misconception that Messiaen himself *invented* all seven of the Modes of Limited Transposition, with a number of them existing before he began writing. The study will nevertheless investigate the methods through which Messiaen gave them a place within his own musical language. In his book *The Technique of my Musical Language* (1944), Messiaen describes the modes as “several symmetrical groups, the last note of each group always being in common with the first of the following group” (Messiaen, 1944, p. 87). The symmetry depicted here means that these modes are only possible when considered as part of the equal-tempered scale, with this symmetry being responsible for the limited number of transpositions that can be made to the mode before the pitches begin to repeat. Messiaen’s birdsong works do not typically employ

the traditional *Western* tonal system, as with his use of serialism. While some of the reasons for Messiaen's avoidance of the Western tonal system will be explored, the modes of limited transposition do provide a sense of 'tonality' or 'modality' to his compositions, presenting an anchored pitch structure to which the listener can be drawn. I will thus explore the modes as a deterritorialization of tonality, providing the recognisability of an anchored pitch structure while increasing deterritorializing potential through the formation of harmonic fluidity (symmetry) that would not be found within the Western tonal system.

Once again, *Le Merle Noir* (1952) uses the modes of limited transposition, particularly within the *Presque Lent* section explored earlier. As the first section of the work to be heard upon the conclusion of the cadenza, the *Presque Lent* develops the role of the piano in the depiction of scenery (landscape) within the compositional narrative. Despite the use of bar lines, the lack of strict metre means that imitative communication between flute and piano is even more integral to the structural progression of the work. The current investigation will focus on this imitative call and response, discovering how the formation of a 'conversation' could mirror the function of a linguistic component through the use of the modes of limited transposition as a harmonic parameter.

The entirety of the *Presque Lent* section is based around the seventh mode of limited transposition: a ten-pitch mode with six possible transpositions centred around the tritone (Street, 1976). Fig. 1.13 shows that the transposition point on the tritone creates a mode that is divided into two symmetrical groups, each of which consists of the structure: semitone, semitone, semitone, tone, semitone. The proximity to the Western chromatic scale may throw into question the validity of this mode in creating any sense of tonal function, as will be explored. The tritone however, holds additional importance when considering the two pitches of the chromatic scale that are not included in this mode—in the case of fig. 1.13 E and B \flat —which are also a tritone apart. Messiaen's affinity for the tritone as a compositional device is well understood, with the composer explaining that this interval is the most distant partial that he experiences within the harmonic series (Messiaen, 1949-1992). While the interval structure of the mode may demonstrate *why* Messiaen chose to employ this particular mode, the way in which it is employed also impacts the ability to deterritorialize the work's narrative content through performance.

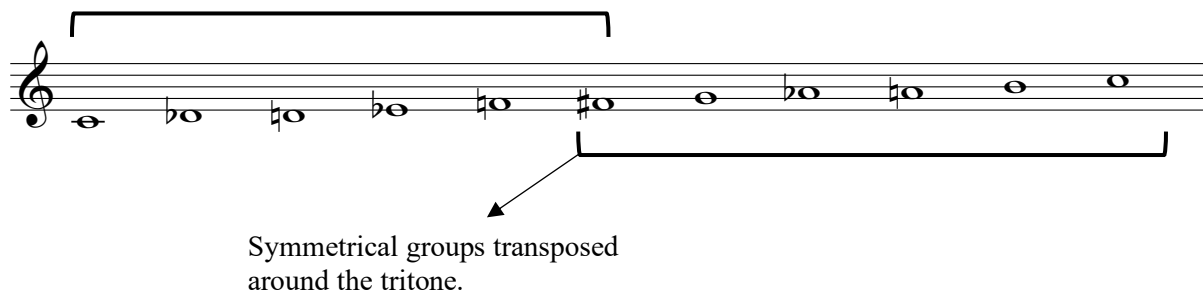
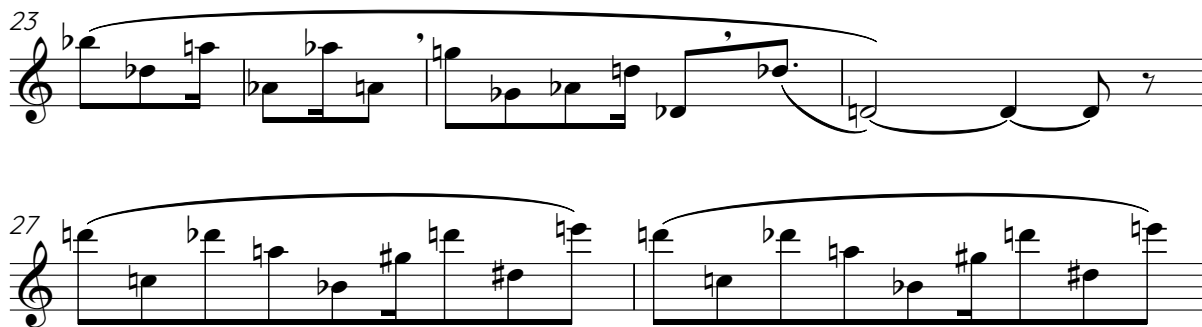


Figure.1.13. *The seventh mode of limited transposition in its first form, with a demonstration of the point of transposition around the tritone.*

Messiaen has chosen to employ the second ('root' of D \flat) and sixth ('root' of F) transpositions of this mode of limited transposition within the Presque Lent, employed interchangeably throughout the section. Fig.1.14 demonstrates the melodic phrases around which each transposition is employed, displaying not only the supposed 'root' of each phrase but also the dual tritone relations that can be found between the symmetrical groupings and the missing pitch classes.



2nd transposition - D_b, D, E_b, E, G_b, G, A_b, A, B_b, C, D_b

This mode is used exactly, being inclusive of all ten pitches of the mode and exclusive of the F-B tritone, which happens to be the focal/‘root’ tritone of the 6th transposition below.



6th transposition – F, G_b, G, A_b, B_b, B, C, D_b, D, E, F

D = only pitch within the mode not included within Messiaen’s phrases. The mode is also exclusive of the A-E_b tritone.

Figure.1.14. Appearances of the 7th mode of limited transposition in the Presque Lent section of the work.

Given the ten-note structure of the 7th mode, one may question how a mode such as this impacts performance and, indeed, the transformation of the technical GIM to the communicative PAM. As stated above, the modes of limited transposition form a branch of the tonal umbrella, in the sense that they have a defined structure and contour. During investigations with performers however, we explored whether, with our Western musical enculturation, we would be inclined to consider a ten-note mode as an element of tonality or even to possess a tonal function. The general opinion amongst performers is that in this instance the seventh mode of limited transposition is too much of a stretch to map onto

tonality, with its resemblance to the chromatic scale diluting tonal potential. The question then arises as to how we may exploit the mode to promote cyclic absolute deterritorialization, whether relating to tonality or harmony. As highlighted by participant 4, the later modes of limited transposition tend to have a reduced sense of character, with the sheer quantity of pitches making it difficult to hear a maintained character even within themselves. Both participants 2 and 4 therefore highlight the tonal fluidity of the phrase, with the root of each transposition being undefined due to the symmetrical nature of the mode. After explaining the uses of the GIM and the PAM to participants, discussion turned to the strength of the seventh mode as a component of the GIM, with the ‘roots’ proposed lacking the foundational element that is integral to the syntactical function of the GIM. While Messiaen may not have been aware of the GIM or even the Deleuzian interior milieu, the present discussion drew back to Barthes’ *Death of the Author* (1969). Where Messiaen may or may not have intended for his use of mode 7 to have a specified root, the interpretations of performers suggest that a reading of the phrase without a specific root is the most efficient in performance. The ownership of the author is therefore reduced here, with a lack of clarity in the notation itself providing the reader (performer) with the freedom to create their own interpretations of the phrase.

Once again, however, participant 4 did connect Messiaen’s use of the mode here with the phrasing that they may choose to employ in performance. As explored above, the *Presque Lent* displays a much more lyrical side to the instrument, with a musical consideration of tone and timbre suggesting a much warmer depth to the sound. As with any performance repertoire, a lyrical passage draws the performer towards phrasing, with the drive of the phrase stemming from the feeling of cadential closure. Clearly, when proposing a lack of tonal system within the seventh mode of limited transposition, one may suggest that there are no ‘true’ cadences within this section. Participant 4 conversely proposes a cadential ‘feel’ throughout the flute line, with a particularly prudent example demonstrated in fig.1.15 below. Here, the descending flute line seems to drive towards a diminished chord on F# spread between flute and piano. While clearly not a conventional cadence point, the diminished is a chord that is not uncommon to a cadential *context*, therefore impacting on phrasing if emphasised during performance. Participant 4, who is well accustomed to the jazz world as well as the classical field, highlights that “Messiaen has established a level of dissonance as being the norm in this lyrical passage, so when you arrive at the F# where all of the relations are minor 3rds, it does seem like a moment of consonance”. As is well acknowledged in

music theory, “any of the four tones of the [diminished seventh] could be placed in the bass and declared the root” (Hellmer & Lawn, 1993). While Messiaen’s phrase is concerned with the diminished triad more so than the diminished seventh, the symmetry of its interval structure nevertheless implies tonal fluidity and flexibility as a cadential component. Consequently, while neither the diminished chord nor the mode of limited transposition are conducive of a tonal system within the *Presque Lent* section, the symmetry and fluidity of such techniques increase their potential for interpretation, with more possible interpretations being created through the use of a symmetrical structure than would be possible within the limitations of the Western tonal system. Just as the symmetry of the mode allows for unending cycles around the mode, the interpretative potential of the structure enables cyclic absolute deterritorialization for both performers and listeners.

19

mf

p

F[#]°⁷ minus C, or E_b° triad.

Figure.1.15. A demonstration of a proposed cadential point within the *Presque Lent* section, landing on a diminished chord.

Throughout this chapter, a variety of performance approaches have been discussed in relation to *Le Merle Noir* (1952): emphasising the ‘cadential force’ to provide clarity against an overall lack of tonal precision; using the added value in an iambic or a trochee manner to manipulate the ‘freedom’ of a cadenza section; exploiting the serial line of symmetry (accenting the pitch A) to unite the flute and piano parts, and many more possibilities. All of

these approaches are applicable to future performances and have been explored in a way that allows performers to use them as they see fit. The chapter has not, however, discussed why performers *should* use a particular approach. Deterritorialization is emphasised throughout as a process, not as an end product, and so the performance approaches explored here must continue to be possibilities rather than concrete performance directions. In order to deterritorialize continuously, I as a researcher can only go so far. Absolute deterritorialization is concerned with a continual detachment of an object from its origins. In order to reduce the propriety of the author, the reader in this case must be the performer (the transmitter of a communicated message). All of the possibilities explored here therefore enhance the performer's experience, to provide them with new inspiration from which they can make their own decisions regarding specific performance techniques.

Summary

Recalling Deleuze's proposal that music is a "deterritorialization of the voice" (Oliva, 2019), this chapter has investigated the extent to which deterritorialization may alter a performer's approach to the compositional components that Messiaen has previously defined as his 'musical language'. By drawing on the theories of Julia Kristeva, parallels are formed between the transformative processes of the linguistic genotext and phenotext, and the fundamental aim for cyclic absolute deterritorialization. This chapter has laid out *how* this parallel can be drawn upon during performance, how an understanding of the technical aspects of Messiaen's musical language can increase 'information' and thus increase deterritorializing potential to unlock new possibilities for performance and interpretation. Experience with performers has proven that this is entirely feasible. While performers have expressed a wide variety of opinions regarding the performance of Messiaen's birdsong works, the general conclusion is that the explicit nature of Messiaen's notational markings—whether that be the title of the piece or performance directions—draws performers towards birdsong without any further analysis or research. Performers instinctively followed elements of cyclic absolute deterritorialization by implicitly acknowledging the birdsong's importance within the work. The conversations between us therefore opened the possibility for an extended line of flight. Following experimentation and discussion, we have unlocked possibilities for performance that converge between technique and narrative, aligning with Messiaen's hypothesis that language is "neither a treatise of composition nor of timbre and

sentiment” (Messiaen, 1944, p. 7). In combining Messiaen’s hypothesis with the transformative act of Kristeva and the continuous nature of Deleuzian deterritorialization, one unlocks not only *more* performance opportunities, but uncovers specific possibilities that highlight the communicative act of performance, emphasising the potential for interpretation that promotes bird character.

The remainder of this thesis will continue to explore the ways in which technique and narrative can be combined during performance, and thus consider the extent to which cyclic absolute deterritorialization is possible for performers and listeners. While the linguistic elements of Messiaen’s notational style will underpin the vast majority of investigations, the study moves to consider smaller micro elements of the interior milieu, through which a more specific Deleuzian approach will be employed.

Chapter 2: The Blackbird, Melody and the Three-note Motif

The previous chapter proposed that language is a system of communicating both notated technique and stylistic narrative. Melody is one of the fundamental components of a compositional language and of many other linguistic settings, such as natural birdsong. One's interpretation of melody, whether composed or naturally-occurring,²³ strives for recognisability, for the ability to reassemble motifs and themes, and to be transported out of 'the real'—a concept to be explored in due course—and into the narrative sound world. The current study has previously touched on Ronald Bogue's concept of 'experimentation on the real' (Bogue, 2003), constituting the reconstruction of a 'real' object as experienced in nature, into a new product that heightens interpretative possibilities. The current chapter will conduct an 'experimentation on the real' in relation to one part of Messiaen's birdsong writing, which prevails throughout a number of his works. The motif that will be explored is associated throughout Messiaen's oeuvre with the blackbird; the bird whose "confident, full-throated melody [...] is, for many, the soundtrack to spring's arrival" (Floyd, 2010, p. 14). The frequency with which this motif occurs demonstrates that the blackbird resonated greatly with Messiaen, and its song beyond this single motif acts as the principal 'character' within many of his birdsong works. I will therefore explore the 'nature' of Messiaen's 'three-note motif', evaluating its fidelity (or otherwise) to natural blackbird song and consequently investigating the deterritorialization—or 'experimentations on the real'—that occurs as a result of the blackbird's translation into the compositional milieu.

The blackbird is renowned for the versatility of its song, with variations by location, season or time of day. Long before Messiaen began composing, ornithologists and musicians were studying the blackbird in order to convert their songs to thematic statements that could be understood musically. As discovered by Gladys Page Wood, "every blackbird has its own song; a definite song with an outline which can be learned and recognised" and similarly "individual birds vary greatly in their musical capacity, some having phrases which are arresting and beautiful and full of character, while others are relatively characterless" (Wood, 1927, p. 347). As expressed by Wood, the variations in the songs of the blackbird are vast, yet identifiable; contrasting, yet built around a recognisable outline. The individuality of the

²³ When referring to a 'naturally-occurring' melody here, it is not implied that *all* natural sounds are heard melodically. It is instead suggested that *some* of the more linguistic natural sounds possess a melody, such as animal calls or human conversations.

blackbird's song is therefore already a component of cyclic absolute deterritorialization, with the continuity of the process stemming from the constantly changing song of each individual bird. In relation to Messiaen's work, one may recognise a similar scenario in his creation of a 'character' or motive. While these motives undergo distinct variation determined by their context within the musical body, they are recognisable nonetheless in their relation to the blackbird, and thus emphasise the cyclicity of deterritorialization that the present study aims to achieve. Scholars such as Sherlaw-Johnson have also claimed that "there is no characteristic 'blackbird melody' in Messiaen's music [...] it is by the general shape, timbre, tempo and register of the melody that one identifies it as the song of the blackbird" (Sherlaw-Johnson, 1975, p. 132). As in the introduction to this thesis, Messiaen's birdsong has already undergone relative deterritorialization due to the compositional process, being reterritorialized into a 'composed' or notated territory. The present investigation is principally concerned with motivic consistency across a number of compositional platforms. One may argue that motivic consistency does not increase deterritorialization as, if anything, consistency to this extent would encourage the *reterritorialization* of the original birdsong into a single, finite territory. The following analyses will not imply full motivic consistency, however, instead exploring motivic *variation* that maintains a sense of familiarity, unlocking new possibilities for deterritorialization through the formation of a developing leitmotif-style function.

The leitmotif is a technique that has become increasingly problematic within music analysis, due to its varied uses across the cinematic and Western Classical traditions. The work of Bribitzer-Stull (2015), however, provides particular insight into the application of the leitmotif in the circumstances with which the current study is concerned. With the leitmotif becoming increasingly prevalent within the cinematic universe, past literature has come to append such a label to any musical idea that demonstrates association with ensuing drama or narrative. Comparable to an 'associative theme', the leitmotif has thus become synonymous with such concepts as *idéés fixes*, reminiscence motives and motto themes: static ideas which recur but do not develop along with the narrative. Bribitzer-Stull suggests that the leitmotif has fallen into this category due to its similarity in English-speaking communities with the term *motive*, referring to "an incomplete musical thought, a small piece of a larger musical whole" (2015, p. 7). While the leitmotif possesses an associative function, the traditional Wagnerian leitmotif, defined by thematic development, is much closer to the aim of the current deterritorializing investigation. The 'traditional' developing leitmotif *should* be

detrterritorializing, and therefore this investigation is concerned with manipulating a developing theme to create a multitude of equally familiar variations, without the necessity for a definable ‘original’.²⁴ The manipulation of motivic development in a defined direction *is* detrterritorialization, the familiarity of which will promote the cyclic aim of the current study, to achieve cyclic absolute detrterritorialization.

The Deleuzian concept of ‘becoming’ has previously been evaluated, which plays hand-in-hand with detrterritorialization in a musical setting. While Ronald Bogue’s (2003) notion of ‘becoming-bird’ suggests that the combination of birdsong and musical elements is integral to the communication of Messiaen’s narrative tendencies, Emilie Hurst (2015, p. 3) develops this by highlighting Deleuze’s “theorisation of repetition which lays [the leitmotif] open to the emergence of difference within the process of eternal return”. It is here that the leitmotivic function can be set apart from the detrterritorializing ‘associative themes’ mentioned above (fig.2.1).

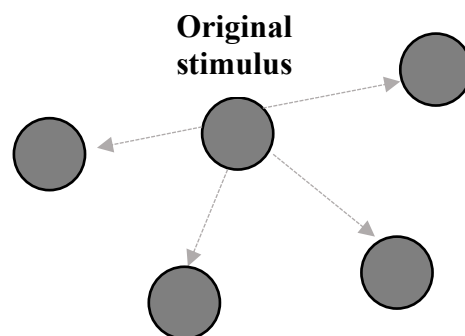


Figure.2.1.a. Author’s own visualisation of ‘associative themes’, in which all new themes are related to the original ‘character’ or stimulus, but take varying forms that do not relate to each other, and therefore are static without the potential for further development. Each of these represent a single act of detrterritorialization-reterrterritorialization.

²⁴ The lack of a definable ‘original’ may be likened to folk song tradition, in which melodies are passed from person to person without a discernible original, although an origin of sorts may be abstracted from a comparison of commonalities amongst a variety of melodies.

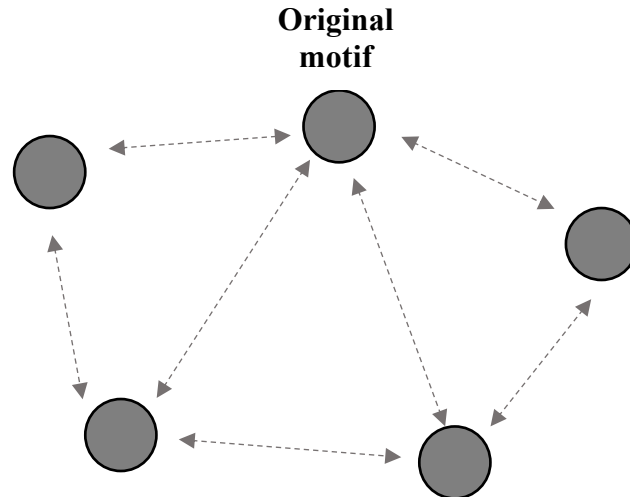


Figure.2.1.b. Author's own visualisation of the leitmotif, demonstrating Hurst's concept of repetition that enables difference within a sense of fundamental 'return'. All motifs are related to each other, thus enabling development with consistent relation to the motivic origin, proposed with the continuity of cyclic absolute deterritorialization.

Hurst's 'emergence of difference' refers to the developmental capacity of the leitmotif, demonstrating deterritorialization through the concept of 'becoming' as a continual process that constitutes development between a set of defined parameters.²⁵ The leitmotif is therefore the compositional feature that most strongly promotes cyclic absolute deterritorialization. The development of the leitmotif in relation to narrative or character progressions connects the notated structure to a contextual or communicative function for performance. In relation to this, Deleuze's 'theorisation of repetition' stems from his exploration of 'difference and repetition' (Deleuze, 1968), which will hold distinct resonance throughout this chapter. As in previous explorations, this philosophy is linked to the ultimate aim for cyclic absolute deterritorialization, highlighting the nuanced components of 'difference and repetition' that promote an increased level of detail for the present investigation.

Deleuze proposes 'difference and repetition' as two inter-related concepts, which are reliant upon each other, but at the same time serve mutually exclusive purposes in the development of a product. As surmised by James Williams (2012, p. 35), "Deleuze suggests a revolutionary transformation of all of time around the idea of a caesura or split in time at the

²⁵ The concept of 'becoming' will be explored in more detail in later chapters, but a quick definition can be found in the glossary to aid with the current chapter.

introduction of the new”. In saying this, Williams indicates that an event is analysed in relation to its ‘past’ and ‘future’, to comparable events that have occurred before and that will occur again. Deleuze therefore infers that, quite clearly, an event can only be different to something else and thus “difference is ‘mediated’ to the extent that it is subjected to the fourfold root of identity, opposition, analogy and resemblance” (Deleuze, 1968, p. 29). In relation to Messiaen, this analogy is prudent to the incorporation of a ‘blackbird leitmotif’, during which we aim to *identify* the presence of the blackbird, *analogue* its motivic relevance within the narrative context of a piece and draw *resemblance* between multiple motivic areas through the productive space of performance.

How then does this relate to cyclic absolute deterritorialization? ‘Difference’ implies a system of ‘virtual potential’: the potential for change that “allows us to draw distinctions within [a pure abstract identity]” (Somers-Hall, 2013, p. 22). On the one hand, the current study may aim to reduce the potential for ‘difference’ *between* Messiaen’s iterations of the blackbird motif, thus drawing on motivic consistency and the ‘exactitude’ of Messiaen’s work. When concerned with performance, however, the potential for difference mirrors the potential for interpretation, the maximal level of which will unlock infinite interpretative territories. While each version of Messiaen’s leitmotif will naturally be ‘different’, increased interpretative potential stems from the second element of Deleuze’s theory: ‘repetition’. Deleuze’s reading of the term repetition aligns more closely to what linguistics would ordinarily consider ‘iteration’, in that “there can never be a repetition of the same thing [...] there is always a novel series of differences each time a ‘same’ thing is repeated. Sameness is then an illusion because difference is the condition for repetition” (Williams, 2012, p. 38). It is from this that the development of the leitmotif takes its place in the process of cyclic absolute deterritorialization. Fig.2.2 demonstrates an edition of the modelling of cyclic absolute deterritorialization. Here, a ‘living thing’ can never be purely ‘different’ or purely ‘repeated’; the process of comparison promotes an ever-present combination of both states within every product. Exploited positively, this combined state overcomes the simultaneity of minimised motivic difference and maximised interpretative difference. Fig.2.2 highlights that the aim is for the minimisation of *pure* difference, of the type of difference that triggers entropy away from the original birdsong sound source. The optimum state therefore stems

not from difference ‘in itself’, but from a state of ‘differential repetition’.²⁶ This term suggests maintained internal similarity within a developing leitmotif to promote the cyclic nature of deterritorialization, while difference among individual interpretations broadens the continuity of the process.

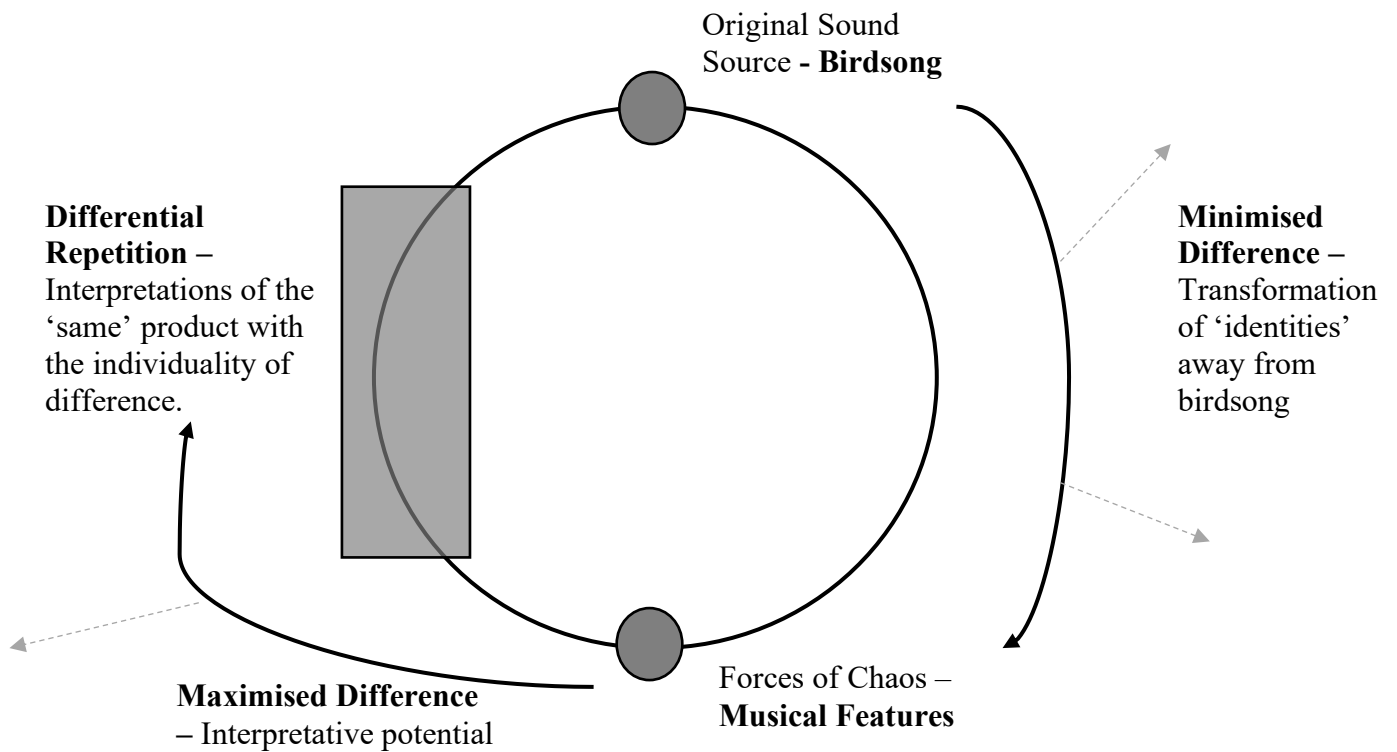


Figure.2.2. A demonstration of the parallels between ‘difference and repetition’ and the process of achieving cyclic absolute deterritorialization.

Deleuze employs specific terminology in relation to ‘difference and repetition’, which I will again adopt here (fig.2.3). Deleuze proposes the broadest object as a ‘**genus**’ – the space inhabited by the greatest number of possibilities and in this case representative of bird character as a complete entity. As this bird character adapts to the specificity of a blackbird’s song (the leitmotif), it transforms from the breadth of the genus to the concept of a ‘**species**’ – a more specific component of the genus that maintains variation (difference) but in an inter-related capacity (repetition). Deleuze then suggests an additional reduction of difference as a species becomes an ‘**individual**’. While one could interpret this concept as the static nature of an individual motivic iteration, this investigation relates the ‘individual’ to its

²⁶ ‘Differential repetition’ is not a Deleuzian term but is deemed a relevant adjustment of Deleuze’s proposal here to relate more closely to the present investigation.

detritorializing aim, in which the process of a species *becoming* an individual increases the potential for difference when considered through the frame of performance. With each performance or perceptive interpretation of the blackbird's (species) song, the listener forms their own 'individual' interpretation from the aural experience of the 'species'. In relation to cyclic absolute detritorialization, the compositional process transforms the genus of Messiaen's initial bird character into a more specific blackbird species, therefore reterritorializing the original bird into the territory of the blackbird. The current investigation therefore expands the potential for difference upon transformation to the 'individual'. The 'individual' does not have to constitute a single blackbird song, but rather represents each of the individual interpretations that are made of the overall blackbird character. Territories built of these 'individual' interpretations will at the same time build upon the continuity of detritorialization through a maintained connection with the leitmotivic 'species' and indeed the original sound source of the 'genus'.

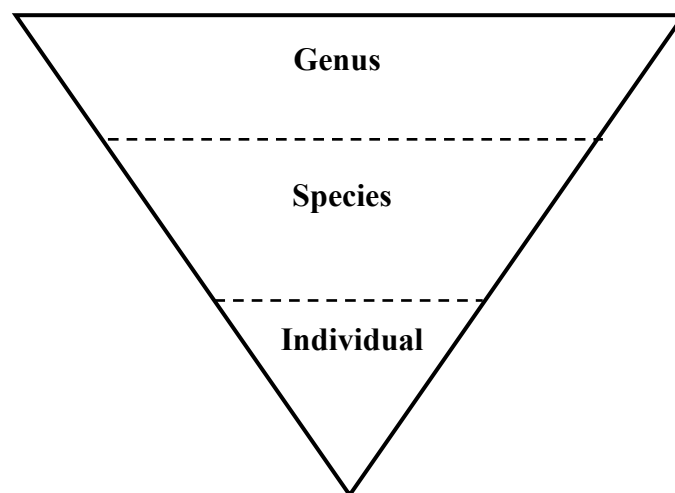


Figure.2.3.a. Author's own interpretation of the progression, in Deleuzian theory, from 'genus', to 'species' and eventually to the specificity of an 'individual'. Deleuze proposes a reduction in difference as one progresses between each stage, as highlighted by the narrowing of this visualisation.

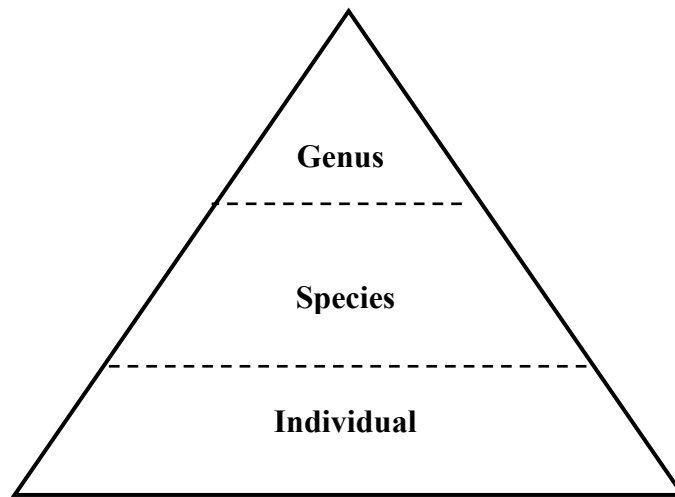


Figure.2.3.b. Author's own conceptualisation of an alternative approach to Deleuze's progression from genus, to species, individual. The 'genus' is proposed as one broad category, inhabiting a single territory, albeit with a large number of characteristics to it. The breadth of 'species' and 'individuals' stems from the infinite number of more specific individual territories that can result from the interpretation of a species.

Fig.2.3.b demonstrates that Deleuze's theory of 'difference' acts as an important supplement to the process of cyclic absolute deterritorialization, with the occurrence of change being conducive to the production of new territories. Concerned with leitmotivic development in particular, deterritorialization once again lacks the nuance of explaining the *process*, unravelling *how* the transformations from music to leitmotif, and from genus to individual may be made. This process is satisfied by 'repetition', in which "repetition [is] a variation along a series of shades of colour. For Deleuze there is repetition when there is difference in the shades resisting definition according to a fixed identity" (2012, p. 38). When considering the leitmotif, or indeed any form of motivic development, this study is not concerned with a precise form of 'sameness', but instead explore recognisable maintained elements that are combined with development through difference, much like Deleuzian repetition. The process of 'development through difference' or 'becoming different' is referred to by Deleuze as 'differential'; a term employed as an adjectival variant of the term 'difference'. The current study will adopt the term in this context to explore various levels of difference in Messiaen's work. The investigation of cyclic absolute deterritorialization therefore accentuates the differential potential of Messiaen's blackbird motif, unlocking new territories while striving for the cyclic element of the process through the medium of motivic 'repetition'.

Returning briefly to Bribitzer-Stull, he states that “themes rely in part upon time-honoured cultural tropes” (2015). One may therefore question whether, in a musical context, the blackbird possesses a natural song that can be maintained to form thematic consistency, or whether it is Messiaen’s notated features that render the motif truly leitmotivic. This will, of course, be explored greatly throughout the remainder of this chapter. At this stage, however, it is recognised that the blackbird motif maintains just enough recognisable features to form thematic order and consistency across Messiaen’s oeuvre, but motifs are also capable of developing a life of their own, forming multiple connections with a variety of motivic characters across different musical settings. Consequently, the leitmotivic function—melodic development in alignment with a narrative character—may increase deterritorialization cyclically, unlocking new territories by allowing the birds to communicate through Messiaen’s musical setting. The current investigation will be approached in relation to what might be called *accumulative association*, through which “with each restatement of a theme there exists the possibility that added perspective will colour the emotional associations we have with it” (Bribitzer-Stull, 2015, p. 4). The current study adapts a fundamental ‘species’ to suit different individual interpretative placements (‘difference’) while maintaining enough features for thematic recognition (‘repetition’). Through this, I will explore Messiaen’s employments of alter-natural (transfiguration to a ‘human’ state), hyper-natural (exaggeration for narrative recognition), and sub-natural (reduction of natural sounds) settings²⁷ and their impact on the ability of the blackbird motif to unlock associative and interpretative territories.

Le Merle Noir: Becoming Blackbird

Scholars have previously questioned whether the blackbird can be heard within Messiaen’s 1944 work, *Quatour pour la fin du temps*, combining with the nightingale in the composer’s first primary employment of birdsong (Morris, 1989). These birds, however, are “unspecified [and] the transcriptions insufficiently accurate for identification purposes” (Morris, 1989, p. 142). Messiaen’s first explicit use of the blackbird therefore comes with his 1952 work, *Le Merle Noir*, the first of its kind to be inspired by the song of a single bird species. As explored extensively in chapter 1, *Le Merle Noir* was originally commissioned as

²⁷ These terms stem from Sander van Maas’ (2013) theorisation of a ‘denatured nature’, in which a natural information source is manipulated for the purpose of human consumption. These terms will be unpacked throughout the remainder of the chapter, but please refer back to the introductory chapter or the glossary for initial context on these terms.

examination repertoire for the Paris Conservatoire's 'Concours de Flute'. One may, however, believe that Messiaen had already been inspired for a work of this type prior to his commission, with his 1951 transcription notebook (Messiaen, 1951)²⁸ highlighting the start of a fruitful collaboration with ornithologist Jacques Délain.²⁹ The notebook incorporates detailed musings from Messiaen, which appear to make comparisons of the blackbird's song at different points in the day. Not only does this provide motivic variety for the final composition, but it also highlights the *natural* variety that occurs within the birdsong in different habitual or temporal settings. With numerous comparisons between morning and evening—namely 6am to 6pm—Messiaen efficiently emphasises the blackbird's unique personality, as discovered earlier within the work of Gladys Page Wood (1927). Of particular interest however, is a transcription labelled '5am', which is an almost exact replication of the cadenza sections within the final published work. This will be explored further throughout the current investigation, and it is therefore important to keep the relative 'fidelity' of this transcription in mind.

As depicted by Tiana Gris , *Le Merle Noir* is "a work that seems to have all of the wild and chaotic aspects of nature, but in reality has been painstakingly crafted using sophisticated compositional techniques" (Gris , 2012, p. viii). These techniques and their relative impact on Messiaen's use of birdsong will be explored throughout the current study as a gauge of the possible flexibility for deterritorialization during performance. Just as 'difference and repetition' has been evaluated in relation to *motivic* variation, the same applies to variation between natural and notated birdsong. More so than variation, however, the differential potential³⁰ between birdsong and notation relates more closely to entropy, considering variation in relation to lost or changed information. As explained in the introduction to this thesis, entropy as a facet of information theory (Shannon, 1949) constitutes "a lack of order or predictability, [a] gradual decline into disorder" (Cohen, 1962). The relation between entropy and 'difference', however, comes with simultaneous *loss* and *gain* during the compositional process, with notation inviting a *change* of the original birdsong that loses its initial 'territory' but at the same time gains new interpretative functions within a musical

²⁸ Œuvres musicales d'Olivier Messiaen. Travaux Pr paratoires. Carnets de notation de chants d'oiseaux. 1951-1955. Oiseaux, notes de travail, 1951. Fonds Olivier Messiaen et Yvonne Loriod. Ark:/12148/btv1b550131046. Biblioth que Nationale de France, D partement de Musique.

²⁹ Due to copyright protection, I cannot provide pictorial evidence of Messiaen's notebook, but I am permitted to describe my findings in writing.

³⁰ A reminder that 'differential' refers to Deleuze's adjectival use of the term 'difference', to describe a potential for becoming different.

context. The current study is concerned with unlocking new possibilities rather than locating a single ‘correct’ path. I therefore acknowledge both entropy and ‘difference’, not as disorder triggered by loss or gain necessarily, but as a malleability of information that provides increased interpretative possibilities for performers and listeners. Where entropy as a facet of information theory constitutes increased randomness and ‘disorder’, the incorporation of ‘difference’ provides a number of possible defined directions in which the change of information can take place. This investigation thus explores the methods of manipulating ‘differential entropy’³¹ in order to emphasise the sense of a closed loop within the process of cyclic absolute deterritorialization. At this stage, one music-analytical technique is particularly relevant to the study of motivic consistency: pitch class set theory.

The formation of pitch-based focal points is a technique that has been employed by Messiaen throughout his compositions, with the organisation of pitch being emphasised as vitally important within his own publication, *Technique de mon Langage Musical* (1944). Through the current analytical study, pitch class set theory (PCST) highlights the specific patterns of pitch that Messiaen has chosen, relating them to recognised tropes of pitch organisation and function. One may expect that Messiaen’s use of cadenza sections within this particular composition would be particularly virtuosic. The organisation of pitch therefore becomes integral in counterbalancing the use of rhythm which, by the very nature of the cadenza, is largely left to the perception of the individual performer. In relation to birdsong, the use of a cadenza should infer that “birds tend to have no inclination toward metronomic precision and instead sing individually to answer each other.” (Grisé, 2012, p. 3). PCST can therefore be employed in this case to counterbalance the rhythmic virtuosity of the section and instead highlight motivic consistency and the most recognisable pre-existing elements of the blackbird’s song.




Figure.2.4. *The first example of the three-note motif along with its rise-fall contour.*

³¹ ‘Differential entropy’ is defined here as information *change* as opposed to loss, with ‘disorder’ being triggered in a defined direction due to the controlled manipulation of the original information source.

The concept that is of particular relevance to the current study is the three-note motif (fig.2.4), first heard upon the opening flute line of *Le Merle Noir*. The development of this motif over the course of this work and a large amount of Messiaen's later compositional output will be explored throughout this chapter, and infers strong relations not only to the virtual potential of 'difference and repetition', but also to the broader process of cyclic absolute deterritorialization. One may argue that the diverse variation within each iteration of the motif reduces the ability for motivic recognition, limiting deterritorialization and the potential for difference by creating a technical rather than a character-based motif. I will, however, argue that the dedication of a full musical work to the blackbird signposts the character throughout this and later compositions.

3



<p>A E♭ D - Pitches</p> <p>0 1 6 is the Prime Form</p>
--

Figure.2.5. The process of deciphering the PC set of the motif, which can be identified as set 3-5 due to the Prime form of the motif's contour being 0,1,6.

The maintenance of a single species throughout *Le Merle Noir* allows for expanded interpretation of the 'individual', however the potential for 'difference' at an individual level across the *entirety* of Messiaen's oeuvre is largely dependent on the experience of each performer or listener. The performer and listener's experience of the three-note motif within *Le Merle Noir* can be inspired by its initial pitch class set, here recognised as Allen Forte's (1973) pitch class (PC) set 3-5 (fig.2.5). The relevance of this PC set to a study of birdsong may not be immediately clear, but as both cadenza sections within this work are observed, it is apparent that set 3-5 is prevalent throughout, therefore acting as an audible (for listeners) and visual (on the score) anchor of the birdsong 'character' that has been created. As indicated in fig.2.6 below, set 3-5 takes many forms throughout *Le Merle Noir*, with its contour being inverted and extended as the work progresses. While Messiaen employs the

interval structure of set 3-5 with varied combinations of pitches, a number of iterations of the set are explored here that share the same pitches: A, E \flat and D. Differential potential³² is explored in relation to intervallic and contour-based variation, with pitch class constituting the main element of ‘repetition’ in this instance. Considering Wood’s (1927) inference that “every blackbird has its own song” (p. 346), one might predict that consistency in pitch does not occur within natural birdsong. Differential entropy is therefore observed in the three-note motif, in terms of manipulation or change of the natural birdsong for the benefit of human consumption. The three-note motif forms a performable leitmotivic function that promotes character and narrative development over transcribed accuracy. Of course, I must emphasise that these theories are based on assumption; my evidence is limited and as all experiences are interrupted by human interpretations of birdsong, I cannot definitively state the level of loss that has occurred during the process of differential change.

3 Original statement of contour

48 Contour Inversion and extension

6 Contour Inversion – emphasis on descent

8 Contour Inversion – emphasis on descent

53 Extension of descending contour inversion

Figure.2.6. Iterations of set 3-5 through the medium of the opening three pitches (A, E \flat , D) which have undergone inversions and extensions of contour

³² As earlier, ‘differential’ is employed here as an adjectival version of Deleuzian ‘difference’.

Within Messiaen's 1951 transcription notebook, the labelling of both cadenza sections as '5am', as explored above, promotes the hypothesis that the notation truly is based on the realistic song of the blackbird as heard in the field. One must acknowledge, however, that "birdsong employs pitched and unpitched sounds" (Grisé, 2012, p. 2), therefore drawing into question Messiaen's insistent focus on specific pitches throughout this work. In creating a recurrence of three individual pitches, Messiaen has seemingly transfigured the birdsong into an *alter-natural* state (manipulated or transfigured for ease of human understanding) in which—when considering the 'realistic' as opposed to the 'real'³³—the birdsong has been refracted to maintain its temporal origins, with pitch undergoing differential entropy, reducing its natural birdsong quality in favour of motivic recognition for the human listener. While first-hand opinions of performers will be explored later, a discussion is briefly acknowledged that took place on 05/11/2020 with participant 4, who was able to intertwine ornithological knowledge into their arguments surrounding performance. When considered as an individual melodic fragment, participant 4 suggested that the three-note motif is a valid attempt to transcribe the blackbird and—given the rests and spaces that are frequently experienced within a cadenza setting—it is a legitimate use of melodic realism in its natural state.

Following this instinct, the philosophical applications of difference and repetition and the *alter-natural* state were discussed with participant 4. The *alter-natural* state stems, in the opinion of participant 4, from the persistent repetition of the motif, through which Messiaen's insistence on pitch accelerates the progression of the motif from truly 'real' imitation to 'realistic', representative character. As a differential act from the original birdsong, the alter-natural compositional state acts as a 'force of chaos' within the ultimate aim for cyclic absolute deterritorialization.³⁴ This is of course a dictation of *compositional* flexibility. The exploitation of entropic disorder thus stems from the differential potential of the motif during performance, with consistent pitches eliciting 'repetition' from the process of motivic development. The transfiguration of a small motivic fragment such as the three-note motif therefore allows the sense of alter-nature to combat the forces of chaos by appealing to the ears of the listener. In doing so, the alter-nature extends the line of flight through the creation of a surplus that transports the listener to a new territory, one not of the original nature but of

³³ We consider here the 'realistic' as opposed to the 'real', constituting a close interpretation rather than a direct imitation of the blackbird's song.

³⁴ Please refer to the introduction and glossary of this thesis for a reminder of the function of the forces of chaos.

recognition of the blackbird character as a focal point both musically and narratively. Differential entropy can therefore *increase* cyclic absolute deterritorialization. The loss of natural features occurs deliberately here in order to maximise the ability for performers to communicate consistency in the musical narrative based on the composer’s initial sound source (the blackbird).



Figure.2.7. An iteration of the 4-9 PC set including the pitches A, D, E \flat and G \sharp

Fig.2.8 below denotes the pitch-class focal points throughout Messiaen’s cadenza sections, with the pitches of the three-note motif clearly the forerunners. In addition to these three recognised pitches, however, there is a fourth pitch-class employed with ample frequency to warrant analysis: G \sharp . This pitch is utilised by Messiaen through the expansion of the 3-5 PC set explored above, into one of its supersets, 4-9 (fig.2.7). In the same way that multiple iterations of the 3-5 set maintain identical pitches, Messiaen’s 4-9 iterations contain this specific subset, with the addition of a G \sharp extension. As is clear in fig.2.8, the pitches in question sit in pairs within the octave, with each pair related by a semitone (D-E \flat , G \sharp -A). Additionally, one can infer two pairs of tritone relations from this selection of pitches: D-G \sharp and E \flat -A as well as two pairs of perfect fifths (D-A, G \sharp -E \flat /D \sharp). The addition of G \sharp therefore adds symmetry to the motive, allowing the interpretation of pairs of pitches as well as the full set of four.

Throughout Messiaen’s 1951 notebook he frequently incorporates tritones, highlighting that perhaps this interval—or at least one microtonally related to this—is a ‘real’ interval inferred from the original birdsong. One cannot deny, however, the presence of the modes of limited transposition³⁵ within the ensuing ‘Presque Lent’ section of the work, which were explored in greater detail in chapter 1 of this thesis (see fig.2.9 below for context). As Messiaen travels away from the cadenza section into a call and response style phrase between the flute and

³⁵ The modes of limited transposition are described as scales that can only be transposed in pitch a finite number of times before recommencing from their initial starting point. Donald Street emphasises that “such modes are possible because of the symmetrical structure of the equal-tempered chromatic scale” (1976). The modes are not all Messiaen’s inventions but they are most renowned for his employment of them in his compositions.

piano, the composer employs the seventh mode of limited transposition throughout the section. With both the semitone and the tritone being key structural elements of the seventh mode, the accentuation of pitch as highlighted in the cadenzas could instead be employed with a tonal (modal) function – a foreshadowing of the ensuing narrative and a possible differential step away from the original birdsong in favour of compositional and structural technique. As a result of this, current explorations surrounding performance consider the listener’s ability to denote the narrative of the realistic blackbird song, along with the broader narrative that is outlined by the implied modal scheme.

Pitch	Number of times used
C	7
C#/Db	4
D	17
D#/Eb	13
E	3
F	7
F#/Gb	4
G	6
G#/Ab	13
A	15
A#/Bb	0
B	5

Figure.2.8. Pitch Frequencies during the bird cadenza sections of *Le Merle Noir* [Interpreted from Tiana Grisé’s graph, (2012)].³⁶

³⁶ When including all twelve pitches with the values of fig.2.8, the entropy value of the cadenza sections is **0.2249**. Without the four most common pitches, however, the entropy value is **0.3954**. Messiaen’s pitch focus therefore reduces the ‘uncertainty’ of the phrase, with lower entropy drawing the differential potential of the phrase to the processes of performance and interpretation.

The image displays three musical staves. The first staff, labeled '12', shows a melodic line with a long slur over the first six measures, followed by a shorter slur over the last two measures. The second staff, labeled '19', shows a similar melodic line with a long slur over the first six measures. The third staff, labeled 'Mode 7 Transposition 6', shows a sequence of notes: G4, A4, Bb4, C5, Bb4, A4, G4, F#4, E4, D4.

Figure.2.9. Examples of the call and response style phrases associated with the ‘Presque Lent’ section of the work, and the mode of limited transposition that is employed throughout the section.

Whether possessing a tonal function or serving as a motivic signpost, Messiaen’s persistent pitch focus reduces the amount of differential entropy *within* the compositional section, but draws into question the amount of ‘change’ that has occurred during the composition process in relation to this early representation of the blackbird. The reduction of the bird’s variety in ‘pitched and unpitched sounds’ initially suggests to analysts that Messiaen has made adjustments in terms of ease of performance, with ‘realism’ taking a back seat in favour of technical ease for both human instruments and human performers. One may alternatively argue, however, that the continual return of such a small number of pitches has a more distinct resonance than simple ease of technique; there is a specific purpose set out in favour of both technique and narrative. The persistent recurrence of pitches serves not only for ease of performance, but also for ease of consumption: a point of recognition for the listener to cling on to, not the bird as such, but the bird *character*, the ‘personnage’ that Messiaen has created in order to translate the natural being into a metaphorical product. The performer therefore becomes the transmitter between composer and listener; the method of transportation through which the message can be communicated. The study therefore reaches the crux of the current argument. The performer, in many cases but especially this one, is the component of the deterritorialization process in which differential potential—constituting a

change of information—can be manipulated most strongly. The differential potential of performance is thus the component through which listeners can deterritorialize cyclically, interpreting Messiaen’s bird character by drawing on the ‘realistic’³⁷ nature of his transcriptions.

As Peter Hill inferred from his experience of working with Messiaen directly, “in performance nothing does his music greater disservice than an approach which achieves accuracy at the expense of imagination” (Hill, 1994, p. 552). An interpretation of Hill’s statement might re-emphasise ‘accuracy’ as a minimisation of ‘difference’ in favour of a strongly ‘repetitive’ approach when considering the traditional definition of the term. When considered in this way, one can understand Hill’s and in turn Messiaen’s preference for ‘imagination’, with an ‘imaginative’ performance promoting increased ‘difference’ between the interpretations of individual listeners. This increased difference therefore invites increased potential for Deleuzian ‘repetition’ in terms of motivic recognition with incorporated variation. Hill’s statement reintroduces the opposition between realistic and real, with the possibility for performance practices to exploit musical accuracy in favour of simultaneous narrative imagination.

Messiaen has displayed a consistency of pitch-class in the three-note motif throughout *Le Merle Noir*. Performers, however, display an instinctive reaction to the motif that has the potential to unlock an ‘imaginative’ approach, while simultaneously promoting the present aim for cyclic absolute deterritorialization. Both participant 2 (24/10/2020) and participant 4 (05/11/2020) demonstrated a preference for the *contour* of the three-note motif over its specific pitch-class content. Their respective reasons for doing so, however, invite a number of considerations regarding the capability of the three-note motif within the process of narrative communication.

During discussion, participant 2 very quickly highlighted their preference for contour as a performance approach, stating that even without exploring the remainder of the score, emphasising contour enables the performer to draw out the motif even when its pitch or rhythmic content is altered. Using A, G#, C# (fig.2.6 - contour inversion) as an example—

³⁷ A reminder that we explore the ‘realistic’ as opposed to the ‘real’, constituting a close interpretation rather than a direct imitation of the blackbird’s song.

which has been augmented in interval structure from the original A, E_b, D—participant 2 suggests that upon reading the score, there is only a very vague resemblance between the original motif and its intervallic augmentation, with the augmented nature of the latter meaning that its correspondence with the three-note motif may not be immediately recognised by the listener. By emphasising the original rise-fall contour of the motif in performance, however, the performer presents significance to these vague, augmented or even rhythmically altered iterations of the motif and therefore highlights its relative importance within the broader scheme of the work. Participant 2 therefore suggests, as explored here, that Messiaen’s insistence on pitch class pertains towards ‘realistic’ character for the listener’s benefit, more so than for an attempt at a ‘real’ transcription, therefore allowing the listeners to “connect to the original inspiration” of the composition through ‘repetition’ in a developmental leitmotivic sense. When the process of differential entropy and its link to cyclic absolute deterritorialization were explained, participant 2 supported the opportunity to exploit differential entropy (change in a defined direction) in favour of cyclic absolute deterritorialization. While the study does not aim for a line of flight that completes a full 360° rotation of the cycle, the refraction³⁸ of a ‘realistic’ motif enables metaphorical representation rather than imitation of the real, with narrative communication as a fundamental goal. Participant 2 thus emphasises that as we attempt to unlock new performance possibilities that maximise cyclic absolute deterritorialization, it is the performer’s responsibility rather than the listener’s, to extend Messiaen’s initial line of flight. Messiaen has provided sufficient direction within the score to enable the communication of the birdsong ideal, and while it is plausible to take the composer’s expressive details as a possibility rather than a fixed set of rules, it is nevertheless the role of the performer to interpret the score in a way that promotes deterritorialization through the means provided to them by the composer.

Participant 4 shares the same view, drawing primarily on contour when performing the three-note motif. The reasoning of participant 4, however, has less to do with the entropy of pitch with relation to narrative and more to do with the mechanics of the instrument involved. Drawing on the capability of the flute in this instance, participant 4 argues that Messiaen’s recurring pitches (A, E_b, D) are “not kinaesthetically pleasing on the flute”, both for the

³⁸ As in the introduction to this thesis, refraction refers to breaking down a musical idea to draw focus to its most recognisable form, in this case the contour of the three-note motif.

fingers and the embouchure. Fig.2.10 demonstrates that the progression between A and E \flat on the flute involves an extensive shift of finger position which, when combined with the demisemiquaver rhythm of the motif, weakens the timbral strength of the instrument. Additionally, the register of E \flat and D in this iteration of the motif sits at the ‘break’ of the instrument: the timbral transition point between low and middle registers. With later iterations of A, G \sharp , C \sharp as stated above sitting at a much ‘stronger’ point of the instrument, participant 4 argues that the timbral ‘weakness’ of the initial pitches increasingly necessitates emphasis on contour during performance. In doing so, the performer negates the timbral variation that could trigger differential entropy. In turn, the performer maintains ‘repetition’ between iterations of the motif and thereby improves our ability to revisit productively the original birdsong inspiration.

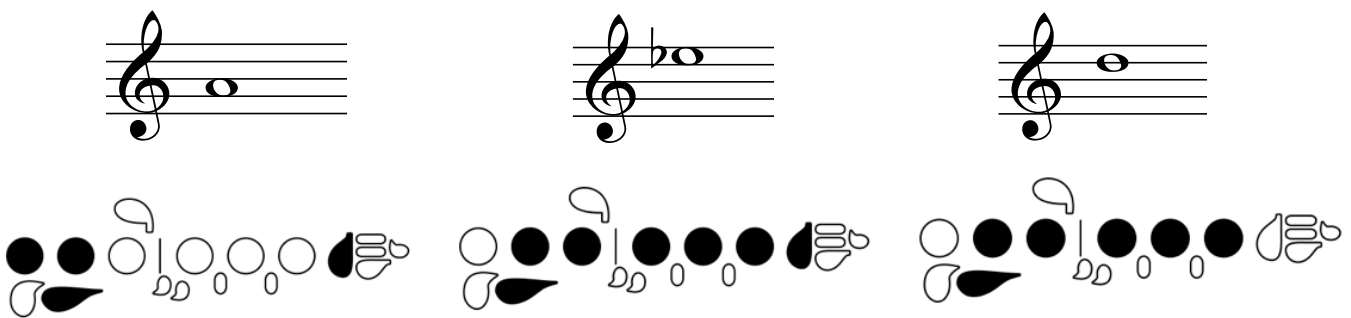


Figure.2.10. A kinaesthetic representation of flute fingerings for the original three-note motif. Black figurations represent the depressed keys for each pitch.

While participant 2 instinctively chose to prioritise the specific contour of the three-note motif due to its frequency throughout this composition, participant 4 offers a contextual insight that further justifies the effect of this approach on cyclic absolute deterritorialization. Having had personal experience of ornithology, participant 4 suggests that “from experience this [motif] really is the sound of the blackbird”, particularly in its contour and extremity of tempo. Following this discussion, I explored modern-day recordings of blackbirds from a variety of habitats and there is most certainly an alignment between the contour of Messiaen’s three-note motif (fig.2.4) and the naturally-occurring contour of the blackbird’s

song.³⁹ While my individual investigation of this was quite informal, rather than following a set methodology, I did explore several different recordings in order to consider the natural variation between individual birds and habitats as in the discoveries of Gladys Page Wood (1927). While there is a distinct variation between each blackbird recording, the contour of the three-note motif is identifiable in an overwhelming majority of cases, particularly as an opening statement to the blackbird's call. Of course, as suggested by participant 4, the microtonal voice quality of the blackbird means that one cannot claim that the naturally-occurring three-note motif follows the precise pitch choice that Messiaen offers, and this generally supports a contour-based approach. Due to the interest of participant 4 into the contextual placement of the three-note motif in nature, we developed our discussion to consider the motif's *musical* placement within Messiaen's wider cadenza section. As demonstrated above, Messiaen's cadenza consists of a number of extended phrases that maintain the contour and pitch content of the original three-note motif. In addition to this, however, participant 4 was particularly intrigued by the use of fluttertonguing at multiple points throughout the cadenza, suggesting that this serves as a convincing representation of the 'unpitched' elements of birdsong. Of course, today the flute is capable of performing techniques such as multiphonics (two pitches sounding simultaneously) and jet whistles (a breath-controlled sound of undefined pitch) which would develop the realism and unpitched nature of the fluttertonguing. Given that Messiaen's career preceded the development of these techniques, however, we can be satisfied that the composer employed all of the tools at his disposal to increase the realism of his narrative portrayal.

Participant 4 is confident that in the case of the three-note motif, performers are capable of "conveying [or 'becoming'] the blackbird rather than just bird-like character". The current study therefore aims for a level of cyclic absolute deterritorialization that achieves realism, again not in a complete 360° rotation of the circle of control, but combining the 'repetition' of Messiaen's contours with the differential potential of his pitch choices to create an *impression* of natural, yet recognisable, material. Participant 4 uses this to justify their instinctive approaches, suggesting that the sense of realism within this motif comes from the frequent repetition of essential contours, both in the sense of direct repetition and the Deleuzian 'repetition' of contour shapes with intervallic variations. Participant 4 therefore

³⁹ Examples of blackbird recordings can be found at: <https://sounds.bl.uk/Environment/British-wildlife-recordings/022M-W1CDR0001524-1900V0>

suggests that a heightened sense of realism can be created in performance through the communication of contour rather than pitch.

As appears particularly effective with the three-note motif, both participant 2 and participant 4 once again suggest the exploitation of differential entropy to maximise the opportunity for new interpretative territories. While one may suggest that the contour of the three-note motif promotes the ‘real’, it is the combination of this with repeated, recognisable pitches that truly promotes the ideology of deterritorialization. In investigating methods of emphasising the initial birdsong inspiration, the reader is reminded that in some cases, direct imitation does not increase the ‘accuracy’ of perception. While emphasising contour may communicate a sense of realism to ornithologists or those with some degree of experience of the blackbird, it is the combination of natural realism with the recognisability of musical ‘repetition’ that truly communicates the blackbird *character* to the widest range of listeners, therefore returning to earlier thoughts on the alter-natural state of the three-note motif. The promotion of cyclic absolute deterritorialization through this approach is fairly optimal. The current investigation will therefore explore the ways in which deterritorializing potential can be maintained through instances in which Messiaen has made many more varied alterations to the original motif.

The Flourishing Blackbird: Establishing its place in Messiaen’s Oeuvre

Once the blackbird had been established through the medium of *Le Merle Noir* (1952), it quickly developed into a significant part of Messiaen’s oeuvre, throughout a wide range of his birdsong works. The songs of blackbirds are transcribed within a number of Messiaen’s notebooks, all of which are explicitly labelled with varying habitats, seasons and times of day. With this in mind, we are reminded of Gladys Page Wood’s view that “the fact that [the blackbird’s song] is built on two or more themes makes it extremely unlikely that any two birds would sing exactly the same song, though one continually hears similar phrases from different birds” (1927, p. 347). Clearly, the variation in chronology as well as place in Messiaen’s blackbird transcriptions emphasises the potential for ‘difference’ that will have occurred between their natural songs. The present study will therefore progress using a

musicological approach, considering the motivic function of the bird across a range of compositions, through an exploration of ‘difference’ at the level of a ‘species’.⁴⁰

Réveil des Oiseaux (1953)

In 1953, just one year after the publication of *Le Merle Noir*, Messiaen composed a work that incorporated the blackbird into a setting that contrasts that of its namesake composition. This work was *Réveil des Oiseaux* (1953). Translating to ‘awakening birds’, this piece narrates the songs of thirty-seven birds as they progress from midnight to midday. Orchestrated for piano with orchestra, the work has often been compared to a piano concerto, as will be explored in other areas of the current study. While the density of orchestration may impact the clarity of the blackbird motifs for listeners, the current investigation will focus on the internal structure of the motif and the impact of its ‘compositional’ construction on the promotion of deterritorialization. Explicitly labelled on each iteration, ‘le merle noir’ is ever-present throughout *Réveil des Oiseaux* and, given its publication date so close to that of *Le Merle Noir*, it is likely that some inspiration will have been taken from its predecessor in terms of motivic content: an assumption that I will endeavour to justify.

Throughout *Réveil des Oiseaux*, Messiaen develops three blackbird ‘characters’, the first of which is of primary concern to the current investigation. This ‘character’ exhibits resonances of the three-note motif throughout its development, presenting a recognisable ‘anchor’ through which listeners could interpret this bird. Motivic similarity to an earlier work may firstly promote differential entropy from the original birdsong, emphasising loss more so than repetition when considering direct realism. When exploring the ‘realistic’ as opposed to the ‘real’, however, motivic similarity promotes varied ‘repetition’, therefore accelerating the cyclic element of the deterritorializing aim in terms of the performer’s and listener’s experience of the motif in relation to the blackbird.

Fig.2.11 demonstrates that Messiaen’s iterations of the three-note motif within this later work follow a comparable contour to their predecessor, with the overall sense of a rise followed by

⁴⁰ As discovered earlier in this chapter, a different ‘species’ constitutes a more specific component of a broader genus, that develops variation between characters or iterations, but consistently in an inter-related capacity. This is therefore the setting that promotes both ‘difference’ and ‘repetition’ in terms of consistencies amongst varied differences.

a fall becoming recognisable within the work, despite a much larger and more variable pitch range than that of *Le Merle Noir*. Recalling the instincts of performers in discussions of the earlier composition, Messiaen's change from a pitch-class focal point to a generally recognisable contour perhaps acknowledges the effectiveness of motivic consistency. Additionally, this iteration of the motif employs a static sense of rhythm which, while consistent with that of the earlier work, is not varied or developed as the work progresses. Beyond the entropy that has already taken place during the conversion of natural birdsong into human music, one may argue that there is an extra level of differential entropy added to these specific motifs when they are considered comparatively. By widening the pitch range of these later motifs, Messiaen has added an extra level of variation in the sense of adapting pitch not only to a range that is suitable for human instruments, but also to form a consonant harmony amongst the orchestral timbre of *Réveil des Oiseaux*.⁴¹

As explored thus far, there is a dichotomy between *differential* entropy in relation to a change of information, and entropy relating to a descent into disorder and chaos. Differential entropy indicates a change of 'order' or information which, when considered in relation to the original order of the object, may be considered 'disorder'. The differential aspect of this concept, however, proposes change in a defined direction, due to the controlled manipulation of the original information source through a number of maintained characteristics (as in Deleuzian difference and repetition). Entropy as a facet of information theory, by contrast, implies the addition of *any* 'noise' to an information source. While this continuous change of information will of course promote absolute deterritorialization, there is no guarantee that the added 'noise' will relate in any way to the original object. The cyclicity of cyclic absolute deterritorialization is therefore limited, with changed information instead acting like relative deterritorialization: a single act of deterritorialization that causes the loss of the original 'message' through a change that moves away from the original 'order'. Instinctively, it could be suggested that Messiaen's later approach to the three-note motif invites a 'chaotic' application of entropy, promoting relative rather than cyclic absolute deterritorialization. Consider for a moment, however, the concept of realism for the listener. One might assume that the majority of audience members would not attend a performance of Messiaen's works with a score to follow, therefore will not experience the explicit labelling of 'le merle noir'.

⁴¹ This consonant harmony, while interesting, is not overly relevant to this chapter and will be explored in more depth in the later parts of this thesis.

Consequently, while entropy still exists in the variation between the two instances of the three-note motif in fig.2.11, the listener is more likely concerned with the ability to identify a ‘character’, highlighting motivic recognition as prominent over the need for natural realism.



Figure.2.11. Two iterations of the three-note motif in quick succession. This excerpt is taken from within bar 30 of *Réveil des Oiseaux*.

In relation to motivic recognition, the iterations of the three-note motif found within *Réveil des Oiseaux* can be considered a form of *hyper-nature*: an exaggeration of the original motif through the expansion of its interval contour and pitch range.⁴² Considering the potential for difference in this form, the motif maintains just enough ‘repetition’ of the blackbird to recognise the original species while eliciting distinct ‘difference’ at an individual level. The motif therefore forms a crucial stage of the deterritorialization process, producing an “experimentation on the real” (Bogue, 2003) that creates a surplus: a motivic ‘character’ that adds a narrative context to the birdsong and alters the ways in which the listener might consider it. The exaggeration of this motif’s intervallic contour in relation to its predecessor creates an anchor point with a purpose beyond that of musical technique, enabling *absolute* deterritorialization through the medium of the narrative character. The performer, however, consistently acts as the transmitter of the message; the component without which communication could not take place and deterritorialization would be limited to a single relative act.

Discussion with participant 6 (24/11/2020) about a completely different element of Messiaen’s birdsong writing uncovered justification for the intervallic augmentation that here contributes to the composer’s creation of ‘exaggeration’ (*hyper-nature*). While acknowledging that the original iteration of the three-note motif within *Le Merle Noir* incorporated a rising tritone between its first two pitches, participant 6 instead drew attention

⁴² A reminder that ‘hyper-nature’ is derived from Sander van Maas’ (2013) derivation of a ‘denatured nature’.

to the *falling* tritone in relation to blackbird realism. Drawing on previous experience with other birdsong works, participant 6 discussed a string quartet by Norwegian composer Kaare Dyvik Husby,⁴³ in which there is extensive use of birdsong and, in particular, blackbird characters. Participant 6 had previously been drawn to Husby's use of the falling tritone within his blackbird motifs, inferring that the interval structure appeared to be a naturally occurring element of the bird's character. This aligns with Messiaen's hyper-natural extension of the three-note motif, with fig.2.11 depicting a falling tritone between F# and C. While drawing more so on pitch than the contour that has been explored previously, the interval structure of this developed 'leitmotif' increases the 'realism' that Messiaen is able to achieve with this character, once again combining natural and musical elements in order to facilitate the recognisable communication of the three-note motif to the listener.

Discussion with participant 4 (05/11/2020) began with the presentation of blank scores to the participant, of both *Le Merle Noir* and *Réveil des Oiseaux*, along with a brief explanation of Deleuzian Difference and Repetition using fig.2.3. The placement of the three-note motif was identified to the participant, and they were then left to consider their interpretation of the motif's development across both works. Participant 4, while highlighting contour rather than interval structure, developed their earlier opinion of the three-note motif when considering Messiaen's development from *Le Merle Noir* to *Réveil des Oiseaux*. Participant 4 highlights that "realism comes from the repeat of essential contours", emphasising that Messiaen's 'repetition' of contour alongside simultaneous 'difference' amongst most other musical parameters maintains realism and forms a "valid attempt to legitimately transcribe the blackbird". Participant 4 therefore agrees with the creation of hyper-nature within the current iteration of the three-note motif, suggesting that the expansion or exaggeration of intervallic shape forms an augmented motivic contour while maintaining its fundamental shape. In performance, participant 4 proposes that Messiaen's use of the three-note motif in *Réveil des Oiseaux* mirrors the later iterations of the motif within *Le Merle Noir*. *Le Merle Noir*'s use of the pitches A, E \flat and D is not the only construction of the three-note motif, with the second cadenza featuring an augmentation to A, G#, C#. As expressed earlier, participant 4 highlights varying timbral 'strengths' around different pitches, and by highlighting contour over pitch performers can counterbalance timbral discrepancies to create a more balanced experience of

⁴³ Kaare Dyvik Husby is a Norwegian composer, born in 1969, who displays an affinity for natural landscapes as part of many of his compositions.

the motif for the listener. It was suggested that this should be no different here, with intervallic ‘difference’ demonstrating natural variation in the blackbird’s song which could then be counterbalanced through a contour-based performance for the benefit of the listener.

Beyond the individual three-note motif, *Réveil des Oiseaux* displays a number of close connections to its predecessor *Le Merle Noir* in relation to its blackbird motives. The most distinct example can be observed in fig.2.12 below, with the presence of the blackbird ‘character’ once again becoming clear to both visual score analysts and listeners. Again defined by its rising and falling contour, this motif demonstrates Messiaen’s persistence in augmenting the interval vectors within his 1953 composition, with the original major 2nd rise and tritone fall becoming augmented to an augmented 6th rise and major 7th fall. Additionally, while rhythmic alteration has taken place here, the exact diminution of the original motif from semiquavers into demisemiquavers enables it to maintain a sense of recognisability, therefore reducing the differential entropy between the two motifs in favour of ‘repetition’ with small elements of pitch-based ‘difference’. Consequently, one may propose once again a sense of *hyper-nature* within the motivic character of this later work, increasing the interval vectors and rapid tempo of the motif to create a sense of exaggeration and a surplus within the ‘denatured nature’.⁴⁴

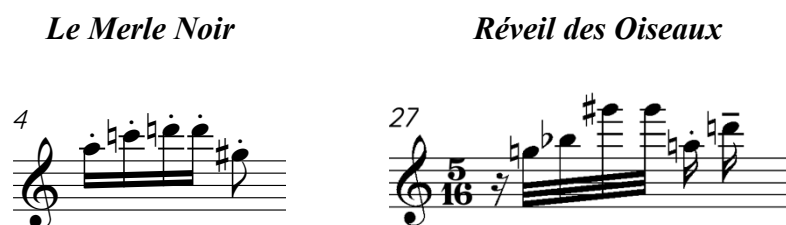


Figure.2.12. Iterations of a similar motif which is representative of the blackbird in both Messiaen’s 1952 and 1953 compositions.

Our considerations thus far have developed a comparison of two works: *Le Merle Noir* and *Réveil des Oiseaux*, with differential entropy and subsequent repetition being explored through alterations between earlier and later iterations of the three-note motif. The crux of the

⁴⁴ As shown in the introduction to this thesis, Sander van Maas (2013) proposes the manipulation of a natural sound source—through alter-nature, hyper-nature or sub-nature—as a ‘denatured nature’ in the sense of maintaining the fundamental qualities of the original source, but with alterations relevant to the ease of human consumption.

present investigation, however, is *cyclic* absolute deterritorialization: manipulating entropy during the performance process in order to maximise ‘repetition’ of the original birdsong for listeners. Messiaen’s 1951 transcriptions, for use within *Le Merle Noir*, are detailed and melodic; they show that he aimed to observe the blackbird’s full themes and ‘learn’ them for use in his own music. His compositional process in this instance was therefore one of *refraction*; maintaining the fundamental structure of the song and adapting only those features that were completely necessary for the technical ability of human musicians. Within the composer’s later 1952 notebook,⁴⁵ however, there is a distinct reduction of detail in the transcriptions that he assigned to ‘le merle noir’. One may therefore follow Norman Demuth’s theory that “Messiaen has composed his own version of the dawn chorus, not actually as he heard one, but in a style of what might be called ‘impressionistic verism’, every theme being authentic” (Demuth, 1960, p. 627). In this sense the study recalls Messiaen’s placement of the blackbird within *Réveil des Oiseaux* in a chorus of thirty-seven birds. ‘Impressionistic verism’ stems from the hyper-natural element, in which the skeleton of the original birdsong is exaggerated, augmented and emphasised for the purpose of audience recognition. In this sense, ‘difference’ occurs through Messiaen’s refraction of the birdsong, with deterritorialization being increased not by realism but instead by the aspiration for recognisable ‘repetition’ of a blackbird character. The audience therefore acknowledge the ‘message’ of the bird that is being communicated through the medium of the human musician.

Des Canyons aux Étoiles mouvement 2 (1974)

Looking towards Messiaen’s later compositional career, the three-note motif is ever-present, although incorporated more discreetly into his compositional works. Messiaen’s 1974 composition *Des Canyons aux Étoiles* (From the Canyons to the Stars) was commissioned to celebrate the bicentenary of the independence of the United States of America, placing a sense of patriotism at the core of its narrative. The second movement entitled ‘Les Orioles’ is nonetheless integral to this stage of the current study. This movement is principally inspired by the songs of six breeds of the ‘New World Icterid’ family of Orioles, named as such due to their distinctive black and yellow plumage (with some aspects of orange), which closely

⁴⁵ Œuvres musicales d’Olivier Messiaen. Travaux Préparatoires. Carnets de notation de chants d’oiseaux. 1951-1955. Gardeépée, Charente, 1952. Fonds Olivier Messiaen et Yvonne Loriod. Ark:/12148/btv1b55013118d. Bibliothèque Nationale de France, Département de Musique.

resembles that of the traditional European ‘Golden Oriole’ (Price, et al., 2007). The New World Oriole, however, based in and around America, is in fact a member of the blackbird family, therefore drawing the work into the current investigation.

Messiaen explores six oriole ‘characters’ within this movement, each of which originates from a different area of the United States. The character that I am most concerned with, however, is the Orchard Oriole, of whom the male bird is typically black all over, with a small segment of orange on its chest. The motivic character associated with this bird emerges initially in the piano, incorporating a twelve-tone technique through densely orchestrated chordal structures. As the phrase comes to a close however, one experiences once again two iterations in quick succession of the three-note motif, which is keenly associated not with the oriole but with the blackbird. It therefore would appear that Messiaen has drawn inspiration from the relationship between the oriole and the blackbird, forming an additional motivic connection between his compositional works.

Emerging out of a section of twelve-tone writing, this motif is likely to be even more distinguishable, drawing the listener’s attention toward its familiarity and therefore increasing deterritorialization through its accentuation of character. It is important to acknowledge, however, that the explicit labelling of a different bird species will increase differential entropy at the species level, taking a recognisable motif and allowing it to be perceived in relation to a different narrative. The current study will therefore take a motivic approach, considering how the acceleration of deterritorialization may ultimately be caused by the listener’s ability to recognise familiar material. Not only this, but the negation of the oriole’s ‘authentic’ song for the purpose of motivic consistency implies the formation of a *sub-nature*; the removal or reduction of the oriole’s song in favour of that of the blackbird.⁴⁶ While the negation or removal of something authentic may initially seem to be a hindrance or entropic sense of ‘loss’, in this case the blackbird as a relative of the oriole adapts the negation of the oriole’s song into a surplus of information, increasing deterritorialization by interrupting the entropic ‘negation’ with a moment of familiarity for the listener.

⁴⁶ Subnature once again refers to Sander van Maas’ (2013) ‘denatured nature’.

Matching contour of the
three-note motif first
found in *Le Merle Noir*

Key



= An
audible 'cadence
point' at the end
of the preceding
twelve-tone
motive.

Figure.2.13. Iterations of the three-note motif within the Orchard Oriole 'character', with the addition of cadence points adding a tonal function to the motif.

In addition to its narrative placement, the iteration of the three-note motif shown in fig.2.13 possesses a particularly distinct musical purpose in terms of its technical construction. Fig.2.13 demonstrates the role of the current three-note motif in creating audible 'cadence points' to conclude a dense twelve-tone phrase. While not conventional cadence points in the sense of Western music theory, the chords that are experienced here add a sense of tonal closure to the phrase overall. By no means does this suggest a sense of tonality, but rather the chords that are experienced—along with their metric placement at the end of a bar—serve as anchor points that draw elements of consonance out of a phrase of dissonance. Considering each of the marked chords in fig.2.13, the score shows a G major triad (with an added tritone) to conclude the first iteration of the three-note motif, followed by an E minor⁷ upon the second iteration. Neither of these chords point to a specific tonal function in terms of a proposed key signature, but both chords are reached in this case by a stepwise fall, with all three 'voices' of the piano falling by a tone into the 'cadential chord'. Whatever the specific pitches involved, the persistent stepwise falls here serve a leading tone function in the sense of anchoring the listener to the consonant ending of the recognisable motif.

Upon exploration with performers, this particular example has been approached from a slightly different perspective, with initial discussions taking place after first listening to the

movement in its entirety. While of course still instinctive in terms of performance attitudes, the performer takes on a blended role within this discussion, with opinions stemming from both performer and listener interpretations in this case. While all performers expressed the unanimous attitude that they were drawn to the cadential phrasing of the three-note motif, participant 5 (11/11/2020) and participant 6 (24/11/2020) shared an opinion that is particularly relevant to the present philosophical investigation. Participant 5 demonstrated an instinctive tendency to alter the phrasing of the three-note motif, in this case to satisfy the proposed ‘cadential’ function. Referring to harmonic colour—which will be explored in greater detail in chapter 4—participant 5 suggests that a greater intensity of colour could be achieved with a performed phrasing that leads to the ‘cadence’, placing emphasis on the final note of the motif and therefore having a temporal as well as a harmonic impact on its perception. This approach emphasises this iteration of the motif, alerting the listener to its presence and importance within yet another element of Messiaen’s oeuvre. As stated above, however, instinctive approaches regarding the composer’s initial motif within *Le Merle Noir* highlight contour over pitch. Within this initial introduction of the motif, Messiaen is fairly explicit with regards to phrasing in performance (fig.2.6), denoting a slurred articulation that leads to a staccato third note. The lightness of this staccato closure contrasts the proposed cadential function of the later iteration, altering the attack of the motif but also drawing on the timbral variation between chordal and solo instruments. Of course, prior to a consideration of performance, this instrumentation-based timbral alteration automatically reduces the initial motivic character. While the chordal texture adds further depth and emphasis to the motif, one must question the extent to which *listeners* will recognise the motif in this case given its harmonic density and dissonance. On the one hand, performers could highlight the uppermost pitches of the motif, drawing a melody out of the chordal structure and highlighting the fundamental contour with which we are concerned. It seems more apt in this case, however, to consider Messiaen’s leitmotivic development here as a component of its sub-natural state. Given the composer’s portrayal of an oriole as opposed to a blackbird within this later work, Messiaen may have chosen to maintain a minimum number of elements from his original motif. In doing this, we as listeners can accept the similarity of narrative character while at the same time acknowledging the subservience of the natural *oriole* birdsong within this scenario.

Participant 6 additionally proposes a comparison between *Le Merle Noir* and *Les Orioles* that exploits Messiaen’s timbral difference to increase the deterritorializing capacity of the three-

note motif. Following an initial listening of the movement, participant 6 noted that the Em⁷ chord identified in fig.2.13 becomes nostalgic as the piece progresses, inhabiting a sonic space that aids the aural structure as well as the narrative of the work. Recalling *Le Merle Noir*, I have persistently emphasised Messiaen's use of pitch within the three-note motif, employing recurring pitch classes to create a musical territory that deterritorializes the natural birdsong in favour of audience recognition and investment. The above mentioned feeling of nostalgia within *Les Orioles* appears to act in the same way, with the piano orchestration once again being exploited so that the harmonic colour replicates a recognisable musical territory. Clearly, the composed or human nature of this territory is emphasised, due to Messiaen's explicit label of a single bird character who in nature would not sing using a chordal structure. In order to promote cyclic absolute deterritorialization, the investigation therefore drawn once again to a performance approach that combines the differential potential of musical technique with the 'repetition' of birdsong realism to create a notion of 'impressionistic verism'.⁴⁷ With Messiaen's maintained contour here highlighting the naturally occurring relation between the oriole and the blackbird, the outlined performance approaches will highlight the overarching contour of the upper piano line *and* the recurring harmonic structure of its 'cadential' closure. While the technical aspects of a cadential territory promote differential entropy *away* from cyclic absolute deterritorialization, one is reminded of the vital function of communication, with realistic character taking precedent over true realism in this case to once again promote recognition and understanding for the listener.

Summary

The current chapter has taken a 'micro' approach to the study of Messiaen's birdsong, with just three notes playing a major role in the aim for cyclic absolute deterritorialization. While maintaining a Deleuzian line of enquiry, Sander van Maas' (2013) interpretations of alter-nature (transfiguration), hyper-nature (exaggeration) and sub-nature (negation) demonstrate leitmotivic triggers for 'difference and repetition' during the deterritorialization of a melodic component. The three-note motif has been developed throughout Messiaen's oeuvre, much like Maas' theory. By maintaining relations to the song of the blackbird, the three-note motif

⁴⁷ As in earlier discussion, 'impressionistic verism' is Demuth's (1960) terminology, proposing a set of maintained qualities from the original birdsong that are then adapted to suit the 'human needs' of the musical setting.

combines motivic and technical ‘difference’ (development), with character-based elements of ‘repetition’ (maintained recognisable elements) to promote ease of recognition for the listener. Of course, one cannot suggest that all listeners will recognise the three-note motif, and its development is therefore dependant on the relative experiences of each individual listener. Throughout the remainder of this thesis, the reader should remember the impact of Maas’ philosophy on broader aspects of Messiaen’s work. In relation to all aspects of human music performance, the concept of a ‘denatured nature’ pertains through the deterritorializing manipulation of nature for the benefit of human consumption. This thesis therefore moves now to explore ‘macro’ elements of Messiaen’s compositional ‘language’, developing the theories expressed above into broader stylistic contexts.

Chapter 3: The Musical Machine: Entropic or Deterritorializing (or both)?

The previous chapter maintained a ‘micro’ approach to Messiaen’s compositions, considering small aspects of melodic and harmonic content. The current chapter, however, will expand on this to consider music in a more ‘macro’ sense as a ‘machine’, taken from Deleuze’s interpretations of artist Paul Klee. Prior to his detailed discussions of deterritorialization, Deleuze employs Klee’s 1922 artwork *Twittering Machine* (fig.3.1) as a visual representation of his (Deleuze’s) theories. Klee’s artwork depicts a hand-cranked machine that appears to control a number of mechanical birds. Deleuze suggests that this particular representation demonstrates the potential for continuity within the ‘machine’, mirroring the continuity of absolute deterritorialization. This is developed with reference to an analysis by Juliana Kreinik and Steven Zucker.

“Here [the birds] are freed because it is not about the mechanics of time. It is not about the structure of time at all, this is a kind of human-powered machine. If it was brought to life you get a sense of the chaos of these birds which is completely at odds with the notion of the precision of the [machine]” (Kreinik & Zucker, 2011).

A ‘normative’ reading of a machine would perhaps imply the opposite of this view, suggesting that by placing birds into a musical machine they are being caged: limited by the bounds of the musical system. Zucker, and in turn Deleuze, however, support a more deconstructed view of the artwork, interpreting the machine as a metaphorical system through which the limitations of an existing system may in fact be broken. Zucker does not suggest that birds have been caged within the machine, instead suggesting that human influence on the machine enables the freedom of the birds. The birds that are being considered in Klee’s visualisation are Messiaen’s musical birds. While these birds may have been ‘caged’ by the limited notation systems of the ‘compositional machine’, Zucker’s reading would suggest that the human influence of the ‘performance machine’ transforms the bird characters out of the precision of composed time into a truly ‘free’ product, one of infinite perceptible flexibility. This is the point at which Deleuze’s incorporation of Klee’s work aligns with the present study. Throughout this chapter I will explore Messiaen’s applications of

instrumentation, particularly the piano, to elements of his birdsong writing. Instrumentation would naturally be a feature bound by the compositional (or notational) ‘machine’, due to the limited mechanical possibilities for human instruments (limited pitch ranges for example). The current aim for cyclic absolute deterritorialization, however, constitutes ‘human influence’ on the ‘machine’, with performance possibilities enabling interpretative power that frees the bird character from the ‘mechanical machine’ of the composed instrument itself. This ‘human influence’ is enacted by the performer, and subsequently interpreted by the listener: the performer enables deterritorialization, and the listener is responsible for its continuation following performance. Both therefore play an integral role in the overall process of deterritorialization, and will be explored in relation to the extent to which cyclic absolute deterritorialization can be achieved. This is of course an aim that will be interpreted differently by each individual performer and listener, and so Klee’s image is emphasised as a model of the present investigation, a basis around which the study can experiment with the Deleuzian deterritorializing goal.

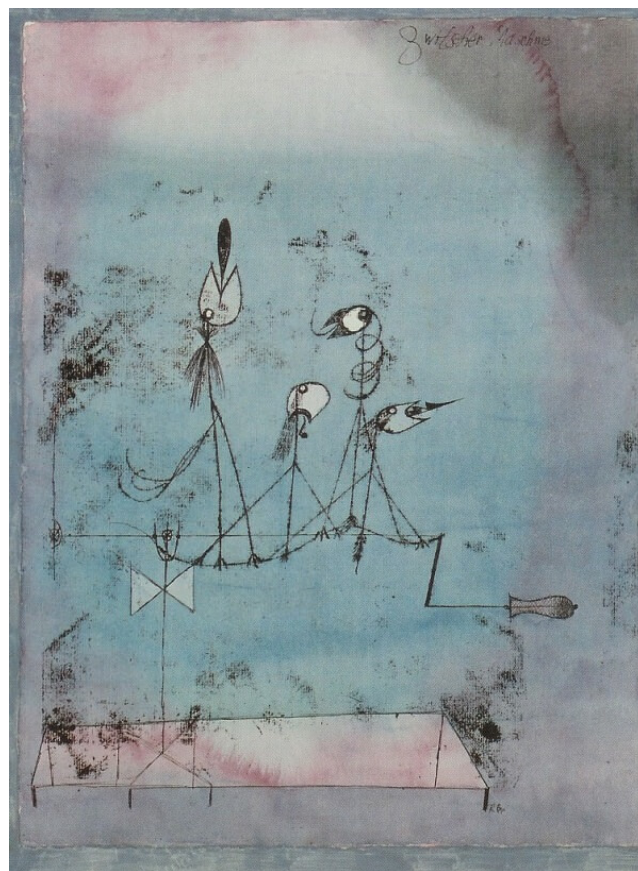


Figure.3.1. Paul Klee’s ‘Twittering Machine’ (Klee, 1922) as depicted by Deleuze in relation to the deterritorialization of birdsong.

Music, as sonic art, forms a set of ‘information’ that can be transmitted from composer to performer and from performer to listener. No matter how (un)defined this information may be, this communication might invoke aspects of information theory which, as in the introduction to this thesis, relates to the communication of a message from an initial source (composer), through a transmitter (performer) to a final destination (listener) (Shannon, 1949). As in information theory, entropy refers to the addition of ‘noise’ to a message, in which ‘noise’ constitutes additional material that is not spoken in the original message but that becomes integrated with the message that is eventually received. This ‘noise’ can therefore trigger a “lack of order or predictability, [a] gradual decline into disorder” (Cohen, 1962). Within chapter 2, entropy was explored in relation to Deleuzian ‘difference’, with the simultaneous loss and gain of information promoting a state of ‘organised disorder’ – a malleability of information that allows for change, but with a preconceived sense of direction or ‘destination’. While ‘differential entropy’, as I called it, also resonates with the present chapter, the investigation moves to consider entropy in its more ‘conventional’ form as defined by Cohen above, with the continuity and unpredictability of the process resonating with the human influence on the ‘machine’ and with the fundamental aim for cyclic absolute deterritorialization.

With each change—loss, addition or manipulation—of information, entropy increases, as the original object becomes less and less recognisable and inhabits a state of increasing disorder. Deterritorialization, however, changes but arguably does not increase; each new territory that is formed is not an addition to a *single* being, but rather forms an addition or manipulation of a continuous plane of possibilities. Deterritorialization into a new territory therefore constitutes a transformation into a new being – a new destination that invites change, whether gain, loss or both. With increased change and thus increased entropy comes the possibility for ‘entropic deterritorialization’ (fig.3.2). This term would, in its most primitive form, suggest a ‘reductive change’: the formation of a new, unrelated territory prompted by a *loss* of the original information that progresses too far from Messiaen and his bird inspiration. In the context of the current study, however, too much loss must be avoided, aiming to maintain the features of Messiaen’s composed score while also acknowledging elements of the original bird inspiration. I thus consider entropy in relation to an ‘additive change’, with new information aiming to deterritorialize in a way that relates to the original object. Entropy is therefore triggered within a closed loop, exploiting musical parameters to manipulate the ‘journey’ of an altered information set to a predetermined destination.

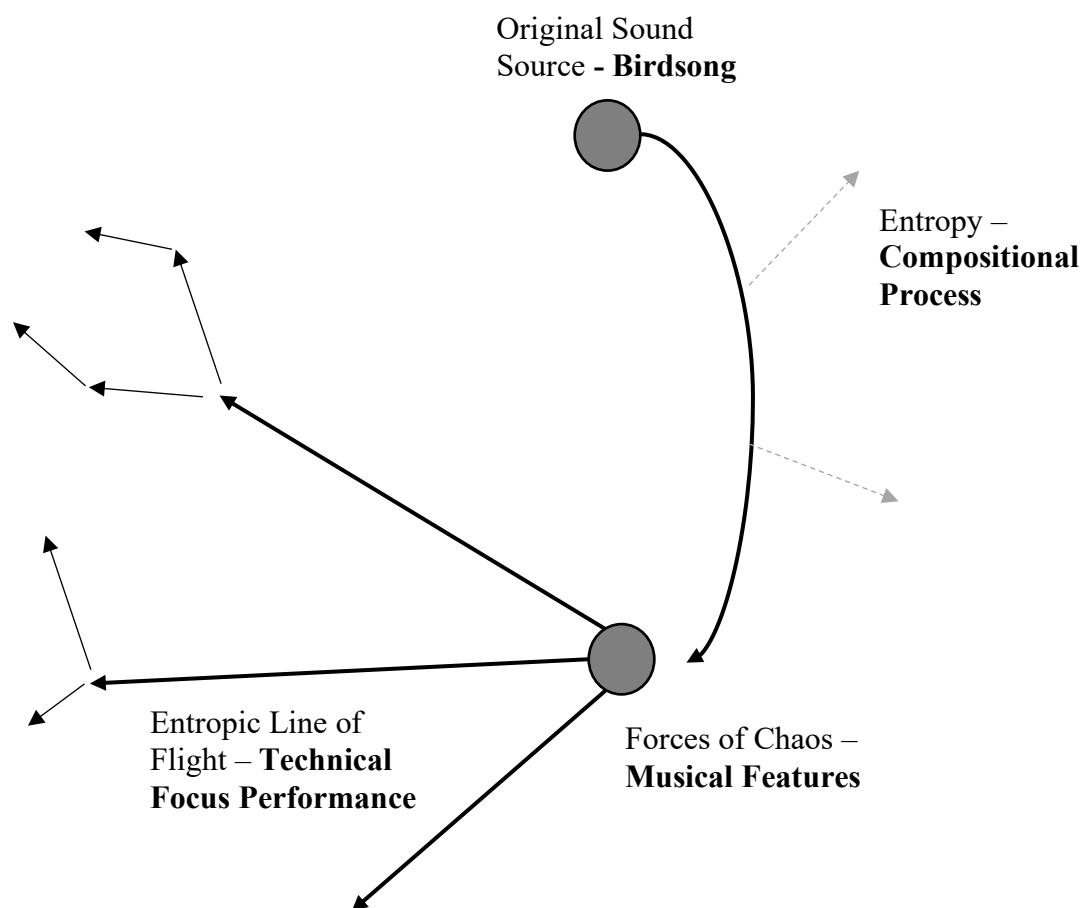


Figure.3.2. A visualisation of ‘entropic deterritorialization’, demonstrating its undesirability during the performance of Messiaen’s birdsong due to the loss of the cyclic element that this study wishes to maintain. It is necessary to preserve the integrity of the composition by maintaining the ‘closed loop’ of features found in the notated score. The ‘optimum’ cyclic version of this process can be found in fig.0.2.b of this thesis.

The concept of ‘additive change’ aligns closely with cyclic absolute deterritorialization and human influence on the ‘machine’, with both suggesting continuous change that translates a musical product through consideration of its original birdsong inspiration. Cyclic absolute deterritorialization, however, does not guarantee the maintenance of all original ‘information’ throughout the process, with the sense of return being promoted by recognisability in *some*, not all, parameters. Parts of the birdsong will always be lost during their translation for human musicians. This chapter therefore explores Messiaen’s instrumentation choices as catalysts for ‘additive change’, considering how the timbral and harmonic capabilities of the

instruments can be exploited to promote change as an addition, freeing the birds from the ‘compositional machine’ while maintaining some of their original features.

Neither Olivier Messiaen nor scholars in the field of his work have ever proposed that human instruments would be capable of producing an exact replication of natural birdsong. As has been acknowledged thus far, Messiaen “has reproduced the original material in terms that humans can perform and understand; that is, the internal relationships of the birdsongs have been [...] maintained [...] now lower, slower and based on a smallest melodic interval of a semitone” (Nichols, 1975, p. 57). Messiaen’s ‘diminishing’ (lowering pitch and slowing rhythm) of the birdsong is related to ‘differential entropy’, in which the formation of a musical product interrupts the deterritorialization of the birdsong itself. Considering the musical product as a ‘machine’, however, the current study will explore the ways in which performers can ‘overcome’ the diminishing of birdsong to instead promote human understanding. In contrast to Nichols’ praise of Messiaen’s adaptation of birdsong for human understanding, Chi Kuen Lee states that “no instrument can express the feeling, joy or sorrow of a bird. If there is a feeling, it is from the audience’s interpretation rather than through the imitative sound of the instrument” (Lee, 2004, p. 5). The present investigation will explore the impact of Nichols’ and Lee’s statements upon each other. Where the ‘diminishing’ of birdsong may promote human understanding through the ‘performance machine’, I will consider the extent to which the ‘instrumentation machine’ can be overcome through audience interpretation, to invite true continuity of cyclic absolute deterritorialization.

The present study aims to counterbalance the confines of the ‘compositional machine’ with ‘freedom’ and recognition of bird character that may be drawn from human influence on the ‘performance machine’. As in earlier chapters, it is these aspects of recognition that ultimately unlock territories cyclically, emphasising the process through which one may come to achieve a state of cyclic absolute deterritorialization. Related to Deleuze and Guattari’s theory as explored in the introduction to this thesis, the study strives for an environment in which “one opens the circle not on the side where the old forces of chaos press against it but in another region, one created by the circle itself” (1980, p. 311): the creation of a spectrum of ‘points of order’, all of which may be inhabited by the varying interpretations of individual performers or listeners. Once again, absolute deterritorialization is therefore triggered by the communication of narrative or character more so than the ‘fidelity’ to the original sound source. When considering instrumentation, the study is thus

concerned with an interpretation that frees the ‘composed’ birds from the confines of a notated score, but that maintains recognisability in some motivic aspects. In doing this, performers can unlock the cyclic territories that combine Messiaen’s composed work with the birds that he took inspiration from.

This chapter will explicate the role of the performer as the transmitter of a musical message through the medium of their instrument, with technical capabilities being combined with the possibilities for ‘communication’. With ‘communication’ here manipulating differential entropy (change that removes qualities of the original birdsong) in favour of highlighting aspects of human recognition, the present study will explore timbral, harmonic, and temporal manipulations from the original birdsong that have been made to compliment Messiaen’s compositional machine. These choices will be employed to consider the conflict between accuracy and narrative in relation to the entropic stages of the deterritorialization process. Despite the detailed programme notes that Messiaen provides for the majority of his works, ‘communication’ relates at best to the analyst’s, performer’s or listener’s own interpretation of Messiaen’s visions or proposed message. It is emphasised, however, that one never aims to communicate the exactitude of Messiaen’s own visions, and it is for this reason that information theory pertains so strongly with the current investigation. Information theory does not specify *what* is being transmitted, it is not concerned with the purpose or origins of the message. I am therefore concerned with ‘information’ in any form, considering manipulations that could occur in the interpretations of performers and listeners. Thus, whether instrumentation is considered solely as a timbral ‘tool’ or as a ‘voice’ in its own right, one aims for new possibilities in performance practice, emphasising possible interpretations of the music rather than a single ‘correct path’.⁴⁸

The Piano – How can Messiaen’s birds escape their notated machine?

In the context of his birdsong works, one of Messiaen’s more controversial instrument choices was the piano, ironically one of the most frequently chosen instruments in his music. Some scholars are adamant that “if [Messiaen] intended to be true to his avian models, he could have chosen no instrument less appropriate than the piano” (Hold, 1971, p. 116). Hold

⁴⁸ The emphasis on ‘new possibilities’ pertains throughout this thesis, and is demonstrated through each of the chapters.

here seems to suggest the relative rigidity of the piano compared to orchestral and other acoustic instruments. As will be explored in due course, the equal tempered tuning of the piano could limit the flexibility that a performer has in presenting the ‘just’ intervals and gradual dynamic changes of both natural sounds and the harmonic series. Nevertheless, some scholars have instead recognised the integral role of the piano in structuring the imagery of ‘natural’ sounds⁴⁹ and settings in music, a role that has been developed by Messiaen over the course of his compositional career. Peter Hill, after visiting Messiaen, remarked that “it was clear from the way [Messiaen] touched the keyboard that he was absorbed by the infinitely subtle blendings of sound and colour that could be obtained” (Hill, 1994, p. 554). This statement alone highlights Messiaen’s perception of sound, and his appreciation for the infinite possibilities that can still be obtained from an instrument where pitch and timbre are absolute, and the harmonic series is limited to those intervals that can be satisfied by the equal temperament tuning system. While the piano may not possess the timbral possibilities to enable an accurate *imitation* of birdsong—such as the flexibility of microtonal qualities—“Messiaen was [...] concerned above all that [we] should understand, and thus be able to communicate, the *spirit* of his music” (Hill, 1994, p. 552). The concept of ‘spirit’ or character suggests once again that it is the setting of the birdsong in performance that allows it to be freed from the compositional machine, rather than a literal imitation of the original song.

Messiaen similarly confirmed that “rather than the imitations or ‘impressions’ one might expect, [his] approach is to translate from nature, inventing parallels or ‘metaphors’ which have their own purely musical integrity” (Hill, 1994, p. 552). If one were to consider Messiaen’s treatment of birdsong as a *translation* (‘metaphorical’ birdsong based on the experience in the field) rather than a *transcription* (direct notation of the exact birdsong qualities that are heard), it is likely that scholars would express more satisfaction with the relative ‘fidelity’ that he is able to achieve. The current investigation will therefore explore Messiaen’s employment of the piano, considering the exploitation of the instrument’s assets to promote the communication of an image. By approaching the piano in this way, I aim to capture the ‘spirit’ of the scene that is being depicted and to realise elements of the birdsong that will expand new territories, increasing deterritorialization through performance approaches that travel far beyond the static compositional product.

⁴⁹ Throughout, ‘natural’ will be used to refer to sounds as taken from the original birdsong, whereas ‘musical’ or ‘composed’ will refer to Messiaen’s birdsong as adapted to a notated setting.

Réveil des Oiseaux (1953), sitting within the earlier corpus of Messiaen's birdsong works, demonstrates effectively the function of the piano within the composer's oeuvre. The composition is orchestrated for piano with orchestra, and past literature has likened it to "a piano concerto on a grand scale" (Demuth, 1960, p. 628), owing to its structural alternation between piano cadenzas and orchestral interludes. By considering this purely 'musical'⁵⁰ interpretation of structure, Demuth has implied that it is not the responsibility of the instrumentalists to "copy the natural sounds; these are reproduced in the quality of the music" (1960, p. 627), drawing once again on the interpretations of both performer and listener. The ensuing analysis will explore the extent to which Messiaen has maintained birdsong *qualities* within his composition, investigating the impact of his instrumentation 'machine' on the communication of birdsong to the listener. While human instrumentation may appear to be a trigger for entropic deterritorialization (an undesirable process), I reaffirm the aim for change as opposed to loss, promoting the maintenance of birdsong 'qualities' without necessarily replicating the exactitude of the original sound. While acknowledging that the mechanical capabilities of human instruments may invite the limitations of entropic deterritorialization if performed clinically, the current aim for a closed, cyclic system of entropy is highlighted, manipulating performance approaches to emphasise the addition of new information and the potential for change, alongside a selection of maintained birdsong characteristics.

Many scholars including Trevor Hold are sceptical as to the accuracy of Messiaen's birdsong transcriptions, with the acknowledgement that while nature serves as an inspiration, the transcriptions have been altered to suit the capabilities of a human musician. Hold takes this scepticism even further, suggesting that "the overall impression created by 'Réveil' is not of a dawn chorus but of a cageful of mechanical birds." (1971, p. 118). Relating Hold's proposal to the current study, it may be suggested that Messiaen's compositional choices within *Réveil des Oiseaux* adhere to the 'machine' of Klee's model (fig.3.1), following the framework of conventional musical technique more so than the relative 'authenticity' of the birdsong inspiration. When considering the application of birdsong within the context of instrumentation, the present study progresses in relation to a 'metaphorical' birdsong, aiming to expand the continuity of deterritorialization through the combination and ultimately deconstruction of birdsong and notated music during performance. The proposed role of the

⁵⁰ A reminder that 'musical' refers to the composed setting of Messiaen's works, not considering the narrative placement in relation to birdsong.

performer here therefore comes from acknowledging the basis of Messiaen's compositional techniques while also exploiting them for 'stylistic gain', manipulating the musical lines to highlight their relation to aspects of the natural 'territory' from which the birdsong originated.

Structurally, Messiaen employs his piano cadenzas within *Réveil des Oiseaux* as 'snapshots' of the different bird characters that each play a role in the overall composition. Each cadenza represents a different bird that later becomes integrated into the polyphonic orchestral textures, therefore it is not necessarily the piano itself that is representative of each bird species, but rather the motivic contents of its cadenza. I will therefore consider how a performer can manipulate the capabilities of the piano in a variety of ways to mirror the different bird characters that Messiaen is attempting to create.

The opening piano cadenza presents a bird that becomes increasingly important to Messiaen's compositional style, both within this work and within a large amount of his later birdsong output. The nightingale is a bird that has held its place in the realm of art and literature for centuries, with scholars recognising its importance in "represent[ing] the attempt of the ancients to analyse the quality of the song and to suggest a legend in harmony with it" (Young, 1951, p. 181). While its ability to convey emotion has formed varied responses, scholars have primarily been concerned with the nightingale's ability to create a sonic landscape; to evoke an emotional response from the listener that spans the full spectrum of emotions from 'joyful ecstasy to bitter sorrow'. In the context of the current study, this philosophical approach to the nightingale highlights the flexibility of this particular bird's song, in the sense that its "sequencing is neither at random nor fully deterministic" (Weiss, et al., 2014, p. 2). There is therefore an immediate interpretative flexibility to Messiaen's employment of the nightingale, with musical narrative perhaps sitting on par with the 'fidelity' of his transcription. The nightingale provides inspiration for one of the larger piano cadenzas within *Réveil des Oiseaux*, and displays an important insight into Messiaen's compositional process between the transcription of the birdsong and the production of a musical score.

Public knowledge of Messiaen's birdsong transcriptions is constantly expanding, with the preservation and digitization of his notebooks currently in progress. Already there are a variety of sources, however, which evidence Messiaen's interpretation of the nightingale's

song. One notebook, from the region of Charente in 1952,⁵¹ contains a statement from Messiaen confirming his use of this notebook within *Réveil des Oiseaux*. It is therefore important to acknowledge that it was also on this occasion that Messiaen collaborated with ornithologist Jacques Délamain, and the impact that this may have had on the ‘accuracy’ of his transcriptions will be explored in due course. While Messiaen does not, in fact, include much detail on the nightingale within this notebook in particular, there is one element that reflects not only the bird itself, but also one of the composer’s most renowned compositional techniques.⁵²

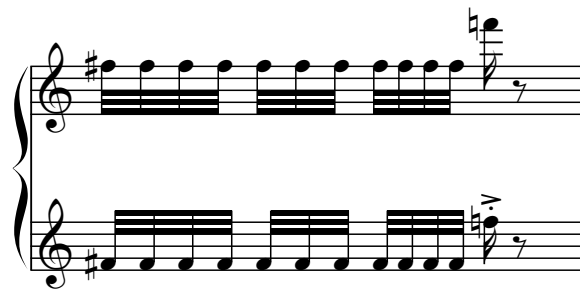


Figure.3.3. An example of the uneven groupings of a single pitch within the nightingale motive of ‘*Réveil des Oiseaux*’. This example is an excerpt from bar 1 (the opening cadenza) of the piece.

The notebook in question demonstrates a string of repeated demisemiquavers on a single pitch, as can be demonstrated multiple times throughout the final score (fig.3.3). In addition to the uneven groupings of Messiaen’s score, the equivalent motives are transcribed within the composer’s notebook in groups of ten and eleven, with no evidence of them being divided into metric beats. One may therefore propose the use of ‘personnages rythmiques’, a technique depicted as ‘integral’ within Messiaen’s *Technique de mon Langage Musicale* (Messiaen, 1944). Gareth Healey proposed that the ‘personnages rythmiques’ are rooted in the concept of “asymmetric augmentation” and “development by elimination” (2004, p. 34) in which the augmentation of a single rhythmic grouping is counterbalanced by the simultaneous diminution or ‘elimination’ of another. Considering again the rhythms of fig.3.3, the lack of a clear pulse within these notes is created by the alternations between groupings of three and four, with the larger groups undergoing development because of the

⁵¹ Œuvres musicales d’Olivier Messiaen. Travaux Préparatoires. Carnets de notation de chants d’oiseaux. 1951-1955. Gardeépée, Charente, 1952. Fonds Olivier Messiaen et Yvonne Loriod. Ark:/12148/btv1b55013118d. Bibliothèque Nationale de France, Département de Musique.

⁵² I am not permitted to provide an image-based representation of this transcription notebook due to copyright protection by the Bibliothèque Nationale de France, but I am able to describe its contents in order to support my hypothesis.

relative ‘reduction’ of the small groups. Having been mirrored within both the transcription notebooks and Messiaen’s final score, the ‘personnages rythmiques’ “start life in their most primitive form” (Healey, 2004, p. 34), the fundamental nature of which forms the basis of the composer’s nightingale character.

Exploring the dual function of this personnage within both the final score and Messiaen’s transcription notebook, the parallel between rhythmic development and reduction (the addition and removal of notes from rhythmic groupings) is emphasised here, acting on a micro level like Deleuzian difference and repetition. With the physical ‘loss’ of a note within smaller groupings denoting an entropic state of change, the potential for difference stems from its placement within the broader phrase, employing the ‘repetition’ of larger groupings to highlight the relevance of rhythmic development. I therefore investigate the technical relevance of differential entropy⁵³ here when considered in relation to the broader possibility for cyclic absolute deterritorialization. Rather than considering the ‘personnages rythmiques’ as an entropic state bound by the limits of musical technique, performers could instead emphasise the simultaneity of development and reduction as a naturally-occurring element, highlighting that “all the [bird]songs are spasmodic and not in the least symphonic – even a bird has to take a breath.” (Demuth, 1960, p. 628). As a pianist, this rhythmic emphasis should not present any problems with performance, as argued by Loo Fung Chiat who claimed that “the piano, due to its extensive register and the immediacy of its attacks, is undoubtedly the only instrument capable of rivalling the rapid tempi and the changes in ‘altitude’” (Chiat, 2005, p. 2) of the birdsong. The pianist therefore, should not have any issues in ‘keeping up’ with the tempi of Messiaen’s birdsong compositions, with their challenge in this case being the rhythmic accentuation of uneven groupings. These groupings highlight not only the ‘personnage rythmique’ but also the aesthetic quality and ‘spirit’⁵⁴ of the birdsong motive.

⁵³ Differential entropy, as in earlier chapters, refers to change in a defined or controlled direction. A full definition can be found in the glossary.

⁵⁴ Reference to the term ‘spirit’ throughout this chapter relates to the earlier mentioned statement of Peter Hill: “Messiaen was [...] concerned above all that [we] should understand, and thus be able to communicate, the *spirit* of his music” (Hill, 1994)

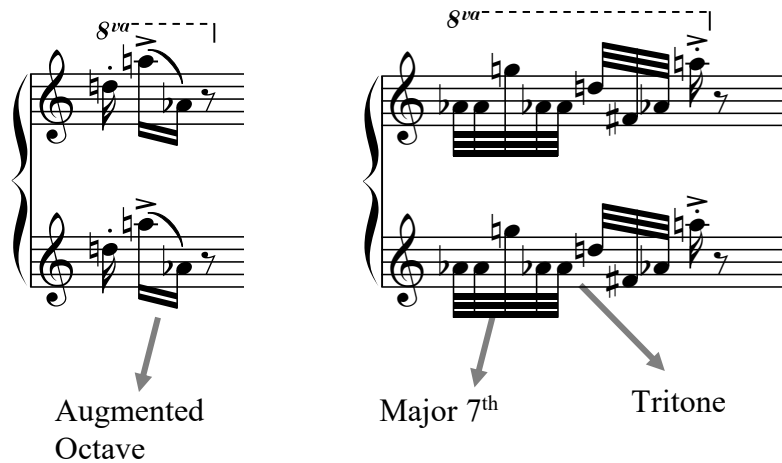


Figure.3.4. Examples of the most frequently used intervals within the nightingale motive. Both examples are taken from the opening cadenza (bar 1) of ‘Réveil des Oiseaux’.

In addition to its rhythmic structure, the nightingale’s cadenza presents repetitive patterns in interval structure that invite questions around whether they were inspired by the original birdsong or by more ‘technical’ parameters. Within the score, the nightingale motive includes a combination of tritones, major 7ths and augmented octaves (fig.3.4). All of these intervals are generally considered to be dissonant, with all three possessing semitone relations to the ‘perfect’ intervals: the tritone sitting between 4th and 5th, and the major 7th and augmented octave surrounding the perfect octave. It is not immediately clear why Messiaen has chosen to concentrate much of this cadenza on these intervals in particular. The composer’s transcription notebook from St Germain en Laye (1953),⁵⁵ however, displays a similar recurrence of these intervals.⁵⁶ All three intervals are present within the notebook, with the major 7th also employing identical pitches to those in fig.3.4. Although the notebook notates the augmented octave enharmonically as a minor 9th, both this and the tritone are employed in a similar way to the final score.

While the 1953 notebook still falls within the compositional time frame of *Réveil des Oiseaux*, it does not explicitly state that these transcriptions are for use within this work, as was previously noted within the 1952 notebook. When considering intervals, the earlier 1952 notebook employs the minor 7th much more frequently, still dissonant but more often used

⁵⁵ Œuvres musicales d’Olivier Messiaen. Travaux Préparatoires. Carnets de notation de chants d’oiseaux. 1951-1955. St Germain en Laye, 1953. Fonds Olivier Messiaen et Yvonne Loriod. Bibliothèque Nationale de France, Département de Musique.

⁵⁶ Imagery of this notebook is not permitted under copyright law, but I am permitted to describe my findings in writing.

within a consonant context, for example within dominant 7th chords. One may therefore investigate whether Messiaen has deliberately manipulated the sound of the bird—which is likely to originally have contained microtones—in order to create a musical motive with more of a leading tone drive (major 7ths leading to the octave and tritones to the dominant), but less of a consonant cadential or tonal scheme for the piece overall. In terms of performance, one framework to consider would be to emphasise these leading tone drives on an individual pitch basis, drawing on the dissonance and reduced cadential function within the interval to create a parallel between a lack of tonality and metricality within the rhythmic structures explored above. Given the apparent manipulation of this interval structure from the original 1952 notebook, one may suggest that this approach promotes compositional technique over the natural birdsong. With the additional employment of the equal tempered piano, one may be inclined to agree with Trevor Hold's above argument, suggesting that with the use of the piano, it is more appropriate to consider compositional technique over birdsong. This would, of course, promote entropic deterritorialization within the cadenza, a state that has been emphasised as undesirable within the present study. The investigation must therefore search for a method of highlighting both sonic territories, 'natural' and 'compositional'. As indicated by Robert Sherlaw Johnson, "no musical instrument is able to reproduce exactly the quality of birdsong, but this difficulty is partially overcome by the use of harmonies and harmonic resonances" (1975, p. 118). The harmonic series is hugely important in the attempt to overcome the limitations of Western notation and highlight the microtonal 'freedom' of singing birds, as will be explored in greater detail in chapter 5.⁵⁷ At this stage, however, the relevance of the piano to the harmonic series is highlighted, with construction of the instrument promoting a vast resonant expanse during performance (fig.3.5).

⁵⁷ Chapter 5 will explore the harmonic series with relation to spectralism, and so will engage more closely with existing studies of the topic, such as those of Marilyn Nonken.

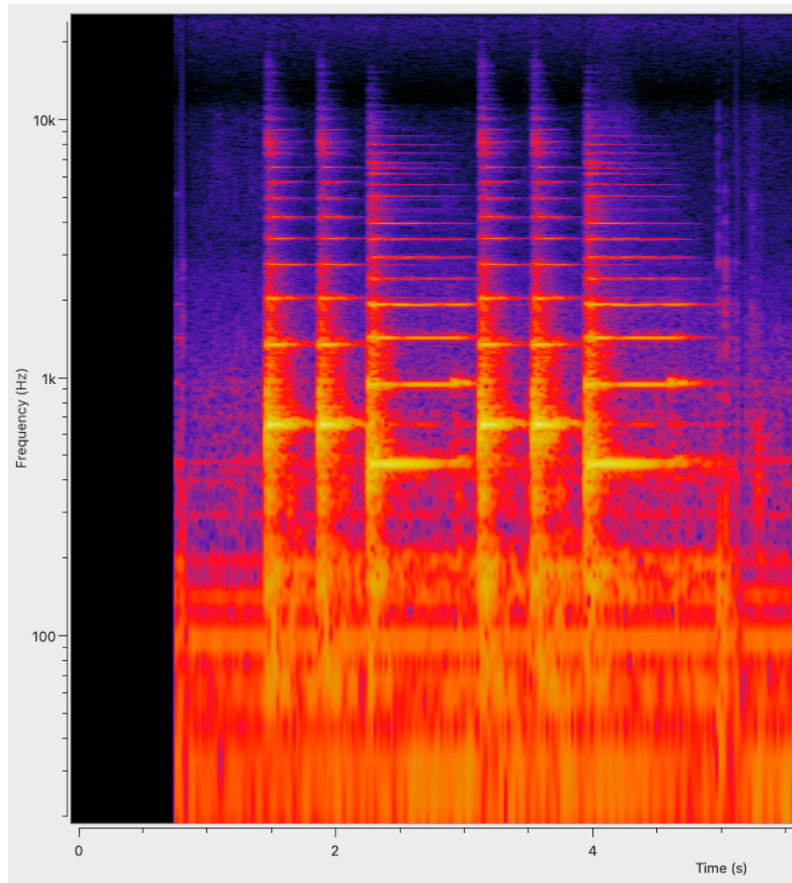


Figure.3.5. A spectrograph denoting the harmonic resonance of the piano performing ♪♪♪ at 60bpm.

Constructed with three strings per pitch, the modern piano expanded from its predecessors. The use of three strings allows for auxiliary resonance, with the clarity of upper harmonics stretching much further up the harmonic series than was previously conventional. Fig.3.5 demonstrates a typical wave form pattern of the piano, with the brightest yellow horizontal waves denoting the fundamental pitches in play. Notice the number of waves that run parallel to the fundamental pitches, indicating the frequency of each upper harmonic that can be heard. While the physics behind this will be explored in later chapters, the importance here is to acknowledge the clarity of each upper wave, with twelve partials being clearly shown on the given spectrograph. Fig.3.5 demonstrates one possible hindrance of the piano compared to other instruments: the sustaining power of the upper partials. In the present example, the uppermost resonances fade fairly substantially after the initial impact of the fundamental pitch, thus reducing the timbral breadth of the instrument within slower rhythmic passages. As explored earlier, however, the piano adapts well to Messiaen's birdsong motives thanks to the immediacy of attacks across rapid rhythmic phrases. The overriding rapidity of the

composer's birdsong motives thus ensures the presence of the full harmonic resonance throughout the phrase, with the rhythm progressing sufficiently quickly that the upper partials are not given the opportunity to fade. Messiaen's first nightingale cadenza is composed in 'monophonic octaves' which, as indicated by David Kraft, constitutes a single melody line doubled at the octave in both hands of the piano (Kraft, 2000). When combining this use of texture with the natural resonant ability of the piano, the performer is able to produce a wide range of harmonic partials above each of the two fundamental pitches. The wide expanse of resonances could mirror the microtonal qualities of the original birdsong if emphasised during performance. In doing this, the performer acknowledges Messiaen's compositional machine by sufficiently complying with the composed aspects of the score. By emphasising harmonic and rhythmic machines during performance, however, performers do not allow the compositional system to become trapped within the machine. When harnessed appropriately (emphasising the wide range of harmonic resonances above the fundamental pitch) the harmonic machine can reduce the possibility for entropic deterritorialization by combining natural and composed elements of the birdsong characters.

Of course, while the upper resonances are clearly present here, the ability to *hear* them lies primarily with the listener. With each listener having a different aural experience of the harmonic resonances, the potential for cyclic absolute deterritorialization is increased through a continuity of harmonic experiences (territories). Participant 3 (03/11/2020)—after being introduced to cyclic absolute deterritorialization using fig.0.2.b—suggested that “at its best the percussive piano can only imply, the rest of it is up to the recreative act of performing”. By combining the percussive rhythmic attack of the instrument with its broad harmonic spectrum, the piano possesses substantial potential for birdsong representation. One may wonder why the impact of equal temperament is not investigated, particularly on the intonation of distant (and dissonant) intervals such as the sevenths explored here. Recalling earlier discussions of the microtonal quality of natural birdsong, however, participant 3 suggests that the ‘out of tune’ nature of the equal temperament instrument may in fact promote the microtonal quality within the harmonic series if harnessed appropriately during performance. As developed by participant 10 (17/03/2021), the definite pitch of the piano can promote birdsong characteristics, with some birds sharing a reputation for defined intervallic songs. Stepping away from Messiaen specifically, we in the Western world recognise that the

cuckoo for example, is associated with a descending major 3rd.⁵⁸ Participant 10 therefore suggests that the definite pitch of the piano may, with a Western human audience, aid the performer's 'impression' of a bird, even where the 'natural' realism is perhaps reduced. Considering again the broad harmonic spectrum of the instrument, participant 10 suggests that by highlighting the frequent note clusters or dissonant harmonies that Messiaen employs, performers might expand the audible harmonics to an extent that once again aids the 'impression' of a bird that they are attempting to create. There is therefore proficiency in Messiaen's choice of the piano, with a performance such as that depicted here creating a flexibility in the instrument that provides a wealth of interpretative potential from a human audience.

The approaches investigated thus far are developed by Messiaen's incorporation of three separate nightingale motives within the initial piano cadenza. My exploration of texture has been concerned with the first nightingale. The second and third 'characters' to be introduced, however, convey much more of a conversational setting, in the sense that they are structured around "short counterpoint phrases" (Kraft, 2000, p. 177). As additionally demonstrated by Kraft, "the third nightingale is separated from the second by its use of dotted semiquaver beats that slow the music down". Recalling the extensive exploration of the added value in chapter 1 of this thesis, the addition of a dot here reduces metricality in the third nightingale motive, creating an impression of 'demetricalisation' – the deliberate manipulation and reduction of metricality within a phrase through the use of a notated rhythmic element. In the present example, however, I consider the pitch as well as the rhythmic basis of the implied conversation between the two nightingales as demonstrated within fig.3.6. With both hands of the piano based around the same tessitura, the challenge would fall to the performer to distinguish between the two bird motives, despite their crossover in range and rhythm. In the context of performance, the emphasis of the dotted semiquaver may therefore reinforce not only Messiaen's chosen compositional idiom, but also the realism of these motives, creating a distinction between the two parts by slowing the rhythmic progression of one against the other. With polyphony used in this case to alternate between two iterations of the same bird species, the act of adding a dot to the semiquavers allows the performer to exploit the

⁵⁸ The sound of the cuckoo is renowned within general society, even if those with less musical training may not be able to assign the specific interval label.

compositional machine of Messiaen's score. The score does not provide an individual territorial destination, but rather increases the potential for deterritorialization for the listener.

Second Nightingale

Third Nightingale

Dotted semiquavers employed only in the third nightingale motive, to create a sense of demetricalisation and conversation between the two birds.

Figure.3.6. Messiaen's composed conversation between two individual nightingales.

Participant 10 likens the second and third nightingale motives to a Bach fugue, suggesting a comparison in practice and performance approach that allows the separation of voices to become apparent to the listener. Proposing a long period of separation between the two voices during practice, participant 10 suggests that performers should take a mathematical approach, learning each 'character' to such an extent that it can be individually internalised, before gradually reintroducing the conversational aspect of the composed phrase. Fig.3.6 demonstrates frequent dotted semiquavers throughout the third nightingale motive which, according to participant 10, should be harnessed during performance as a syncopated feature of the motive. By emphasising the natural fluctuation in the weight distribution of fingers on keys, participant 10 suggests that listeners will be able to distinguish between the two nightingale 'voices'. In agreement with participant 10, participant 1 (19/10/2020) highlights the virtuosity of the 'musical' (notated) phrase here, suggesting that concentrating on performance technique will be inevitable for the performer. It is proposed, however, that emphasising the rhythmic components of the phrase will aid the impression of bird that can be drawn, creating a distinguishable separation between the voices even at such a close pitch range as shown in fig.3.6.

Previous discussions have explored varying existing opinions amongst scholars around the suitability and indeed capability of the piano in representing birdsong in music. While it may be counterintuitive to suggest that the equal tempered tuning of the piano is appropriate for the portrayal of microtonal birdsong, the immediacy of attack on the instrument allows for a breadth of harmonic resonance that presents a dissonant, almost microtonal quality. At the same time, appropriate melodic intonation is maintained to comply with the compositional machine and, indeed, the enculturation of the Western listener. This immediacy of attack makes the piano one of the most suitable and, perhaps, flexible instruments in conveying the rapid rhythmic tempi of the given birdsong. Consequently, when considerations are made by the performer concerning the effect of techniques such as doubling—whether exactly (in octaves) or inexactly (using other intervals)—on broadening the timbral and harmonic spectrum of the sound, then the piano is equally capable of communicating to the audience the ‘spirit’ and ‘character’ of the original birdsong. There is no set ‘method’ through which that harmonic breadth and immediacy of attack should be harnessed during performance, with the performer instead taking these features as inspiration for whichever approach they choose to take. Cyclic absolute deterritorialization is therefore expanded by the performer’s ability to interpret the piano’s capabilities in any number of ways, whether in an attempt to free the bird character from the compositional machine, or simply to satisfy the rhythms, textures and harmonies as notated on Messiaen’s score.

How does the piano blend with the orchestra?

There are many ways in which Messiaen’s use of the piano could parallel the function of a concerto. Using Messiaen’s *Réveil des Oiseaux* as an example, however, the piano’s role within a concerto (or piece of this style) is largely that of the soloist sitting aesthetically ‘above’⁵⁹ the orchestra with frequent cadenzas or solo sections. In this case, the piano forms its own ‘machine’, on which human influence can trigger either entropic deterritorialization (if considered as a compositional machine) or the more desirable cyclic absolute deterritorialization (if harnessed as a ‘stylistic’ machine). Messiaen, however, has explored the capabilities of the piano further by placing it *within* the orchestra, assigning the

⁵⁹ The term ‘above’ is employed here figuratively, suggesting not a physical sitting position but rather that the *sound* of the piano is prominent above that of the rest of the blended orchestra.

instrument to multiple bird motives to blend its timbral quality into the overall orchestral effect.

With the exception of *Oiseaux Exotiques* (1955), the majority of Messiaen's most renowned earlier birdsong works portray bird characters that are centred around a single instrument within the overall score, with the instrument "becoming bird" (Bogue, 2003), deterritorializing the original birdsong towards the new territory that the instrument inhabits. Recalling previous discussions of Bogue's 'becoming',⁶⁰ the investigation proposes the continuous development of *realistic* bird 'character' rather than *real* birdsong. Despite focusing on individual instruments throughout his early career, Messiaen's 1974 work *Des Canyons aux Étoiles* is based on an orchestral setting and, while not employing a full traditional Western orchestra, the piece is an effective example of Messiaen's incorporation of the piano within an ensemble setting. This twelve-movement work is concerned with a host of natural phenomena, transcending the landscapes from the deepest canyons to the stars in the sky. The second movement with which the current study is concerned, however, is *Les Orioles*, once again composed with birdsong as its central inspiration.

While typically deemed an orchestral work, *Les Orioles* possesses numerous additions to the traditional Western orchestra, one of which is the piano. Within the previous study of *Réveil des Oiseaux*, multiple different bird 'characters' were conveyed by the piano, meaning that it was the motivic content rather than the instrument itself that defined the composer's use of bird. Within *Les Orioles* however, the multiple birdsong motives are each 'assigned' to a single instrument, on which every iteration of the motive is heard. It would thus appear that Messiaen had the timbral quality of the specific instrument in mind when composing each motive, leading to investigations of how each of these instruments can depict the quality or 'spirit' of the birdsong in question. Taking the opening motivic character as an example, the piano is assigned to the 'Troupiale des Vergers' (Orchard Oriole). Recalling Peter Hill's assessment of Messiaen's attitude to the piano, "it was clear from the way [Messiaen] touched the keyboard that he was absorbed by the infinitely subtle blendings of sound and colour that could be obtained" (Hill, 1994, p. 554). Messiaen was confident in the piano's ability to communicate his birdsong motives, possibly even above the relative abilities of more 'conventional' orchestral instruments. This motive will therefore be considered not only

⁶⁰ Discussion of 'becoming' can be found in the introduction chapter of this thesis.

in terms of its birdsong function, but also in relation to the timbral and physical ‘colours’ that may be apparent when incorporating the piano with the remainder of the orchestral instrumentation.



G#	D#	C#	(Pitch Classes)
0	2	7	

Figure.3.7. Motivic similarities that demonstrate comparisons between the song of the Orchard Oriole and the Blackbird.

As explored in chapter 2, the opening iteration of the ‘Orchard Oriole’ motive draws on the species’ position within the broader ornithological spectrum. With the ‘New World Icterid’ family of orioles being part of the blackbird family, Messiaen has presented a birdsong character that is not only relevant to the native habitat⁶¹ in question, but also to existing melodic material from which he could compose the work. I previously explored the concept in relation to Messiaen’s use of the three-note motif, originally inspired by the song of the blackbird in *Le Merle Noir*. As can be observed within fig.3.7, The Orchard Oriole motive does not employ the same pitch structure or pitch class set as that of *Le Merle Noir* (PC set 3-5).⁶² The Orchard Oriole motive takes inspiration from the composer’s original idea, but is not a direct imitation of the earlier motif. In this instance, Messiaen has maintained just enough contour and rhythmic stability to form an audibly recognisable motif, while also

⁶¹ Discussions of habitat throughout this section of the chapter are concerned with the typical habitats of various orioles at the time of Messiaen’s composition (1974). It is recognised that habitats may since have changed due to human or environmental factors.

⁶² *Le Merle Noir* focuses its three-note motif around Fortean pitch-class set 3-5, with a pitch structure of 0,1,6. Please refer to chapter 2 for a reminder of this.

triggering sufficient variation to establish the physical differences between the oriole and its blackbird counterpart.

We are reminded here of the Deleuzian concept of ‘difference and repetition’, as explored in earlier chapters. James Williams highlights that “an event breaks time into two unequal parts: the past before the event and the future ahead of it. Yet we decode the past and the future through this event, which is therefore adequate to the whole of time” (2012, p. 35). Each iteration of Messiaen’s three-note motif, as explored here, constitutes an ‘event’⁶³ from which one aims to recognise the past and propose development for the future. The concept of Deleuzian ‘difference’ emerges from the potential space that sits between two ‘objects’ that have something in common. The study is therefore drawn to the specificity of the two bird species involved here, with enough commonality maintained to *recognise* the past, while at the same time forming sufficient variation to propose development for the future. As consistently emphasised by Deleuze, “contrariety *in the genus* is the perfect and maximal difference, and contrariety in the genus is specific difference” (1968, p. 30). Taking the current genus as ‘bird’, this study explores a difference within the genus, concerning the *species* of bird involved. Messiaen therefore explicates the difference through nostalgic repetition (looking back at the earlier origins of the motif); there is enough motivic recognition to perceive the commonality of the genus, but it is ultimately down to the listener’s interpretation to determine the amount of virtual potential (difference) that sits between the two species (motives). Once again mirroring cyclic absolute deterritorialization, the study can identify the amount of information that has been changed (lost, added or altered) between the Orchard Oriole and its blackbird predecessor. It thus falls to the performer to inhabit the maximal state of difference implied above; to emphasise a species level of difference while at the same time maintaining interpretative resemblance with past and indeed future motives (events) within the broader genus.

Relating these theories to the placement of the motive in the piano, the performer experiences a motive in which contour should be emphasised, creating an issue of balance and voicing that is primarily of concern to instruments of a chordal basis, such as the piano. Within

⁶³ James Williams’ reading of a Deleuzian ‘event’ accords well with our application of Difference and Repetition. Deleuze lectured on the concept of an ‘event’ in this way in 1987, which was shortly followed by a similar reading of the term by his colleague Alain Badiou the following year (*Being and Event*, 1988). The term is therefore upheld amongst much French philosophy of the era.

fig.3.7, the contour of the three-note motif is most recognisable in the upper voices of each hand. When aiming to satisfy the ‘difference and repetition’ contained within an ‘event’, one may employ an approach that places these upper voices at the fore of the performance, inviting the opportunity for the oriole’s relation to the blackbird to be perceived by the listener. While the study has emphasised that performers should not necessarily attempt to imitate birdsong exactly, the replication of the blackbird character by the pianist would accelerate deterritorialization through the listener’s ability to draw parallels between related motivic areas or ‘events’. The recognisability of this narrative would enable the dissolution of the finite ‘compositional machine’ in favour of a freedom of interpretation in which the birdsong ‘character’ is much more prominent. Of course this is a *possibility*, not a certainty, and rather than using performance to push the listener towards a single interpretation of the motive, performers instead present them with the opportunity to draw on additional components during their experience of the piece. The listener therefore does not have a specific role within the ‘machine’. Where the performer frees the bird characters from the limits of the compositional system, triggering deterritorialization, the listener can take the birds anywhere that they wish; the listener is responsible for the continuity of deterritorialization through their own interpretation of a given performance.

In discussion with participant 1 (19/10/2020), it was suggested that listeners and even performers will not necessarily jump to the conclusion that Messiaen’s bird motives are concerned with what the birds *sound* like. When considered more as the manner or gesture of the bird, the pitches may no longer be the priority within motivic performance, supporting the proposal for a contour-based approach. Not only would this approach promote motivic recognition, but a ‘disregard’ for individual pitches would draw the listener to the broader harmonic spectrum of the motive, highlighting the pianistic harmonic series discussed earlier in this chapter. Participant 2 (27/10/2020) additionally suggests that despite an overall tonal fluidity to the work, the block formation of vertical chord structures on each semiquaver beat creates a sense of harmonic grounding, thus allowing the timbral breadth of the motive to expand beyond its three melodic pitches towards the natural breadth of birdsong. While the breadth of birdsong *qualities* is emphasised, performers may not necessarily aim for an imitation of the real. As discussed earlier, the piano’s combination of percussive attack with harmonic breadth enables an element of birdsong realism in performance approach. By emphasising the ‘realistic’ over the ‘real’, participant 2 proposes that performers invite a greater level of interpretative territorial potential as, by combining the contour-based bird













gesture with the harmonic breadth of its song, performers can expand the comprehensiveness of narratives that could be interpreted by listeners. I therefore suggest that through the alignment of musical parameters with features of the bird character, performers are able to exploit the motive's compositional 'machine' (notated format) to trigger the formation of new territories based more directly on bird character (whether gesture or song).

The only other bird to be 'assigned' to the piano within *Les Orioles* is the Baltimore Oriole, native to eastern North America and found mostly in open woodland, similar to the Orchard Oriole (Cornell University, 2019). Both of the species explored so far are renowned for their whistling song, heard particularly from the male birds to sing from the treetops and attract females. In terms of instrumentation, it may seem that Messiaen 'assigned' birds to particular instruments due to a shared setting or spirit to their song, as shown here with the shared habitat and whistling songs of both orioles. Messiaen assigns a short yet identifiable motive to the Baltimore Oriole, with its whistling quality highlighted through the use of high pitched chords followed by rapid falling runs of demisemiquavers. There is once again a small realisation of the three-note motif here, a small yet poignant reminder of the oriole's link to the blackbird family and of Messiaen's close affiliation with the bird. While this motif shares an overall contour shape with the examples discussed earlier, this bird is the first to *not* place contour at the centre of its realisation of imagery. In this case, the rich harmonic language creates a motive which, even upon a first glance at the score, demonstrates the density and complexity of the oriole's song, the 'spirit' of which can be realised through considerations of the possible tonal basis of its harmonic progressions.

The density of Messiaen's harmonic progressions here invite considerations of the 'machine', this time a tonal machine. In order to unlock new performance approaches, one may explore the many possible tonal schemes or 'drives' that performers can draw from Messiaen's dense harmonic writing – the 'human influence' of the performer on the tonal machine. An exploration of drive theory (Smith, 2021) is therefore pertinent here. Drive theory uses graphics to show the tonal residual impulses of the 'tonal machine' in atonal music. For example, given a pitch collection of C-D-E_b-E-F-F_#-A_b, one may interpret 'drives' of a Fm⁷, a D⁷_{b5}, a Cdim or an A_b⁷. Once these drives are recognised, performers may choose to emphasise or, indeed, 'de-emphasise' each drive during performance. The current study therefore considers how applications of drive theory can uncover the hidden nuances of Messiaen's Baltimore Oriole motive. Whether in forming a sense of 'tonic' or highlighting

the relevance of an individual chord quality, drive theory will isolate harmonic progressions that may not be visually apparent when considered within the harmonic density of the score as a whole.

Fig.3.8 applies drive theory to the Baltimore Oriole motif. Each graphic is constructed on the basis of four corners. With the bottom left corner always representing the root of the chord, the graphic then progresses clockwise with each corner representing the root, 3rd, 5th and 7th respectively. The shape of each corner depicts the quality of the interval, with a diatonic/major pitch indicated by a curved edge, a minor or diminished pitch shown with a 'flattened' or straight edge, and an augmented pitch represented by a 'stretched' or pointed edge. Triads are similarly depicted through the use of a triangular graphic, as in the key of fig.3.8.

Description	Avatar
<i>Dominant-seventh chord with diminished fifth</i>	
<i>Dominant-seventh chord with augmented fifth</i>	
<i>Pure dominant seventh chord</i>	
<i>'Half diminished'</i>	
<i>Full diminished-seventh chord</i>	
<i>Augmented chord, comprised of major thirds.</i>	
<i>Implicit dominant-seventh chord; omitted fifth</i>	
<i>'Major-seventh' chord</i>	
<i>Diminished triad</i>	
<i>Pure triad. Only charted if it acts as a clear V</i>	
<i>Minor chord with an additional 'major seventh'</i>	
<i>Minor seventh chord</i>	

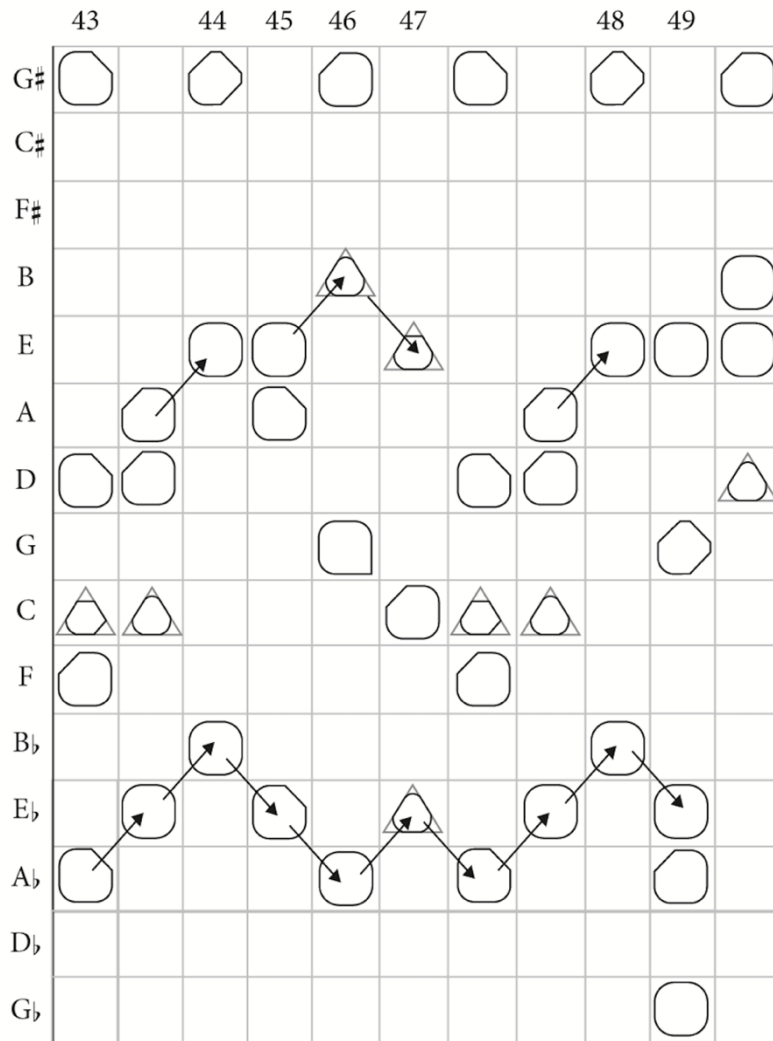


Figure.3.8. An exploration of drive theory in the Baltimore Oriole’s motive to unlock clarity amongst harmonic density. Key and graphics adapted from (Smith, 2021).

Fig.3.8 considers harmonic density in relation to entropy, exploring decreased ‘organisation’ in which a musical phrase possesses “a sense of tonal drive but with an increased array of outlets for this drive’s tension to be released” (Smith, 2021, p. 1). The above visualisation of this approach is constructed using ‘avatars’ to represent ‘conventional’ harmonies (or consonant chords) that can be drawn from the pitch content of a harmonically dense phrase. As can be observed within fig.3.8, there are multiple harmonic drives that can be drawn from each seemingly dissonant chord within the Baltimore Oriole motive, and multiple patterns that can be observed throughout the harmonic progressions. There are numerous pitch centres shown within fig.3.8 that are employed as a ‘tonal centre’ for a harmonic drive. Two centres, however, occur more frequently than others: E and G# (Ab). The major third relation between these two pitches may for some suggest an overall ‘centre’ on the pitch E, presenting it with a

‘root’ function throughout the motivic section. By no means do I suggest that this motive is composed in the key of E major or even necessarily within any realm of tonal function. Nevertheless, given the frequency of this pitch class in the drives of these highly dense, dissonant harmonies, it seems natural that some emphasis could be placed onto this pitch class through performance. In the context of the piano, the major 3rd relation between E and G \sharp can be used to emphasise E. Given the equal tempered tuning of the piano and its combination in this orchestral context with instruments of differing tuning systems, if a performer were to ‘reduce’ the G \sharp in the sense of placing less emphasis on it than the E, then the overall sonic impression would timbrally fall closer to the major 3rd interval of just intonation, increasing the harmonic clarity of the phrase. In discussion with performers, a similar consensus was reached. After showing fig.3.8 to participants and discussing its significance to the Baltimore Oriole motive, participant 3 in particular emphasised Messiaen’s career as an organist which, during his lifetime, would not often adhere to the equal tempered tuning of the modern piano. Messiaen therefore experienced for himself the capability of keyboard instruments to produce pure intervals, with the tonal intention of his compositions coming not from a given key or tonality, but from an understanding of the intervallic purity of his motives. Participant 3 highlights that the performer, and in this case the conductor, could strive for the purity of intonation that Messiaen was accustomed to in order to draw on the element of motivic recognition that is so central to this section of the work. Referring constantly to natural birdsong, however, microtonal qualities can only be represented through the harmonic resonance of the piano, not through the fundamental pitches that the instrument is able to play. Participant 10 therefore suggests that in the instance of a proposed harmonic drive, perhaps the performer should instead highlight the *overall* context of the motive, placing slight emphasis on E and G \sharp while at the same time depicting the vast harmonic blend that is created by the density of chords throughout the phrase.

In addition to pitch class, there are also patterns emerging from the drive theory of fig.3.8 in relation to the progressions *between* different drives. One particularly extended instance of this is the fluctuation through the fifth progressions between B \flat and A \flat , a fluctuation that occurs in waves across the whole motive from A \flat -E \flat -B \flat . Given the enharmonic equivalence⁶⁴

⁶⁴ The pitches G \sharp and A \flat are emphasised as enharmonics in equal temperament, not necessarily within ‘just’ intonation.

of A_b to G_#, it is possible that the previously explored ‘roots’ of E and G_# formed a ‘false tonic’, with the G_# drives instead functioning as A_b, the subdominant of E_b. When considered in this way, the fluctuating fifths that are experienced throughout the motive indicate an additional suggested ‘tonic’ of E_b, with the harmonic progressions drawing attention to both its subdominant (A_b) and dominant (B_b). Whether considering E_b or E as the ‘main drive’, it is clear from the number of drives that Messiaen did not compose this motive with a fixed tonic in mind. The purpose of analysing the motive in this way, however, is beneficial to considerations of performance practice. Given the dense chordal quality within a single instrument here, the pianist will likely be looking for a sense of progression for their performance, highlighting development through the piece as a whole, despite the static nature of the individual motive. It may therefore benefit the performer to pick out the semitone relation between E_b and E to create a harmonic anchor through which the motive can be communicated effectively from performer to listener. As stated above, both participant 3 and participant 10 are strongly in favour of drawing on intervallic and harmonic anchors throughout this work, to increase the forward momentum of the piece. While not necessarily a key element of the natural birdsong, anchor points such as these demonstrate human influence on the ‘tonal machine’, manipulating the natural tonal scheme (or lack thereof) of the birdsong to create a more recognisable or melodic motive for the human listener. This element of recognisability therefore promotes engagement from the audience, drawing them towards the melodic elements of the motive. Explorations of the piano conclude by highlighting the potential flexibility of an instrument that has developed a reputation for its limited harmonic capabilities. By combining the immediacy of percussive attack with its abundant harmonic partials, the piano ‘machine’ as a whole can be manipulated towards any motivic function, with harmonic and rhythmic flexibility from the performer enabling an infinite amount of interpretative potential within any number of musical settings.

This chapter has so far been concerned with performance conventions of the piano. Within *Les Orioles*, however, Messiaen has incorporated numerous other instruments which, while not a full orchestra, increase the timbral flexibility of the piece as a whole. Beyond the piano, Messiaen made one other choice in his instrumentation that stretches this work beyond the typical expectation of an orchestral setting: the xylorimba, an instrument that is comparable to a xylophone but with an extended five octave range. The first experience of this instrument in relation to a birdsong motive comes with that of Scott’s Oriole, a species much more yellow in colour than those explored so far, and the first within this piece to be found within

Utah – the state on which Messiaen based his twelve-movement work (The Cornell Laboratory, 2019). Motivically, the xylorimba presents a different timbre to the previously heard piano, with its wooden ‘keys’ creating a hollow, less sustained tone quality. It is this unique timbral quality that could be reinforced in performance, emphasising the differing quality to that of the piano and allowing the movement to progress into a different spirit and ‘species’ of birdsong at this point. I am not suggesting that Messiaen’s instrument choices were made for human instruments to replicate natural birdsong timbres. The shift in instrumental timbre instead highlights a shift in *character* rather than a real ‘vocal’ timbre of the birds. Earlier in this chapter, I explored the concept of Deleuzian ‘difference’ within the genus of bird, with the varying oriole characters depicting a ‘species’ that maintains sufficient characteristics to share the original genus, while highlighting varied ‘difference’ within the species and, indeed, the individual. Here the same type of specific difference is taken from a *musical* genus: the instrument. One is similarly able to recognise enough commonality between the two ‘species’ at hand—they are both pitched, percussive instruments with a similar pitch range—to infer virtual potential, while at the same time acknowledging the alterations of this ‘event’ compared with the past.

It is within this musical context, in which there are numerous contextual components involved, that I develop this consideration further to explore Deleuzian ‘repetition’. As explained by James Williams, “for Deleuze there is repetition when there is difference in the shades [of colour] resisting definition according to a fixed identity” (2012, p. 38). With instrumentation serving as the ‘shade of colour’, there exists “a novel series of differences” (Williams, 2012, p. 38) within Messiaen’s motives, with the ultimate aim of portraying a bird (the overarching genus), remaining constant. I therefore consider the extent of difference that is created by this change in instrumentation, with a fundamental consideration of deterritorialization through performance remaining at the core of the investigation.

Motive built around large disjunct leaps which all possess a largely dissonant quality

Tritone Major 7th Augmented 6th

Three-note motive. This iteration does not have the same pitch-class or contour relations as those explored in relation to the blackbird, but it seems to still serve as an audible anchor of a recognisable element.

Figure.3.9. Identifiable musical elements within the Scott's Oriole motive, particularly in relation to interval and contour structure.

The hollow timbre and lack of sustain within the xylorimba appears to work hand in hand with the interval construction of Messiaen's Scott's Oriole motive, creating a more 'erratic' character through disjunct and somewhat dissonant melodic leaps. The large melodic leaps of augmented 6ths and major 7ths shown in fig.3.9 appear to be 'authentic' to Messiaen's interpretation of the original birdsong source, as demonstrated within his 1972 notebook from his research journey across Utah.⁶⁵ Suggesting a sense of realism to the bird's song as well as its overall style in this case, Messiaen has presented a motive that is recognisable—although perhaps slowed from its natural habitat—by its *content* as well as its *context*. Not only will this recognisability aid the performer and the audience in understanding the inspiration behind Messiaen's composition, it will also increase the extent of deterritorialization by emphasising motivic realism and drawing directly on the original song of the bird. Within Messiaen's notebook, the composer has made two transcriptions of the Scott's Oriole which, positioned at opposite ends of the notebook, appear to have been written chronologically far apart from each other. Comparing these transcriptions to the final score, there are numerous discrepancies that argue both for and against the relative accuracy and 'authenticity' of the

⁶⁵ I cannot visually demonstrate Messiaen's notebook due to copyright law, but I can describe my findings.

birdsong. It is evident that both of Messiaen's initial transcriptions possess the same opening rhythm and overall phrasing as the final score, with the persistent sense of a 'scotch snap' rhythm prevailing throughout the notebook and the final score. I therefore suggest that Messiaen *has* taken the accurate birdsong as his main inspiration and sound source. Additionally, the interval structure that has been discussed surrounding this motive is evident within Messiaen's notebook. While the augmented 6th is often notated enharmonically as a minor 7th, this along with the tritone are frequently evidenced in Messiaen's first transcription, with the major 7th making its mark in the second transcription. While enharmonic in terms of equal tempered tuning, Messiaen may have chosen to enharmonically restructure the augmented 6th in order to differentiate this interval from the leading tone function of the 7th, emphasising that the equal tempered tuning of the xylorimba would not impact the overall aesthetic of the interval in performance.

Messiaen's second transcription also contains the exact pitch relation between E₅ and F₄ (major 7th) that is present within the final score. Within Messiaen's original notebook, the composer has marked the second transcription with a square, confirming that he believed this to be the more accurate transcription. I may additionally hypothesise that this second entry into the notebook is Messiaen's attempt at a *translation* rather than a *transcription*, in the sense that while listening to the bird he has attempted to create a realistic 'version' of the song that is more accessible for human musicians. Messiaen has similarly noted the states of Nevada, Utah and Arizona within this second transcription, suggesting the habitats in which this bird was observed. Whether this influenced the final score beyond its interval structure is difficult to discern, but in performance, it is clear that the major 7th interval and this transcription as a whole should be carefully considered in terms of the overall style of the birdsong.

A final point of comparison comes in the structuring of silence within the final score in relation to the composer's initial transcriptions. As would be expected, Messiaen has transcribed rests within his notebook, providing a sense of metric pulse and 'limit' to the rhythmic value of silence. However, within the final score there are instead physical spaces that have been left between phrases of notation, suggesting that the performer should consider the length of silence that they feel is natural to the birdsong, with the flexibility that each performance could and perhaps *should* be different. By giving the motive more of a cadenza-like style, the musical rigidity of the motive is lost, allowing increased

detritorialization and a move towards the realm of ‘natural’ (as heard in nature) as opposed to ‘musical’ (notated) sound.

Messiaen similarly ‘assigns’ the xyloimba to the Bullock’s Oriole motive, the only other ‘species’ to be found within the state of Utah. The Bullock’s Oriole is one of the smaller oriole breeds much like Scott’s Oriole discussed above. The distinguishing feature of Bullock’s Oriole, however, is its bright orange plumage, contrasting to the paler yellow of its Utah counterpart. Rather than a shared colour, it is likely the small stature and shared habitat of both of these birds that led Messiaen to assign them to the xyloimba, especially given the light, hollow timbre of the wooden instrument. Motivically, the Bullock’s Oriole is only presented with an extremely short phrase, during which its whistling song is immediately depicted by Messiaen’s particularly high choice of register. Defined by even wider leaps than Scott’s Oriole of an octave and a minor 9th, this short motive holds the listener’s attention around the pitch classes B, C and C#. The leaps themselves and the overall contour of the motive appear to be a fairly direct imitation of the natural birdsong, which is well renowned for its combination of whistling and ‘chuckling’ (The Cornell Laboratory, 2019), here characterised by dissonant tritones and minor 9ths (fig.3.10). Messiaen’s 1972 transcription notebook once again portrays similarities with the final score, with consistent rhythm across the opening phrase in all transcriptions, and a persistent use of octaves and minor 9ths throughout.

50

Octave

Minor 9th

Key
 ○ = main pitch-class centres of the motive

This short motif does not exactly resemble the blackbird motive, but it appears to serve a similar function as an audible reminder in this case.

Figure.3.10. A demonstration of the construction of Bullock’s Oriole motive, including interval structures, pitch-class centres and recognisable motifs.

Both transcriptions mirror the opening rhythm of the final motive, with three repeated pitches leading to a disjunct melodic leap. The second transcription also shares its pitch class with the final score which, although at a different octave, highlights the C# pitch class. In terms of interval structure, the second of these transcriptions seems to more closely resemble Messiaen's final composition, with the frequent presence of tritones and minor 9ths (written enharmonically in this case as an augmented octave). This along with the extended phrase lengths of the first transcription once again indicates that it is the second of these that Messiaen took the most inspiration from when composing his final motive. We therefore are given some insight into Messiaen's transcription process, in that he appears to transcribe the bird first with accuracy to its song in mind, before observing once again and transcribing a second song that favours ease of human understanding. While it is true that even the second of these transcriptions is notated much lower in pitch than the final score, it is likely that this was done merely for ease of notation in the live field, with editorial decisions later being made in relation to the realism of pitch in the birdsong. The study can therefore observe that in performance, this motive appears to place contour and interval structure at the fore of its notated content, with this feature most strongly communicating the 'spirit' of the bird in question. The performer may emphasise the disjunct leaps of the motive in order to highlight the whistling call of the Bullock's Oriole, heightening the light, hollow timbre of the instrument to emulate the whistle of the bird itself.

Messiaen's choice of the xylorimba to represent the Scott's Oriole and Bullock's Oriole in particular portrays not only the songs of these Utah birds, but also heightens the relevance of their motives to a portrayal of setting and place, demonstrated particularly through the timbral quality of their intervallic dissonance against the percussive tone of the xylorimba. In terms of performance, the use of the xylorimba for this motive may promote similar performance conventions to those of the piano, through its keyed construction and similar pitch range. Timbrally however, the xylorimba presents a contrasting sound palette, inviting different focal points in the sound for both the performer and the listener. Given the interval structure of both of the motives in question, it may seem that the purity of intervals should be the main component of a performance approach. Tuned in equal temperament in the same way as the piano, the xylorimba may struggle to reproduce 'pure' intervals exactly, but its timbral versatility in terms of tone quality will certainly support its intervallic resonance. As claimed by Jeremy Montagu, "if the bars are thin enough to give a good marimba tone they are not chippy enough for the xylophone, and of course vice versa" (Montagu, 2002). While

Montagu suggests that the xylorimba strikes a very fine balance between the timbres of the marimba and the xylophone, the resemblance to both instruments increases the flexibility of the xylorimba in depicting the ‘spirit’ of Messiaen’s birdsong motives.

A final instrumental consideration comes with Messiaen’s use of the oboe, again assigned to two motivic ‘characters’, in this case Lichtenstein’s Oriole and the Hooded Oriole. Visually, these birds share an orange plumage which, in contrast to Bullock’s Oriole, spreads onto the head of the bird, meaning that their black feathers are reserved for the wings. Once again, however, a consideration of place is evident when exploring the pairing of these two birds, with both being native to the far south-west of the United States and to Mexico (The Cornell Laboratory, 2019). Heard first, Lichtenstein’s Oriole possesses a motive that is dense in orchestration. Performers therefore rely on Messiaen’s written label to identify the instrument that is ‘assigned’ to this bird. All woodwind, brass and percussion instruments are employed, rhythmically in unison, with the two distinct oboe parts producing a close harmony that ultimately defines the motive. This motive is defined once again by its interval structure. Within the oboe line itself, the motive’s opening tritone immediately establishes a sense of unease within the phrase, given the renowned link between the tritone and connotations of evil. Following this, a descending melodic figure is heard in which the interval structure expands, from a perfect 4th, through a major 6th to an augmented 6th (fig.3.11).

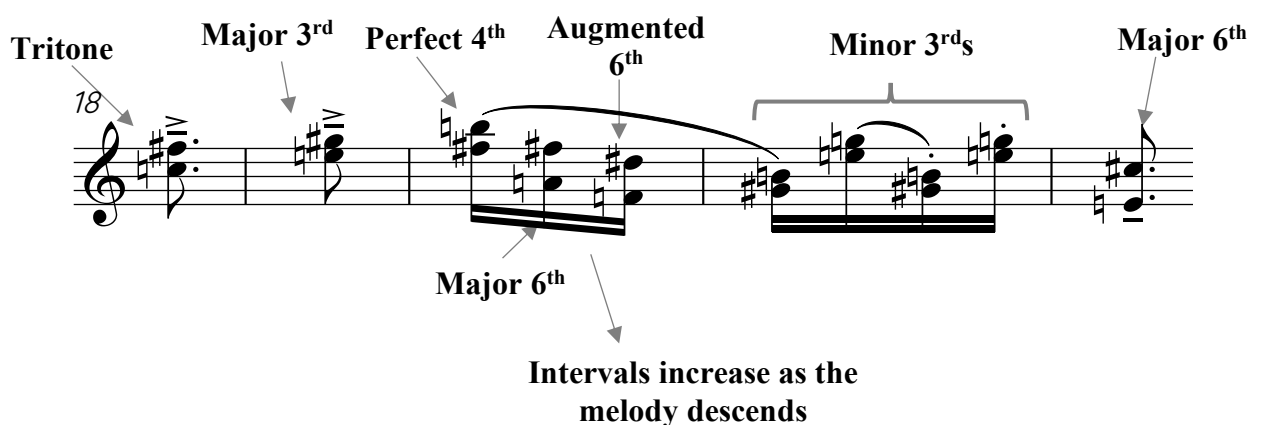


Figure.3.11. An insight into the interval structure of the oboe line within the Lichtenstein’s Oriole motive.

One may suggest that these expanding intervals have been employed to maintain the broad timbral quality produced by the motive's full orchestration, even during a point of melodic descent. Even beyond the oboe line, there appears to be a certain intervallic consistency throughout the whole orchestra. Considering the intervals of the oboe line demonstrated in fig.3.11, the use of tritones in particular is consistent across other instrumental parts. As demonstrated in fig.3.12,⁶⁶ the first bar of the motive incorporates a tritone in the oboe line, two more of which can be heard at the same time across the rest of the orchestra. This pattern continues throughout the motive, with the interval structure of the oboe prevailing in all orchestral parts. At this point, therefore, I focus on timbre and contour, with the importance of single pitches and individual instruments ('species') perhaps being put to one side in favour of a more collective orchestral whole (a broader 'genus').

⁶⁶ Please note that the pitches scored in fig.3.12 are notated in concert pitch.

18

Tritone 1 – C-F#

Tritone 2 – E-A#

Tritone 3 – F-B

Figure.3.12. *Intervallic consistency between all orchestral parts within Lichtenstein’s Oriole motive.*

Similarly ‘assigned’ to the oboe, the Hooded Oriole is the last to be introduced to the work and is comparable to the Lichtenstein’s Oriole in orchestration and contour. While a full string section is added to the score of this motive, the strings do not impact the timbral quality of the overall motive, despite the accentuation of their opening statement. The overall motive is therefore structured once again around its intervallic and melodic content, more so than harmonic correspondences. While similar to Lichtenstein’s Oriole in its use of intervals spanning 3rds, 4ths and 6ths, the two motives are contrasted by temporal adjustments that have been made to the latter Hooded Oriole. Lichtenstein’s Oriole possesses time signatures that

fluctuate between two, three and four semiquavers per bar; transitions which, while unconventional, maintain consistency in their shared use of the semiquaver as their primary beat. The Hooded Oriole, however, fluctuates even further temporally. While a time signature of 2/16 is maintained as a recurring base, this is alternated with 5/32 and 7/32. A change of ‘beat’ here to a demisemiquaver is combined with quicker rhythmic statements to produce a more erratic style. Interestingly, the two new time signatures described here employ an alteration of just one demisemiquaver from those of the Lichtenstein’s Oriole. While not overt, one may refer here to Messiaen’s use of the added value, in this case *removing* the smallest rhythmic increment to trigger demetricalisation when comparing the Lichtenstein and Hooded Oriole motives.

Given the dense orchestration of both motives, it may be slightly more difficult to discern the approach that a performer could take to highlight the ‘species’ level ‘difference’ between the two bird ‘characters’. Despite the density of the overall orchestration, ‘repetition’ can be drawn from both motives due to their shared ‘assignment’, a compositional choice that has been explicitly marked on the final score by attaching bird species labels to the oboe part. A performer may therefore choose to place the oboe timbrally at the fore of the orchestral setting during performance. Structured with a double reed, the oboe is able to achieve some level of just intonation. In the case of these motives specifically, a performer may benefit from attempting to mirror the intervallic qualities of just intonation, to increase the ‘purity’ of the harmonies produced, while also allowing these particular motives to be distinguished from the rest thanks to Messiaen’s instrumentation choices.

Both participant 5 (11/11/2020) and participant 6 (24/11/2020) have expressed opinions regarding the Lichtenstein’s and Hooded Orioles, with each drawing on a different element of the motive to determine its function within the wider work. Considering first the orchestral whole of these motives, participant 5 discussed the timbral contrast between this and earlier choices of instrumentation (piano and xylorimba). Participant 5 suggests that two timbral ‘colours’ can be discerned throughout *Les Orioles*, which are originally juxtaposed in contrasting motivic sections but gradually become ‘superimposed’ as the piece progresses. With timbral colours being defined as ‘percussive’ and ‘legato’, participant 5 suggests that the oboe-based motives largely employ the latter, with the inclusion of ‘arco’ strings adding to this ‘colour’. Within performance, participant 5 therefore suggests that by drawing on the dense orchestration of the given motives, performers should highlight the ‘legato’ character

of the motives by producing a blend of timbres throughout the orchestra, something that participant 3 (03/11/2020) highlights as the conductor’s responsibility within a context such as this. In addition to the use of a full orchestral texture, participant 5 identifies “classic Messiaen parallelism” between the oboes and the flutes, particularly following the initial iteration of Lichtenstein’s Oriole. Note within fig.3.13 the identical pitches and harmonic structure that are spread between the oboes and the flutes. Participant 5 emphasises the ‘mirror image’ between these two phrases, maintaining the legato ‘colour’ of the section while moving between two instrumental timbres. While this phrase in particular is not part of the principal Lichtenstein’s Oriole motive, Messiaen continues to highlight the distinctiveness of the full orchestra within this section of the movement, in contrast with the percussive soloists of the piano and xyloimba discussed above. Participant 5 thus continues to highlight the need for performers to feel conceptual changes within this movement, with instrumental timbre providing harmonic and textural alterations with individual implications of character related to both the bird and the wider scenic narrative of the work.

The image shows a musical score for measures 24 to 27. The instruments are Flute (top two staves), Alto Flute (third staff), Oboe (bottom two staves), and Cor Anglais (bottom-most staff). The music is in 3/8 time and features a complex, multi-measure rest pattern in measures 24 and 25, followed by melodic lines in measures 26 and 27. The flute and oboe parts are highly parallel, with identical or near-identical pitches and harmonic structures, demonstrating the 'legato' timbre mentioned in the text. The Alto Flute and Cor Anglais parts also play parallel lines. The score is written in treble clef with a key signature of one flat (B-flat).

Figure.3.13. A demonstration of the ‘legato’ timbre created by the paralleled oboes and flutes within Messiaen’s Lichtenstein Oriole.

In addition to participant 5's approach to 'colour', participant 6 explores the harmonic implications of Messiaen's oboe-based motives, with performance being centred on the intervallic capabilities of each instrument. The Lichtenstein and Hooded Oriole motives contain frequent tritones, an interval associated in Western culture with an otherworldly, perhaps animalistic character. While participant 6 emphasises that the tritone possesses a much larger frequency ratio than its 'purer' neighbours, they simultaneously highlight the impact that the symmetry of the interval can have on the intonation of the overall phrase. With the tritone sitting exactly halfway through the octave, participant 6 suggests that the use of woodwind and strings in this motive is efficient in drawing on the nature of the tritone, exploiting its sonic aesthetic to enable the tritone to define the motive intervallically. While woodwind and strings are more likely to adhere to a single tuning system when performing in an orchestral context, participant 6 highlights that both of these instrument families are capable of just intonation, thus enabling them to perform the tritone so that it does sit exactly halfway within the octave. With this in mind, Messiaen's instrumentation choices for the orioles in question draw the motives once more towards a combination of intervallic harmony with timbral aesthetic, broadening their narrative capability and therefore their potential for absolute deterritorialization. One cannot say for certain whether the dense orchestration in this instance would enable listeners to engage with the realism of a bird, but the importance here seems to fall with unlocking territories that highlight the relation ('repetition') between the two instrumentally assigned birds in question, while at the same time drawing contrast ('difference') between these and the instrumental 'assignments' discussed earlier.

Summary

Much like the previous chapter, the current investigation is concerned with the human influence on the 'machine' as a catalyst for 'differential entropy' – an instigator of change that can be interpreted either in a cyclic (maintaining 'repetitive' recognition of its origin) or an entropic (deterritorializing away from the original sound source) way. While exploring multiple different machines (tonal, intervallic, rhythmic), the chapter has focused on the 'timbral machine' that may be created by Messiaen's choices of instrumentation. Where the previous chapter proposed 'difference' at the level of the 'individual' with relation to iterations of a leitmotivic character, the current chapter has explored 'difference' within a bird 'species', where both difference and repetition between different species can be

identified through their instrumentation ‘assignments’. In order to highlight the cyclic nature of deterritorialization in this way, one may conclude that considerations of instrumental timbre are most crucial to performance approach, adapting the compositional *content* of a motive in order to suit the *context* of the ‘species’ character within its original sonic territory. While again not proposing a full 360° rotation around the ‘cycle’ of deterritorialization, the ‘differential’ and, indeed, ‘repetitive’ aspects of various ‘species’ maximise the continuity of deterritorialization by drawing on extra-musical motivic characteristics, with instrumentation serving as a catalyst for this. As the current study progresses, I will move to apply the concept of species-level difference to harmonic parameters, expanding on the explorations of interval structures to consider the harmonic resonance that can be applied to each of Messiaen’s instrumental ‘assignments’, this time in relation to synaesthesia and spectralism.

Chapter 4: Messiaen, Synaesthesia and Birdsong Perception

Within the introduction to this thesis, the performance of birdsong relating to Deleuzian theory was explored using the five w's: who, what, where, when and why. The current chapter similarly relates Deleuzian theory to the five human senses: sight, sound, smell, touch and taste. While clearly some will be more relevant than others to a study of music, the present chapter is concerned with "sensory crossovers in which stimuli applied to one of the five senses produces responses in another sense" (Bernard, 1986, p. 42): a concept known most broadly as *synaesthesia*. In relation to music, this chapter will most frequently refer to the combination of aural and visual applications, in which an aural stimulus (music) triggers a visual response, although the possibility for applications of smell and touch may also be inferred. Exploring both colour and image-based responses, I consider timbral or harmonic components of a composition (sound) that invoke associations with colour (sight), hereby referred to as 'coloured hearing' or *chromesthesia* (Curwen, 2018).

Chromesthesia itself is a natural condition that is experienced by only four percent of the global population, including Olivier Messiaen. Due to the heightened subjectivity and 'rarity' of chromesthesia, the present investigation will consider the concept from a number of angles, to incorporate the various possible experiences of all performers and listeners with relation to sound and colour. Analyses within this chapter will therefore elaborate on the following categories: (1) **full chromesthesia** – a recognised and explicit experience of 'coloured hearing'; (2) **composer's chromesthesia** – elements of Messiaen's chromesthetic experience that have made their way into his compositions; (3) **inspired chromesthesia** – the use of composer's chromesthesia as inspiration for performance, even where the experience is not explicit for the performer themselves; (4) **manufactured synaesthesia** – a mental image created in the mind of non-synaesthetic listeners through an attempt to draw on both composer's and inspired chromesthesia, and (5) **projected chromesthesia** – an almost 'forced' colour correspondence through explicitly and visually communicated colour, such as a light show. Fig.4.1 demonstrates how each of the proposed synaesthetic experiences may relate to each other and how, as will be explored throughout this chapter, this may enable and accelerate cyclic absolute deterritorialization during performance.

	Composer's Chromesthesia	Inspired Chromesthesia (Performer)	Projected Chromesthesia (External)
Composer's Chromesthesia		Composer's chromesthesia inspires an alignment between musical parameters and possible performance approaches.	Composer's chromesthesia used as inspiration for creating a light show or other visualisation alongside performance.
Full Chromesthesia (Listener)	Composer's chromesthesia aligns (or otherwise) with a full colour correspondence from listener.	Inspired chromesthesia triggers full colour correspondence from listener.	External colour <i>supports</i> (or otherwise) a pre-existing colour correspondence from synaesthete.
Manufactured Synaesthesia (Listener)	Analysis of composer's chromesthesia aids a hermeneutic reading of a piece for non-synaesthetes.	Inspired chromesthesia aids the formation of a trigger point without defined colour.	External colour promotes understanding of composer's chromesthesia for non-synaesthetes.

Figure.4.1. A visualisation of proposed synaesthetic experiences and the impacts that they may have on each other during performance and consumption. Each row connects with each column of the given matrix. Note, however, that composer's chromesthesia transcends both sides of the matrix due to its potential to impact both performers and listeners.

As the current study progresses, I emphasise some of the possible frameworks through which Messiaen's experiences of chromesthesia may translate and transform to the experiences of performers and listeners. In relation to the reinterpretation of a musical idea by performer or listener, the earlier exploration of *refraction* is recalled, which also accords well with the notion of colour in the current investigation. The earlier examination proposed that musical refraction is 'an interpretation that maintains recognisability in some motivic aspects while also allowing the song to expand its interpretative and territorial potential'. This definition strongly resembles the investigation of Deleuze's 'Difference and Repetition', with motivic recognition constituting 'repetition' within a variable, or 'differential'⁶⁷ product. Given the exploration of colour in this instance, however, the study will maintain the specific nuance of refraction, in the sense of dividing light into its fundamental components. Through a combination of literal (relating to the division of light) and metaphorical definitions of refraction, I explore the nuanced approach of difference and repetition that, within the present study, can act as a catalyst for the broader process of cyclic absolute deterritorialization.

Isaac Newton's (1704) study of light unveiled the concept of colour refraction, in which light as a 'unit' is a "compound of primary colours, which can be separated out and mixed together to form additional colours at will" (Samuels, 2013). One may therefore consider light itself to be a subjective force in which each perceiver can interpret differently the colours that they 'absorb'. The current investigation considers the simultaneity of musical or audible refraction with visual chromesthetic refraction, highlighting not only the music itself as an interpretative force, but also eliciting subjectivity in the colour correspondences that may be drawn from the experience. Just as Deleuzian Difference and Repetition has previously been related to the process of cyclic absolute deterritorialization, the same relation can be drawn with the deterritorializing potential of refraction. During the process of deterritorialization, the 'forces of chaos' are presented as interruptions to an otherwise continuous process, which can either trigger a single reterritorialized state, or can be manipulated or overcome to continue the process. The current investigation proposes that chromesthesia is a 'force of chaos' that presents an opportunity to unlock new expressive territories dependant on the manner and extent to which chromesthesia is experienced by performer or listener.

⁶⁷ As throughout this thesis, the term 'differential' is employed in a Deleuzian way to explore the virtual potential for variation between two different objects. As investigated by Deleuze (1968), 'virtual potential' possesses the means, where necessary, to be a quantifiable factor, thus aligning 'differential' as an adjective with the mathematical applications of the term.

David Eagleman suggests a definition of synaesthesia, which states that the process is “a reminder that from person to person – and from brain to brain – our internal experience of reality can be somewhat different” (2015, p. 133). One may question whether an interpretation of music relates to ‘reality’ at all, given that music presents a unique experience for all performers and listeners regardless of their inclusion or exemption of synaesthetic correspondence. Synaesthesia, however, is very much related to *sensory* reality, in the sense of creating “richer unified experiences where additional sensory [information] gets hosted in the content of perception” (Curwen, 2018, p. 14). The idea of synaesthesia being triggered by additional sensory information relates once again to cyclic absolute deterritorialization, where the addition of information promotes the formation of new territories in a defined direction through the creation of an annexed milieu.⁶⁸ Considering synaesthetic information as part of the *annexed* milieu demonstrates that synaesthesia is an ‘optional’ experience that performers or listeners may partake in (or not as the case may be). This chapter will explore five theories of synaesthetic correspondence, beginning with those most closely related to the ‘conventional’ definition of the term. As proposed by Kenneth Peacock:

The types of synaesthesia related to music may be conveniently classified into four groups: (1) synaesthesia based on compositional styles, (2) synaesthesia based on timbre, (3) synaesthesia based on pitch, and (4) synaesthesia based on tonalities (Peacock, 1985, p. 490).

These parameters relate most closely to experiences of ‘full’ or ‘composer’s’ chromesthesia, as an explicit experience involving the full translation (rather than refraction) of music into colour. Of course, composer’s chromesthesia in Messiaen’s case is a form of full chromesthesia, therefore I first move to explore full chromesthesia as an experience that can impact the interpretations of composer, performer and listener.

Of those that do experience synaesthesia (henceforth known as synaesthetes), there are a number of individual experiences. There are varying degrees to which one can connect to an initial stimulus, thus evoking a response in another sense. Related in particular to “the type of inducer and the level of processing” (Curwen, 2018, p. 6), *lower* synaesthetes use the skeletal

⁶⁸ Additional information regarding the annexed milieu can be found in chapter 1 of this thesis, but at this stage the term constitutes ‘surplus’ information that adds to an experience but is not ‘compulsory’ in the interpretation of a product.

shape of a stimulus to elicit a response. In relation to Peacock's observations above, one may relate lower synaesthetes to parameters such as pitch and timbre in music. By contrast, *higher* synaesthetes rely on an interpretation of meaning to create a synaesthetic response, therefore using an extramusical narrative to trigger their coloured hearing, or relating to Peacock's reference to 'compositional style' (as quoted above). Where lower and higher synaesthesia depicts the circumstances through which one may *come* to experience coloured hearing (chromesthesia), there is also distinct variation in the way that full chromesthetes interpret such colours after they have been determined. As described by Curwen, *associators* "describe their experience of colour as being in the mind's eye", while *projectors* "see colours which are often projected outside the body and into external space" (2018, p. 15). From this the study can propose a dichotomy between internal and external in which colour can either be perceived as the *subject* of an internal process, or the *object* of an external embodiment. While full chromesthesia in performers and listeners will be explored more thoroughly in due course, the current study begins with a consideration of Messiaen as chromesthete, relating his own experience as *composer* to the parameters of full chromesthesia.

Messiaen's own 'assignments' of colour to music are triggered by various parameters, primarily pitch and tonality as proposed by Peacock. The composer's associations of colour with pitch span both individual pitches and modal aesthetic, and details of his personal experience can be inferred from his *Traité de rythme, de couleur et d'ornithologie* (1949-1992). The *Traité* spans seven volumes, each of which covers a multitude of compositional principles that lay the foundation of Messiaen's work. The current investigation is concerned with volume 7 (Tome VII) of the publication, in which Messiaen discusses his experience of 'sound-colour hearing' in relation to pitch and more specifically, to the modes of limited transposition. Messiaen begins his exploration by confirming the importance of the harmonic series to a sonic experience, suggesting that the colour experiences of any given mode are triggered by the audible partials of an individual pitch. While acknowledging that every listener will hear a different combination of partials, Messiaen suggests that his colour correspondences stem from the octave, fifth, third, seventh and major ninth of the harmonic series, with the sharpened fourth and sharpened fifth playing a role in his overall modal tendencies.⁶⁹ We might therefore wonder *how* this harmonic feature surpasses an individual

⁶⁹ Messiaen states within his *Traité de rythme, de couleur et d'ornithologie* (1949-1992) that the sharpened fourth and sharpened fifth are the furthest partials that he experiences within the harmonic series. The sharpened

experience of full chromesthesia, to become a communicative act of composer's chromesthesia that could influence and impact performers and listeners.

Messiaen suggests that colour “blends into the background” in a similar way to the upper partials of the harmonic series. Proposing a scenario in which a primary colour (for example red) is placed onto a white background, Messiaen indicates that the human eye would cause the coloured edges to darken, eventually fading into pale hues of a different, secondary colour. The composer suggests that this is the process that occurs when a musical phenomenon invites a colour change. He then suggests that musical factors that affect his perception of colour include pitch, the length or brevity of a chord, dynamics, articulation and a combination of timbres, drawing and expanding on Peacock's (1985) inferences (as articulated above).

The study has established that Messiaen's ‘assignments’ of colour to music are triggered by both individual pitches and full modes. While the colours associated with individual pitches can vary depending on the harmonic and structural context of the piece, many scholars have proposed a generalised colour set that Messiaen is drawn towards most frequently, as demonstrated in fig.4.2. The colours presented here specify shades and blends of colours, rather than a single primary colour block. At the same time, however, these shades of a single pitch class complement the proposition that within any one chord, “the colours stack on top of each other, but do not have definite beginnings and endings.” (Harris, 2004, p. 33). While this concept will be explored further throughout this chapter, composer's chromesthesia in the current study is more frequently associated with broader harmonic *combinations* of pitch classes. Consistent reference to Messiaen's *Traité de rythme, de couleur et d'ornithologie* (1949-1992) will therefore be maintained throughout the investigation, considering the ways in which the flexibility of Messiaen's composer's chromesthesia may permeate in some form to both synaesthetic and non-synaesthetic performers and listeners.

fourth is therefore responsible for the composer's tendencies towards the second mode of limited transposition, with the sharpened fifth tending towards the third mode.

Pitch Class	Colour Association
C	Clear/ White
C \sharp	Blue-Green
D	Grey-Green
D \sharp	Violet
E	Grey-Blue
F	Copper Red/Copper Green
F \sharp	Sparkle
G	Yellow
G \sharp	Violet
A	Blue
B \flat	Violet
B	Deep Red

Figure.4.2. A table representing the proposed colour associations that Messiaen makes with relation to each pitch class. [Table edited from (Harris, 2004)]

Considering again the specified colours of fig.4.2, there is one colour, violet, that is noted in association with multiple different pitch classes. The three pitches associated with this colour—B \flat , D \sharp (E \flat) and G \sharp (A \flat)—are all situated at a distance of a perfect 4th, or in inversion a perfect 5th from each other, when considered in this given order. While again maintaining a certain level of flexibility when exploring composer’s chromesthesia throughout this chapter, an intervallic correspondence associated with perfect 5^{ths} will be highlighted, investigating its impact on a harmonic and tonal basis as well as at a level of individual pitch class.⁷⁰

A more definitive alignment of colour with pitch comes with Messiaen’s discussions of the modes of limited transposition, in which the modes possess a limited number of colour correspondences to match the number of transpositions that can be made. Fig.4.3 depicts Messiaen’s discussions of the modes, with the explicit approach that “the tables of mode colours [...] apply only to [his] music – for other music or harmonic language, there will be other colours. Secondly, the table is fixed and predictable; it is not moving music [...] the

⁷⁰ While unrelated to the present study, the relevance of the circle of fifths to chromesthesia is considered on a broader scale, with other synaesthetes such as Alexander Scriabin having related colour to fifth cycles in a similar way to Messiaen.

marvellous synaesthetic phenomenon is independent of clear conscience, irreducible from class and categories” (Messiaen, 1949-1992)[translation mine]. The present study therefore considers both fig.4.2 and fig.4.3, investigating the subtleties of composer’s chromesthesia that may transform colour correspondence from a level of pitch class to a level of modality.

Mode Of Limited Transposition	Colour Association
Mode 2	<p>2¹ – Blue-Purple</p> <p>2² – Golden Brown</p> <p>2³ – Green</p>
Mode 3	<p>3¹ – Orange, Gold, Milky-white</p> <p>3² – Grey and Mauve</p> <p>3³ – Blue and Green</p> <p>3⁴ – Orange with a bit of Blue</p>
Mode 4	<p>4¹ – Grey and Gold</p> <p>4² – Mauve, Yellow, Black and Royal Blue, Green and Purple</p> <p>4³ – Yellow and Purple</p> <p>4⁴ – Petunia flowers: dark Purple, White with Purple stripes</p> <p>4⁵ – Intense Purple with Grey</p> <p>4⁶ – Red, bright Purple, Orange, Grey</p>
Mode 6	<p>6¹ – Big Gold letters on a Grey background, with branches of Green and Orange</p> <p>6² – Chocolate Brown, with Red-Orange</p> <p>6³ – Transparent Yellow, with areas of Blue and Brown</p> <p>6⁴ – Vertical stripes of Yellow, Violet and Black</p>

Figure.4.3. A table to represent Messiaen’s colour associations in relation to each mode of limited transposition. Messiaen does not present coloured experiences for modes 1, 5 or 7 within his ‘*Traité de rythme, de couleur et d’ornithologie*’, so these modes have not been included here.

The remainder of this chapter will explore the varying conceptions of synaesthesia and, indeed, chromesthesia amongst performers and listeners, looking specifically at *Les Orioles* from Messiaen's *Des Canyons aux Étoiles* (1974). While consistently returning to the promotion of cyclic absolute deterritorialization, I emphasise refraction as a more specific process between composer's chromesthesia and the possible experiences that are created during performance.

***Des Canyons aux Étoiles* (1974): Composer's Chromesthesia and its Impact on non-synaesthetic performers and listeners.**

Amongst synaesthetes, it is of course possible to form an alignment between full and composer's chromesthesia, with Messiaen's colour correspondences supporting those of other synaesthetes. While this approach will be explored in due course, the following analysis pairs Messiaen as synaesthetic composer with non-synaesthetic performers and listeners, exploring how colour may still play a part within the interpretation and deterritorialization of this piece. I therefore consider the theories of 'inspired chromesthesia' for performers, and 'manufactured synaesthesia'⁷¹ for listeners. Fig.4.4 demonstrates the possible links between synaesthetic correspondences amongst composer, performer and listener. One may recognise the use of a triangular form to represent the communicative process of music consumption, as has been employed at multiple points in earlier chapters of this thesis.

⁷¹ Please note the use of 'synaesthesia' rather than 'chromesthesia' here, as the experience of non-synaesthetes will not necessarily be related to colour, but could instead incorporate shapes, images or general moods.

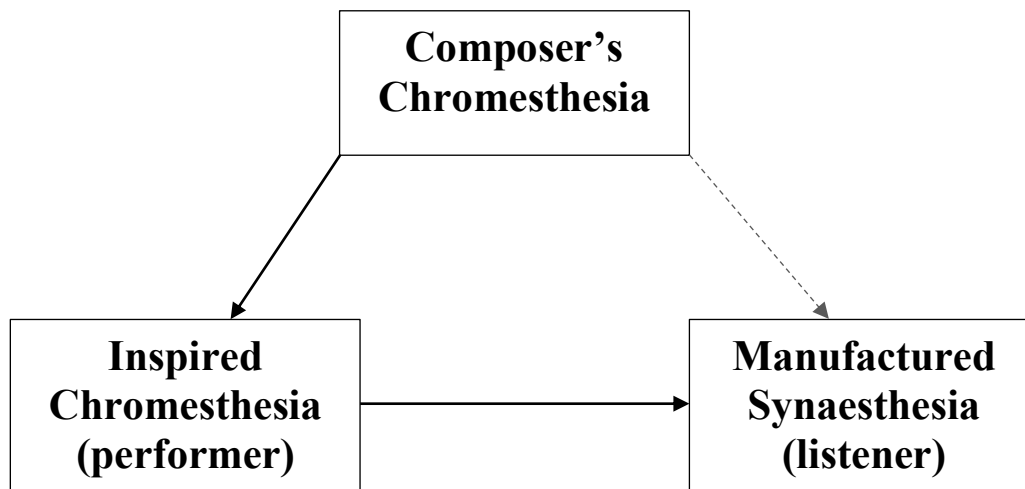


Figure.4.4. *The possible combination of composer's chromesthesia with inspired chromesthesia and manufactured synaesthesia during performance. Where composer's chromesthesia is a trigger for inspired chromesthesia, and inspired chromesthesia invites manufactured synaesthesia, uncertainty is highlighted around the possibility of a direct link between composer's chromesthesia and manufactured synaesthesia.*

Fig.4.4 highlights the inter-related communicative process between composer, performer and listener. Considering the interpretations of performers and listeners, one might draw parallels between this and the process of cyclic absolute deterritorialization, with the territories formed by composer, performer and listener ultimately sharing multiple parameters through which they can be related. As the current analysis of *Les Orioles* progresses, I will maintain reference to both fig.4.1 and fig.4.4, to draw relevance between synaesthetic experiences and cyclic absolute deterritorialization.

Des Canyons aux Étoiles (1974) is a twelve movement work of which *Les Orioles* is the second movement. The work was commissioned as a large orchestral commemoration for the bicentennial of the United States of America. Messiaen dedicated himself to exploring the 'most beautiful landscape that the United States had to offer', and eventually settled on Utah, the setting in which his musical work is based (Knussen, 1976). Messiaen's work forms portrayals of natural phenomena stretching 'from the canyons to the stars', with the composer himself stating that he "took advantage of all [the] birds and put them into the music, along with the colours" (Watts, 1979, p. 4). From this emphasis on the red of the Utahn canyons, the blue of the sky and the white of the stars (or clouds in the daytime) can be inferred, with Messiaen creating a portrayal of the Utahn landscape while at the same time emphasising the

colours of the American flag, therefore drawing attention to the bicentennial commission of the work. Correspondences of composer's chromesthesia are less explicit within *Les Orioles* compared with other movements of the work, but the current study considers the explicit labelling of bird species, exploring how these may align with composer's chromesthesia and, indeed, with the possible synaesthetic experiences of performers and listeners. The current investigation will take an approach that considers each of the specific bird species that are incorporated within the work, exploring the colours and relative 'territories' that have been assigned to each species through composer's chromesthesia. Through an insight into the 'differential' aspects of each bird species, I will refer back to earlier investigations of instrumentation, with a chamber orchestra being employed to highlight each birdsong 'case study'. Messiaen's colour correspondences are not explicitly labelled within this work, and instead stem from the accrued records that emerged across his oeuvre (as shown in fig.4.2). Once again acknowledging the subjectivity of chromesthetic correspondences, composer's chromesthesia is used as a framework from which performers or listeners may shape their own experience of colour or, indeed, other synaesthetic parameters, within Messiaen's music.



Figure.4.5. *The Orchard Oriole motive, demonstrating the relation of this species to the blackbird through the use of Messiaen's earlier established three-note motif.*

Fig.4.5 demonstrates the first bird 'character' to be introduced by Messiaen: the 'Troupiale des Vergers' (Orchard Oriole). Assigned to the piano as explored in chapter 3, the motive references the three-note motif which, in chapter 2, was connected to the blackbird. With American Orioles coming from the same family, or 'genus', as blackbirds, an expanded interval structure is experienced within fig.4.5 that highlights variation between the two

‘species’.⁷² Explored in relation to composer’s chromesthesia, the Orchard Oriole motive extends further into a broader melodic phrase that includes all twelve pitches of the chromatic octave, with dissonant chords that blur the pitch, or indeed the tonal basis of any chromesthetic correspondences. The two bars depicted within fig.4.5, however, remove the pitch classes C and F, with this ten-pitch octave therefore implying a more modal—albeit still dissonant—phrase. Fig.4.6 depicts the final chord of each of the bars laid out above, which close the phrase as a ‘cadence point’. Of course, these proposed ‘cadence points’ do not function within a tonal scheme, and so are recognised by the audience as an aural experience rather than a recognised written chord progression. Fig.4.6 demonstrates a strong drive on a G major tonal centre followed by an E minor tonal centre. Referring back to fig.4.2, these two pitch classes (G and E) correspond under *composer’s* chromesthesia to yellow and grey-blue respectively, thus forming strong parallels with the colours typically associated with the orchard oriole, of which the females in particular possess a yellowish body, grey-white wings and blue feet (fig.4.7).

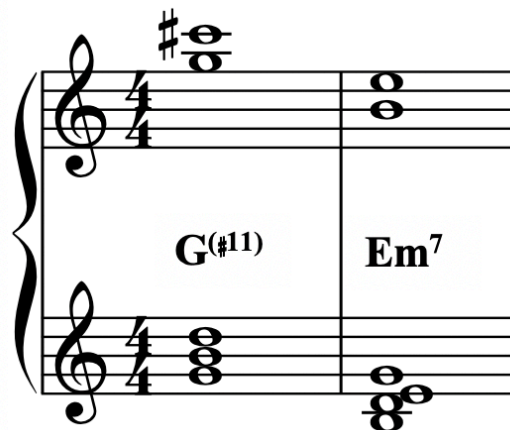


Figure.4.6. The last chord of each bar of the Orchard Oriole motive, which depict a ‘tonal centre’ of G and E respectively.

⁷² The use of the terms ‘genus’ and ‘species’ refer to Deleuze’s Difference and Repetition as explored here and in earlier chapters. A ‘genus’ refers to the broadest categorisation of an object or being, with the ‘species’ narrowing down to a smaller category, still maintaining considerable ‘difference’ but in an inter-related way.



Figure.4.7. *Female Orchard Oriole (Cornell University, 2019).*

While a tantalizing discovery to consider theoretically, one may question how any of this information regarding colour could be translated into inspired or manufactured chromesthesia for an audience during performance. Returning to the fundamental philosophies of this thesis, I consider both the musical product and composer's chromesthesia as deterritorializing forces. The initial act of Messiaen using or assigning colours to his music is fundamentally territorializing, with the colour placing the music into one territory that is based on a single image (in this case of a bird). In performance, however, one aims to perform a *refraction* of this territory, acknowledging and possibly referencing composer's chromesthesia as a stimulus of overall imagery, while refracting the specific performance techniques to more closely resemble bird 'character' rather than colour. Within a performance of *inspired* chromesthesia, colour is not 'being performed', but is serving as the inspiration behind a technical performance approach. The performer does not necessarily experience the colour, or aim to elicit colour from the listener, but does so in the hope of forming an image-based *manufactured* synaesthesia that aligns with the bird (and perhaps its colour) that is explicitly labelled on the score.

Where the compositional process of composer's chromesthesia has invited a single act of relative deterritorialization, the aim of the current investigation is to employ the compositional information in a way that increases deterritorialization, acknowledging the composer's colour connotations without forcing a preconceived perception, or territory, on the listener.⁷³ Of course, this proposed approach draws on inspired chromesthesia by the performer, rather than on the experience of the listener. A performance that uses composer's

⁷³ A 'forced' experience would more closely relate to 'projected chromesthesia', which will be explored in the latter sections of this chapter.

chromesthesia as inspiration for an overall approach is therefore a trigger for cyclic absolute deterritorialization. The composer has inserted their chromesthetic experience into the composition, which has been interpreted by the performer. The resultant performance is therefore left open for the possibility that listeners may experience full or manufactured synaesthesia, without ‘forcing’ a single experience (territory). Fig.4.8 provides a reminder of the process of cyclic absolute deterritorialization with relation to synaesthetic experiences.

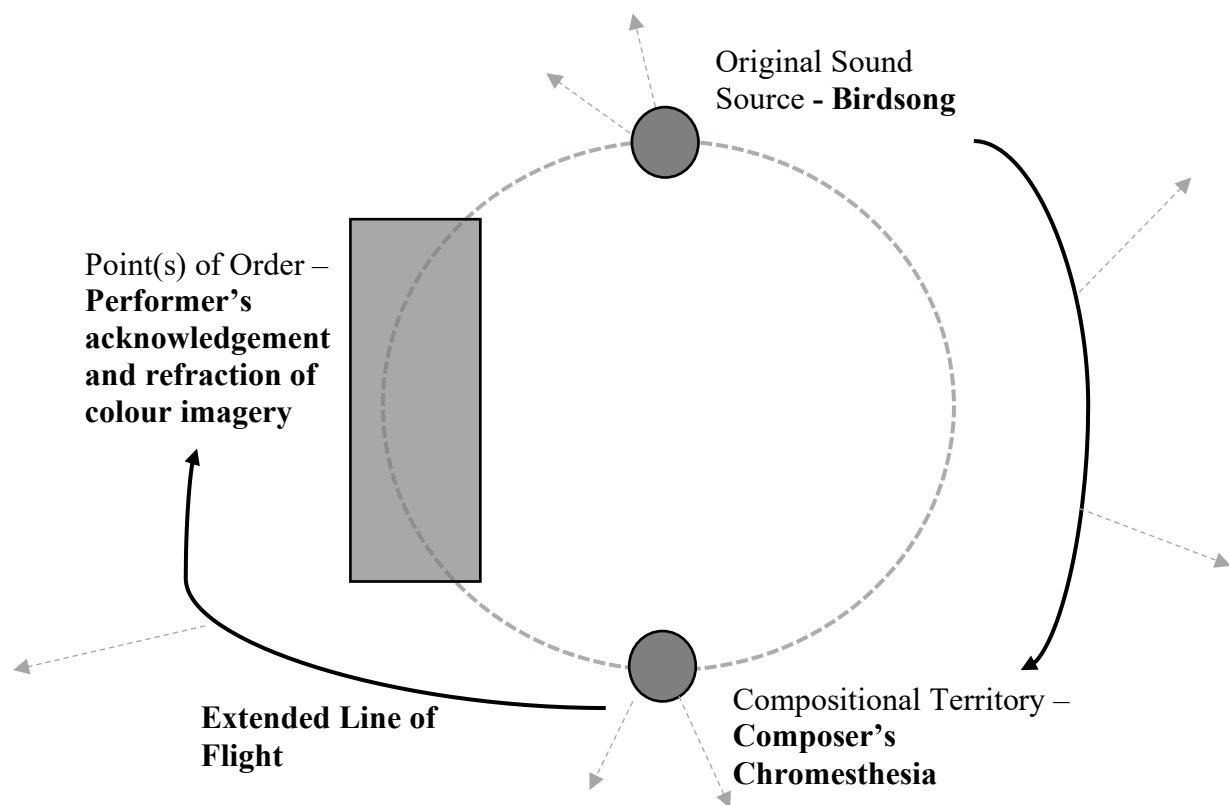


Figure.4.8. *The Deleuzian process of Cyclic Absolute Deterritorialization, in which a performer is able to communicate the music in a way that creates a new spectrum of possible territories, each of which may be inhabited by the interpretation of an individual listener.*

Similarly assigned to the piano, the Baltimore Oriole motive depicts the high whistling song of a bird native to North America and found mostly in open woodland, much like the Orchard Oriole (Cornell University, 2019). With a fragmented motive built around a number of short ideas, the Baltimore Oriole makes use once again of an intervallically augmented three-note motif (fig.4.9), demonstrating a shared ‘genus’ amongst the ‘species’ of blackbirds and

orioles. Recalling earlier discussion of this motive (see chapter 3), I reinforce the relevance of Drive Theory (Smith, 2021) to a reading of this bird character, in relation to the rich harmonic language upon which it is built. While referring briefly to a number of harmonic drives, the current investigation highlights those drives that align most closely to Messiaen’s own chromesthetic vision. This alignment draws more strongly on the relevance of chromesthesia to the music itself, and in exploring possible performance approaches in relation to chromesthesia, the present study aims to employ colour as a visual means to a musical end.

The image shows a musical score for a piano piece, specifically bar 43. The score is written for two hands (treble and bass clefs) and includes dynamic markings like *8va*. Three annotations with arrows point to specific features in the music:

- 'Short fragmented motifs' points to the beginning of the phrase in both hands.
- '3-note motif contour' points to a specific three-note sequence in the upper right of the score.
- 'Expanding intervals between hands' points to the vertical distance between the two staves, indicating the widening gap between the hands.

Figure.4.9. Features of the Baltimore Oriole motive upon its first iteration at bar 43 of the movement.

As in previous explorations, there are two principal drives within this motive that present themselves as proposed ‘tonal centres’ within a largely dissonant overall phrase. With six individual drives on both E and G#, these pitches demonstrate consistency across the entirety of the Baltimore Oriole ‘character’. While composer’s chromesthesia suggests an association of ‘violet’ with G# that may require some more unpacking, Messiaen’s ‘grey-blue’ connotation with the E pitch class aligns with the wings and legs of both male and female Baltimore Orioles. Taking ‘grey-blue’ as the primary connotation of composer’s chromesthesia, one may instead consider G# as the major 3rd of E and therefore reinforce the

foundation of Messiaen's grey-blue correspondence rather than forming its own colour connotation. The multitude of different drives within any one chord of this motive could mean that a major 3rd relation would not sufficiently reinforce a single 'tonal' or harmonic centre. The current hypothesis, however, stems from the theories of Goethe, who states that "no colour consequent upon refraction appears [...] provided it has no outline or boundary" (1810, p. 80), meaning that only when an object is related to something else does its 'colour' take on an identifiable 'shade'. In order to promote the refraction of Messiaen's musical *and* chromesthetic ideas in this case, Goethe's hypothesis suggests the recognition of a boundary, or an internal relation, from which the colour association stems. In support of Goethe, Torbjørn Eftestøl suggests that while a single pitch class within a dense chordal voicing could not harbour a colour connotation on its own, "an observed colour is not independent of its spatial environment. Similarly, there is never one tone in a melody isolated from its temporal environment, but always a greater whole" (Eftestøl, 2018, p. 266). Within the density of chord voicing here, one might argue that it is primarily the *relation* between E and G \sharp that strengthens Messiaen's chromesthetic correspondence, providing the outline of inhabitation within a *spatial* environment (or territory) through the means of a sonic relation within a *temporal* environment. This approach may imply refraction in a predetermined direction, therefore inviting the less desirable state of *relative* deterritorialization.⁷⁴ I emphasise again, however, that composer's chromesthesia serves as 'additional information' for the performer, providing inspiration that may or may not become part of the performer's final approach. Eftestøl paraphrases Deleuze, writing that "music is precisely about rendering inaudible forces audible" (Eftestøl, 2018, p. 267). Combining this with the spatial environment of harmonic language, Messiaen's attempt to communicate his own chromesthetic correspondence can be considered as an acceleration of deterritorialization through the reinforcement of an inaudible force (colour).

Considering outlines within a spatial environment, one might investigate harmonic drives in relation to progressions as well as static occurrences. Recalling fig.3.9,⁷⁵ one can observe a constant fluctuation of drives around the cycle of fifths between B \flat , E \flat and A \flat , spanning the entirety of the Baltimore Oriole motive in a wave-like motion. As explored earlier, all three

⁷⁴ As explored in the earlier chapters of this thesis, relative deterritorialization constitutes a single act of deterritorialization-reterritorialization into a single, finite territory. We instead aim for a continuous process that unlocks an infinite number of interpretative territories.

⁷⁵ This visual representation is located in chapter 3 of this thesis.

of these fifth-related pitches represent violet according to composer's chromesthesia, a colour that was originally unclear in its possible relations to bird-like imagery. Messiaen was not the only composer to hypothesise a coloured consistency across the cycle of fifths. Alexander Scriabin demonstrates his own composer's chromesthesia, in which the cycle of fifths progresses around a traditional rainbow, beginning with 'red' at C and travelling clockwise to 'dark red' at F (Peacock, 1985, p. 494). Across B \flat , E \flat , and A \flat , however, Scriabin develops a consistency of 'shades', traversing 'purple', 'dark steel-blue' and 'blue-grey metallic'. Similar to Messiaen's correspondence, the colour violet could be considered as an amalgamation of multiple constituents of the rainbow, representing the cycle of fifths with a single pin-point colour. Violet may also be hypothesised as an amalgamation of the colours red, white and blue, which has been explored in relation to Messiaen's commission of the piece for the bicentennial of the USA. I of course cannot state with any certainty Messiaen's *own* definition of the colour violet, but the commonality of the colour amongst other synaesthetic composers provides inspiration from which inspired chromesthesia and manufactured synaesthesia may be modelled during performance.

Upon discussion with performers (including both synaesthetes and non-synaesthetes), none explicitly experienced the violet colour connotation that is suggested within the Baltimore Oriole motive. Participants 5 (11/11/2020) and 7 (07/12/2020) however, did propose some possible functions for the colour, exploring how it could be used as inspiration for performance approaches. Participant 5 firstly demonstrated a keen knowledge of the Utah landscape, having had personal experience in the state. While a non-synaesthete who did not experience manufactured synaesthesia in relation to violet, participant 5 did state that in performance, they would be inclined to associate the aforementioned red, white and blue connotations with the American flag, therefore aligning all other elements of composer's chromesthesia with landscape-based features. Participant 5 suggests that the implied violet here could quite easily be found amongst the sage scrub, rivers and streams of the Utah state. Drawing on a 'physical' association for the colour, participant 5 suggests that Messiaen may draw on the world of birds and the landscape that they live in on a level far more detailed than that of human perception. I therefore propose that the colour association here, in drawing towards a landscape-based inspired chromesthesia, might invite a performance approach that mirrors the 'movement' of the landscape, the natural 'ebb and flow' of sage scrub in the wind or the fluctuating current of a river. As this chapter progresses, I will explore the extent to which such performance approaches can invite manufactured

synaesthesia that aligns with the above theories, highlighting a change of colour or imagery, even where the specificity of violet is not necessarily apparent.

Participant 7 additionally acknowledged the proposed violet connotation, and while they again did not experience the colour explicitly, they did support Messiaen's apparent relation between narrative and chromesthetic correspondence. Comparing their experience of this section to a Klimt painting,⁷⁶ participant 7 suggests a colour *palette* more so than a single colour correspondence, with a blended impression being perceived most strongly at the point of the Baltimore Oriole motive. Given that violet itself is a shade of a secondary colour, participant 7 suggests a blended interpretation of composer's chromesthesia, with an amalgamation of the previously explored red, white and blue once again becoming a possibility. While I cannot hope to uncover why Messiaen aligned the Baltimore Oriole with his experience of violet, the opinions of participants 5 and 7 provide an explanation of its relevance to our perception of the work, once again expanding interpretative potential through the inspired chromesthesia of performance and the manufactured synaesthesia of an audience.

With reference to proposed performance approaches, one might consider the Baltimore Oriole motive in relation to the amalgamation of colours explored above. Relating to inspired chromesthesia, the study reinforces that performers do not necessarily experience the composer's amalgamation of colours, but instead employ composer's chromesthesia as inspiration for their interpretation of more technical musical parameters – a colourful means to a musical end. The colour violet may be considered an amalgamation of 'shades', whether within the broader rainbow or as a combination of the 'flag-based' red, white and blue on which Messiaen has been so focused. Considering how this may become relevant to Deleuzian theory, I suggest that the amalgamation of colours demonstrates a reduction in Deleuzian 'difference', maintaining an essence of multiple colour areas in order to promote 'repetition' and recognition in manufactured synaesthetic correspondence. Where *Messiaen's* chromesthetic amalgamation of the colour violet aligns with a single pitch class, the inspired chromesthesia of the performer could instead draw on the amalgamation of harmonic drives here.

⁷⁶ For a more detailed insight into the style of a Klimt painting, please refer to <https://www.klimtgallery.org/> [Accessed 28/05/2022].

In performance, the short fragmented nature of the motive is emphasised in order to highlight the melodic and harmonic fusion that has taken place between multiple thematic ideas. Considering again fig.4.9, the Baltimore Oriole is divided into three thematic areas, each lasting for a single bar. With the first bar referencing the dotted rhythms of the later Scott's Oriole motive (fig.4.10), and the third bar highlighting the three-note motif with a contour comparable to the Orchard Oriole (fig.4.5), the second bar makes the Baltimore Oriole distinctive, using a gradually expanding interval structure alongside a rapid rhythmic descent. By emphasising rests and 'breathing points', the performer can highlight the melodic fragmentation of the motive, accentuating the amalgamation of varied thematic ideas. This emphasis promotes recognisability for the listener amidst other birdsong motives and therefore draws on the blended effect of the composer's chromesthetic correspondence. It is again acknowledged that colour is not 'being performed' here, but instead colour is recognised as a trigger of cyclic absolute deterritorialization through the composer's proposed vision of natural phenomena. In doing this, the study reserves the possibility to make Messiaen's proposed musical vision more explicit in performance, while also providing the possibility for Messiaen's visions to align with those of full chromesthetes. Composer's chromesthesia thus provides cross-domain integrations between 'imagined' colour and musical parameters, and therefore between visual and aural stimuli.

Additional composer's chromesthesia can be drawn from Messiaen's Scott's Oriole motive, 'assigned' to the xylorimba as explored in chapter 3. Compared with an 'extended xylophone', the xylorimba spans a range of five octaves while maintaining the timbral quality of the wooden xylophone. As a species, the Scott's Oriole is visibly more yellow than those explored so far, and is the first species within this work to be found in Utah—the state on which Messiaen based his twelve-movement work (The Cornell Laboratory, 2019). Motivically, the Scott's Oriole is based on a contrapuntal melodic line containing frequent disjunct leaps of major 7ths and augmented 6ths (fig.4.10). The contrapuntal nature of this motive allows it to stand apart from those explored so far, with individual pitch classes and interval construction defining the overall quality of the motive. I therefore consider composer's chromesthesia here in relation to the melodic *quality* of the motive, rather than its harmonic clarity or density.

Motive built around large disjunct leaps which all possess a largely dissonant quality

Tritone Major 7th Augmented 6th

Three-note motif. This iteration does not have the same pitch-class or contour relations as those explored in relation to the blackbird, but it seems to still serve as an audible anchor of a recognisable element.

Figure.4.10. Identifiable musical elements within the Scott's oriole motive, particularly in relation to interval and contour structure.

Within the Scott's Oriole motive, tritones, major 7ths and augmented 6ths are encountered, as shown in fig.4.10. Exploring composer's chromesthesia here, Messiaen has discussed the role of certain intervals in his affinity for the modes of limited transposition. Within his *Traité de rythme, de couleur et d'ornithologie*, Messiaen discusses his aural experience of the harmonic series, stating that, with C taken as the fundamental pitch, "the sound of the F \sharp explains my love of the tritone and explains my use of the second mode of limited transposition. The sound of G \sharp explains my preference for the third mode" (Messiaen, 1949-1992). Highlighting the tritone as used in the Scott's Oriole motive, one may propose a chromesthetic alignment with the second mode of limited transposition, when using Messiaen's own preferences. With B \flat as the 'root' of the current tritone interval, I explore the colour association of mode 2 transpositions 1 and 2, both of which contain the pitches B \flat and E as demonstrated in fig.4.3.⁷⁷ There are therefore two possible chromesthetic correspondences that may be drawn from the Scott's Oriole motive: blue-purple and golden brown. An association of golden brown could once again draw a 'manufactured' alignment to the physical appearance of Scott's Oriole, with a bright golden body and brown wings. While

⁷⁷ It is not implied that the whole motive is composed using mode 2, but instead that the tritone interval may resonate most strongly with the colour connotations of this mode.

‘blue-purple’ does not necessarily draw any immediate associations with narrative imagery, one may align this with the ‘violet’ correspondence of the B_b pitch class, providing once again an amalgamation of the rainbow, of scenic imagery and of the colours of the American flag. Each of these colour relations (golden brown and blue-purple) can be associated with the tritone interval. One may therefore suggest that emphasising this interval during performance creates the possibility of drawing on Messiaen’s own experience in an attempt to create a bird character. It is again emphasised that performers do not attempt to ‘perform colour’, but rather the study highlights the ability to use composer’s chromesthesia during the preparation phase, as inspiration for a final performance approach. For the listener, a performance approach that highlights the dissonant intervals of Scott’s Oriole could draw listeners to the ‘animalistic’ world of bird characters. The use of composer’s chromesthesia here therefore forms a subtle link with the experience of the listener, with colour serving as inspiration for possible interpretations of imagery.

When the quality of interval structures is combined with specific pitch classes, however, the Scott’s Oriole motive draws most emphatically on C, E and F. The motive begins on pitch C₄, and while this pitch is not prevalent throughout the motive, its forceful trochee⁷⁸ rhythm emphasises its importance within the motive’s tone row. The central major 7th interval between F₄ and E₅ is additionally highlighted through repetition throughout the motive. When combined, these three pitch classes suggest a correspondence of composer’s chromesthesia with white (C), copper red (F) and grey-blue (E). These correspondences once again form possible representations of both the Utah landscape and the American flag, both of which fuel possible opportunities for interpretation through inspired chromesthesia and manufactured synaesthesia.

When exploring the impact of these pitches on performance, I am drawn to previous investigations of interval structures across Messiaen’s oeuvre. Within chapter 3, there was a persistent opposition between the major and minor 7th within *Réveil des Oiseaux* – an interval that is spelt enharmonically within the Scott’s Oriole motive as an augmented 6th. Within these earlier explorations, the study concluded that the 7th is perceived as a ‘natural’ interval within birdsong, with the opposition between major and minor stemming from the human

⁷⁸ As explored in chapter one of this thesis, a trochee rhythm implies a ‘short-long’ progression, in which the shorter rhythmic value is stressed more so than the longer.

capabilities of intonation on specific instruments. The realism of this interval therefore promotes landscape-based colour inspiration more so than the American flag for both performers and listeners. During discussion, performers generally followed this instinct, with participant 5 in particular questioning how a sense of nationalism or patriotism could possibly be put across during performance. Suggesting that landscape could be communicated more strongly, participant 5 highlights that the specificity of red, white and blue are only apparent due to a predilection for the work's narrative, and would not necessarily be perceived in relation to the American flag even by synaesthetic listeners. *Conceptual* colour changes can be strongly perceived at points that align with Messiaen's proposed colour scheme. Despite this, however, I emphasise the freedom of inspired chromesthesia, for performers to align these points with their own colours or, indeed, with a mental image or feeling rather than a colour at all. The preconditioning of performers with Messiaen's compositional reputation accentuates harmonic changes as indicated with the interval structure of the Scott's Oriole motive. It is due to this that participant 5 highlights landscape-based imagery, blending the vertical (harmony) and the horizontal (melody) into a musical plane, or *landscape*, of existence.

Messiaen maintains his Utah landscape by continuing the xylorimba instrumentation for the Bullock's Oriole motive. Much like the previously discussed Scott's Oriole, the Bullock's Oriole is one of the smaller oriole breeds, defined in this case by its bright orange plumage and its whistling, 'chuckling' song (The Cornell Laboratory, 2019). Despite the short, fragmented nature of the Bullock's Oriole motive, Messiaen's choice of a particularly high register along with consistently disjunct interval structures creates an immediately identifiable motive that mirrors the typical 'chuckling' nature of this bird's song. Simultaneously, however, there are elements of the motive that correspond to composer's chromesthesia. As demonstrated by fig.4.11, three principal pitch centres are at the forefront of this motive: B, C and C#. Through these pitches, connotations of red (B), white (C) and blue (C#) are found once again. The investigation is therefore left with the question of how these correspondences should be performed. Has Messiaen been explicit enough in portraying his chromesthetic properties to promote a performance that highlights these 'territorial' (landscape-based) features, or is the chromesthetic correspondence in this case subjective to each individual performer or listener?

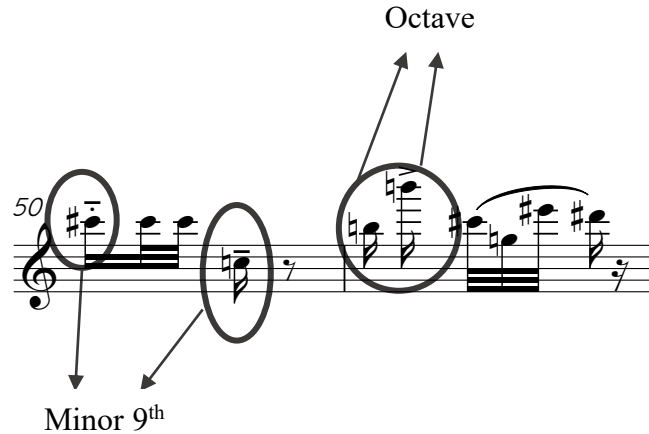


Figure.4.11. A demonstration of the construction of Bullock's Oriole motive, including interval structures and pitch-class centres.

Instinctively I would suggest the former, due to an additional subtle feature that distinguishes the original territory of this motive from the expressive territories that are created through performance. When compared to the Scott's Oriole motive, the Bullock's Oriole has been transposed up by a semitone, from a starting note of C (white) in Scott's Oriole, to C# (blue) in Bullock's Oriole. There is a subtle reference here to the varied habitats (territories) of the two birds in question. While Scott's Oriole is native to a mountainous and desert-based terrain, Bullock's Oriole is most commonly found on the banks of streams and rivers, therefore drawing a subtle yet potent reference to the white of the mountains and blue of the streams through the use of pitch class. Performers are justifiably sceptical around this point, with the subjectivity and individuality of composer's chromesthesia coming to play once again. While the majority of participants did not experience synaesthesia and therefore did not particularly relate to the present argument, participant 6 was a clear exception. As a full chromesthete who is able to pair explicit colours with pitch or tonal centres, participant 6 highlighted their own experience of red, white and blue, even before becoming aware of Messiaen's own correspondence. Additionally, specific to the Bullock's Oriole motive, participant 6 indicated that textural and instrumentation changes did not impact their perception of colour, with changes being most direct upon a distinct harmonic or pitch progression. Consequently, the maintained xylorimba instrumentation for the Bullock's Oriole suggests a comparable sound world or colour *palette* with Scott's Oriole. The upwards shift of a semitone within this motive however, invites a colour change which, while not necessarily specific to the colour shown, would suggest a change of melodic approach for the performer and thus an expanded interpretative territorial range for the listener.

Following this analysis, a glance back at the motives of these two Utah-based birds demonstrates composer's chromesthesia, which could be considered 'limiting' when related to the continuity of cyclic absolute deterritorialization and the formation of infinite expressive territories. The key concept here, however, is that we 'look back' on these motives; composer's chromesthesia is not explicitly labelled and therefore is not necessarily immediately apparent to performers or listeners. Cyclic absolute deterritorialization therefore stems from an analytical awareness of composer's chromesthesia, consistently emphasising that this is a proposed vision of the composer that can be interpreted in an infinite number of ways by performers and listeners. Composer's chromesthesia acts as a framework through which inspired chromesthesia and manufactured synaesthesia can be developed: a model that may be integral to the interpretations of some performers, but that may not register at all with others. Where composer's (Messiaen's) chromesthesia brings to light a number of connotations that refer to his fundamental birdsong narrative and the commissioned purpose of the work, the remainder of this chapter considers the extent to which inspired chromesthesia and manufactured synaesthesia are drawn from *Les Orioles* by a combination of chromesthetic and non-chromesthetic performers and listeners.

An experiment to determine the interpretations of performers in relation to proposed colour changes within *Les Orioles*.

Discussions with performers on the topic of synaesthesia have included experimentation around the concept of coloured hearing. The aim of this experiment was to create a map of colour changes, through which points of commonality (strong colour changes) can be identified, against points of higher subjectivity (small or more internal colour changes). The experiment was conducted with both chromesthetes and non-chromesthetes, and so the outcomes discussed here will be concerned with experiences of both full chromesthesia and manufactured synaesthesia. I aim to examine the level of consistency between chromesthetes and non-chromesthetes concerning the most evident associations, or possibilities, of colour in Messiaen's music. From this, the current study explores methods through which inspired chromesthesia could be employed during performance to unlock new possibilities for manufactured synaesthesia (thus constituting absolute deterritorialization).

Methodology

During discussion, eleven participants were presented with a clean pdf score of *Les Orioles*. All participants were musicians who were aware of the piece in question but had not participated in performing the work at any point in their careers, the same participants that took part in the qualitative study of the rest of this investigation. Two out of the eleven participants expressed an experience with full chromesthesia, highlighting the rarity of the experience within the performance industry. This experiment took place towards the end of discussions with participants, after the other theories explored in this thesis had been discussed. Prior to the experiment, all participants were given the same introduction to the piece, as follows:

Les Orioles is one movement from a twelve movement work published in 1974, one of the later works of Messiaen's career. It was a commissioned work for the bicentennial of the United States of America and takes a large portion of its inspiration from the landscapes of Utah. While not explicitly marked, there are elements of the piece in which it might be fruitful to consider Messiaen's experience of synaesthesia when exploring possible performance parameters.

The introduction given prior to listening was intended to be objective enough that it would not blur the judgement or instincts of participants during the experiment, with the information being of a level that would be 'common knowledge' amongst performers that intended to prepare a performance of the piece. Following this information, participants were asked to listen to *Les Orioles* a single time while following the score. As they listened, participants were asked to annotate their score at points where they perceived or imagined a change in colour. It was clearly acknowledged during discussion that few if any of the participants would experience full chromesthesia, and the concept of manufactured synaesthesia was explained to participants as a broader sense of 'feeling' in relation to a change caused by an aural stimulus. A 'colour' was therefore defined in a generalised and even metaphorical way, whether that be a 'tone colour' or a 'harmonic colour'—more closely linked to causes of aesthetic changes that may align with the colour perceptions of full chromesthetes and, indeed, Messiaen himself. Performers were therefore asked to follow their own instincts,

whatever they may be, without worrying about alignments with full chromesthesia upon this initial listening. All performers listened to the same recording of the piece while conducting this experiment, which was played through Spotify⁷⁹ (London Philharmonic Orchestra, 2015). Following a single listening, participants discussed their instincts, highlighting the parameters that were most inviting of a ‘colour’ change for them as an individual. These discussions will be examined below.

Following the completion of all discussions, each participant returned their annotated score to me from which a list of bar numbers was collated, corresponding with the number of participants to perceive a change at a given point. Again, the findings of this collation are assessed below, with a comparison between the findings of participants and those of my earlier chromesthetic analysis. From this I aim to examine possible performance approaches that will develop these correspondences through manufactured synaesthesia, thus maximising the opportunity for cyclic absolute deterritorialization within the piece as a whole.

Findings

As outlined in the methodology above, the data collected from participants regarding colour changes in *Les Orioles* was collated according to bar number and frequency of perceived change. Fig.4.12 demonstrates these findings.

⁷⁹ London Philharmonic Orchestra, 2015, *II: Les Orioles*, Messiaen: Des Canyons aux Étoiles

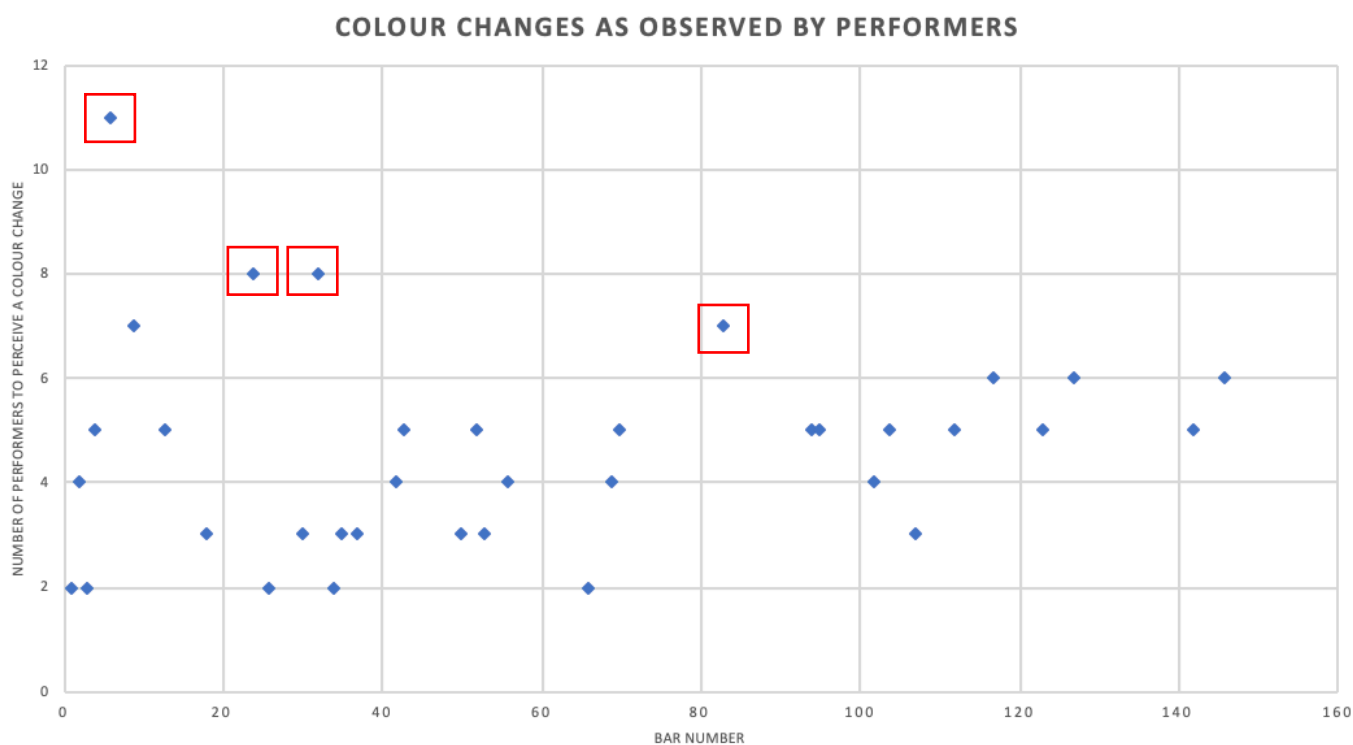


Figure.4.12. A graph to show performers' perception of colour change throughout 'Les Orioles', with data demonstrating the number of performers to identify a colour change at given bar numbers.

Fig.4.12 indicates a persistent fluctuation in commonality amongst perceived or imagined colour changes, with the majority of instances only being noted by two or three of the present participants. There are, however, four points of particular note at bars 6, 24, 32 and 83 that yield a much higher response from participants. Bar 9 also triggered a high response from participants. Many participants however, considered the change at bar 9 to be a continuation of the change at bar 6, and it will therefore be considered as such here. With a brief descriptive analysis of the *musical* content of each of these bars, I will consider how the instincts of participants during performance may align to the level of commonality that has been shared in synaesthetic correspondence (whether full, inspired or manufactured) at these given instances.

B.6, as the only point at which all participants noted a colour change, presents strong evidence of synaesthetic triggers amongst both chromesthetes and non-chromesthetes. As the first change of instrumentation outside of the piano, the piercing top register of the piccolo at b.6 creates an evident timbral change, with the density of texture also being transformed from

solo monophony to a full orchestral tutti. With pitch content spanning D, G, G#, B \flat and B, we experience a clearly dissonant harmony with few possible tonal drives, all of which are rooted on G or G#. Despite consistent dissonance and lack of a tonal scheme throughout *Les Orioles*, one may recall the earlier consideration of ‘cadence points’ at bb.3-4 of the piece. Given the sonic closure that is provided by these preceding bars, the dissonant harmonic contrast of bar 6 combines with its distinct timbral transformation to invite a ‘change’ amongst participants, as will be explored. The concept of distinct and sudden changes of instrumentation and harmony pertain through to b.9, which also displays a fairly high level of commonality amongst participants.

With slightly less unanimity amongst participants, b.24 is similarly brought to the fore of aural perception thanks to its transformation of numerous musical elements when compared to the preceding section. As touched upon in chapter 3 (fig.3.16), the call and response style between oboes and flutes invites not only an instrumentation-based timbral change but also promotes unified direction or movement that draws listeners to a clear melody, more so than the orchestral tutti described above. With this example evidently being perceived more among non-synaesthetes, one would suggest that the striking direction change of unified parallelism explains the commonality of colour change at this point. Again, I will consider the instincts of individual participants surrounding this bar below.

B.32 by contrast presents the first return of a solo piano since b.5, presenting once again a timbral transformation and a reduction in textural density and movement. Despite this apparent ‘reduction’, the solo line enables faster melodic movement, with the return of this movement’s opening motives drawing a sense of ‘nostalgic’ recognition for listeners. This bar is also the first point at which an explicitly labelled bird change has been strongly imagined as a ‘colour change’ by participants. While most participants are unaware of Messiaen’s written bird labels when following the score, one could suggest that the melodic content of the bird motive is distinct enough to invite a ‘colour change’ within this phrase.

Continuing the percussive timbre associated with the piano above, b.83 presents a sudden xylorimba entry that sits in a detached position above legato strings. Once again a change of characteristic is experienced here, with the detached timbre of the xylorimba contrasting the unified ‘legato’ strings of the preceding twelve bars. I highlight here, however, a rhythmic trigger in the form of labelled time signatures. Whereas the preceding twelve bar phrase has

employed 2/8 and 3/8 time signatures, the fluctuation of 6/32, 9/32, 2/16 and 7/32 is considerably less regular, presenting not only a timbral transformation but also a change of direction in metre, rhythm and melody.

Given the generality of each of the above analyses, the remainder of the given findings will relate the above to the opinions of individual participants. In drawing on causes of colour change, the current study aims to expand performance possibilities that combine ‘colour’ change with the fundamental birdsong qualities of the movement.

Considering first participants 1 (19/10/2020) and 2 (27/10/2020), we investigate manufactured synaesthesia based on an overall perception of change. Recalling the concept in the context of the current study, manufactured synaesthesia constitutes the interpretation of a piece of music by a listener, much in the same way as would occur of any piece of music. In this case, however, the composer has provided a specific destination (‘territory’), and so listeners could be drawn towards elements of synaesthesia within their interpretations thanks to the colour or image correspondences expressed by both composer and performer. The current discussion therefore considers points of change more so than the specificity of *what* the listener’s correspondence is. Both participants 1 and 2 suggest that if Messiaen has created an alignment between chromesthesia and narrative image, then the narrative has been adapted to suit the pitches that Messiaen had in mind anyway, rather than the inverse. It is suggested that while changes in metaphorical ‘colour’ or mental image may be possible, ideas surrounding performance approach will already have been formed by the performer’s interpretations of compositional techniques before considering alignment with composer’s chromesthesia, therefore reducing the extent of *inspired* chromesthesia⁸⁰ during performance. Neither participant 1 nor 2 are synaesthetes. Both therefore appreciate that synaesthetes (or chromesthetes) will likely have a heightened individuality to their performance approach, with their own colour correspondence varying from Messiaen’s coloured narrative influence. As stated by participant 1, “it is more likely that we all hear the same note but we will never know if we see the same colour. If two synaesthetes associate a musical passage with the colour red, we can still never determine whether what we call red is the same as what the next person calls red”. While the thoughts of participants 1 and 2 understandably suggest a slight

⁸⁰ As a reminder, ‘inspired chromesthesia’ is the use of composer’s chromesthesia as inspiration behind a technical performance approach. Colour is not ‘being performed’, but is instead serving as a catalyst for the representation of the birds and landscapes that are explicitly labelled on the score.

disregard for specific colour among non-synaesthetes, they maintain persistent subjectivity, employing composer's chromesthesia as a framework that invites metaphorical 'colour' to be communicated during performance.

Similar to previous investigations of the 'realism' of birdsong, the role of the performer is in this case to interpret the composer's *vision*, rather than a factual or preconceived pathway of which there is only one 'correct' response. When considering causes of manufactured synaesthetic 'change', the study therefore questions *how* the performer may denote these changes through musical communication. Using the findings of fig.4.12, I propose the expansion of cyclic absolute deterritorialization through an exploration of commonality, performing musical adjustments, or stylistic alterations, at points where a metaphorical sense of 'colour' has been envisioned most strongly. Whether a change in orchestral timbre as in bb.6 and 32, a dynamic alteration as in b.24, or a change of articulation as in b.83, the performer is able to identify the triggering element in relation to composer's chromesthesia so that, as suggested by participant 1, we may all experience a distinct aural alteration, even where the visual correspondence of each listener may differ.

Developing the arguments of non-chromesthetes, participant 4 (05/11/2020) counters the opinions discussed above by suggesting that there is an obligation for performers, especially non-chromesthetes, to follow *Messiaen's* chromesthetic correspondences. Emphasising the requirement to first examine the analytical information explored in this chapter, participant 4 suggests "a sense of responsibility to make sure the relevant pitches definitely exist". During the current experiment, participant 4 originally proposed an instrumentation-based approach to colour changes, with the evident timbral alterations of the wind and string entries being a particularly strong trigger. As the structure of the work became more apparent during an initial listening, however, participant 4 retracted their initial instincts in favour of a melodic and harmonic approach. Looking particularly at bar 24, participant 4 highlights 'classical Messiaen parallelism' between the oboes and flutes, which instantly invites a 'colour change' due to the knowledge that Messiaen is the composer of the piece. With a preconceived familiarity with the composer, participant 4 reported a reduction in their individual instincts, with their attention instead shifting to a search for harmonic and rhythmic traits that are typical of Messiaen. Participant 4 therefore suggests that performers perceive their 'inspired' changes as an alignment with *Messiaen's* colour correspondences, due to the prevalence of recognised technical parameters that typically act as points of change.

Participant 5 (11/11/2020) shares the opinion of participant 4 concerning the alterations that non-chromesthetes are likely to make upon being informed of Messiaen's correspondences. Both participants suggested that when discussing the findings of the earlier parts of this chapter, performers' instincts will not necessarily follow the performance approaches that they would actually come to take. For example, when informed of the persistent connotations with red, white and blue, participant 5 instinctively proposed that Messiaen was depicting the U.S. flag, due for the most part to the original commission of the work. In performance, however, participant 5 was uncertain as to the extent that the flag and American culture could be conveyed. They therefore suggest that emphasising landscape would be more fruitful to the performance process, with the colours being communicated in relation to a clear image rather than political patriotism. Participants 4 and 5 finally suggest an alignment between the strength of manufactured synaesthesia and a visual perception of the score during the present activity. While both participants did acknowledge Messiaen's bird species labels on the score, both emphasised that these labels did not impact their correspondences while listening to the piece. Participant 4 suggested that upon a first listen, the piece progresses too quickly to notice such a level of detail. Comparing the activity to a sight-reading exercise, participant 4 indicated that participants will prioritise the general sonic aesthetic of the piece, with the visual only being important to the extent of knowing where to annotate a perceived change. As a result, while participant 4 may infer an obligation for non-chromesthetes to follow Messiaen's colour correspondences in their final performance approach, they also indicate that in the present experiment, performers became listeners, with colour changes being caused by aural rather than visual instincts.

The proposed focus on composer's chromesthesia forms a performance approach anchored by Messiaen's own trigger of colour change: pitch. As in the approach of participant 4, performers hold a "sense of responsibility to make sure the relevant pitches definitely exist". We therefore consider the extent to which we may achieve cyclic absolute deterritorialization through a pitch-based approach to performance. While one's instinct of 'realistic' birdsong may not immediately lead to a focus on specific pitch classes, Messiaen's *motivic* birdsongs are largely defined by pitch and interval contours, as explored here. To accentuate certain pitch classes would highlight not only the composer's chromesthetic correspondences, but also the proposed aesthetic characters of his birdsong motives. Much in the same way as previous investigations, a pitch-based performance approach draws the listener cyclically back towards the composer's initial vision of birdsong. A reference to composer's

chromesthesia increases the cyclicity of the performance process to allow for the ‘absolute’ continuity of deterritorialization, through the addition of a metaphorical ‘experience’ that can be interpreted by listeners in an infinite number of ways, whether through full, inspired or manufactured chromesthesia. As emphasised by participants 4 and 5, we may all hear the same aural product of a pitch-based performance, acknowledging and referencing Messiaen’s proposed colour correspondences while leaving his melodic motives open to the individual synaesthetic interpretation of each listener.

To take a different approach, participants 6⁸¹ (24/11/2020) and 10 (17/03/2021) are full chromesthetes who experienced explicit colour connotations when listening to *Les Orioles*. Both participants have experienced coloured hearing throughout their musical careers, and are explicit regarding their experience of a plane of colour rather than a defined visual image. Remarkably, both participants were able to draw strongly on red and blue at numerous points through the piece, even before being informed of Messiaen’s parallel correspondences. While white was often excluded from their interpretations, I will nonetheless consider its relevance within the wider context of perception. Given the extent of subjectivity even within full chromesthesia, I therefore consider *how* Messiaen has drawn his personal correspondences so strongly into the composition as to create a predominance for these colours amongst a wide array of chromesthetes.

Participant 6 firstly suggested that texture and instrumentation did not impact colour correspondence, with timbral and melodic progressions instead becoming the strongest causes. Inferring an overall palette of silvers and blues, participant 6 suggests that the only discernible change comes with Messiaen’s use of a romantic strings timbre at multiple points throughout the piece, at which point the timbral warmth elicits a ‘dusky pinkish red’. With this being the only distinct change noted, participant 6 and 10 propose a blended colour palette throughout the work, with changes more often a subtle hint of colour *shade* rather than colour change per se. Given the strength with which these full chromesthetes relate to the concept of a colour palette, I reference the earlier exploration of Deleuze’s *Difference and Repetition* (1968). The ‘repetition’ aspects of the theory investigate a commonality or synthesis between two seemingly ‘different’ musical components. As surmised by James

⁸¹ Later in this thesis, participant 6 will be referred to as a quartet of performers, but in the context of the current chapter, only one member of the quartet participated in synaesthetic discussion (a full chromesthete).

Williams (2012), “there is repetition when there is difference in the shades resisting definition according to a fixed identity”, therefore suggesting that “only difference returns and never the same”. In relation to chromesthesia, Williams’ hypothesis suggests that two musical areas can be hugely contrasting, with only one small area of commonality being drawn to maintain a single colour palette. While the level of contrast may invite a change of shade, these shades belong to the same colour ‘genus’, thus inferring repetition amongst a series of intermediary ‘species’⁸² (Somers-Hall, 2013).

Participants 6 and 10, as full chromesthetes, draw on the above hypothesis in their instinctive responses to *Les Orioles* (although without specific reference to Deleuze himself). While they may have labelled a number of colour changes as demonstrated in fig.4.12, explanations surrounding their annotations were explicit in depicting very few ‘full’ colour changes, with the majority maintaining a single palette as explored above. Both chromesthetes were able to perceive the subtle commonality between a number of musical sections, at points where other participants may have argued for heightened difference. For example, while participant 10 noted an annotated change at bar 2 and bar 4 of the piece, they did not depict a distinct colour change until bar 6. Participant 5, however, a non-synaesthete, noted full colour changes at the end of each bar between 1 and 4. Participant 6 similarly noted a maintained colour palette until the first main string entry at bar 28, despite the rapid harmonic and instrumentation changes that have occurred up to this point. While of course it is maintained that synaesthesia is highly subjective in all forms, the study cannot deny that chromesthetes are much more inclined to highlight repetition rather than difference, with non-chromesthetes instead using technical rather than aesthetic parameters to promote their transformations. Where non-chromesthetes are drawn towards changes in harmony, instrumentation or texture, full chromesthetes use timbre and interval structure to emphasise aesthetic textures, such as trickling water or velvet (participant 10), which spotlight the commonality of repetition amongst an area filled with technical difference.

The current study of course acknowledges that a performance approach that specifies full chromesthetic correspondences may be impossible for those without coloured hearing to

⁸² The ideas of ‘genus’ and ‘species’ constitute only a small element of the current investigation, but a reminder of their full function can be found in chapter 2. A ‘genus’ constitutes the broadest categorisation of a set of objects, with a ‘species’ then demonstrating a narrowing in specificity, reducing the collection of objects that can be categorised with commonality.

achieve. I therefore propose inspired or manufactured synaesthesia as a process for non-chromesthetes to learn of the vision of their colleagues or of the composer in order to build a framework for their own performance. The explicit communication of colour will be explored in due course with relation to 'projected chromesthesia'. Inspired and manufactured synaesthesia are therefore prompted by a combined approach using both music-analytical discoveries and observations of composer's chromesthesia. This approach may allow non-chromesthetes to draw on the technical areas of commonality observed by full chromesthetes above. This in turn will promote 'repetition' over 'difference' in order to deterritorialize at the level of 'species' (referring to smaller shades within a colour palette) rather than 'genus' (using striking and contrasting colour changes). Taking bars 1-6 as an example, non-chromesthetes may be inclined to perform the timbral contrast between each bar in order to mirror the intervallic breadth and harmonic dissonance within the phrase. Considering the experience of full chromesthetes, however, the maintenance of instrumentation and textural density across this phrase is sufficient in conserving a single colour palette, therefore demonstrating a maintained timbral and stylistic approach to performance. In mirroring the proposed composer's chromesthesia, full chromesthetes can inform performers of the aspects of 'repetition' that they are able to draw on, maintaining sufficient fundamental features of the performance to promote deterritorialization that is open to the stylistic interpretations of the listener.

Finally, an observation made by both participants 7 (07/12/2020) and 10 (17/03/2021) is recognised, concerning the aural experience of this specific experiment. Given the circumstances of the current experiment in 2020/21, all discussions have taken place online, with *Les Orioles* being heard by participants through a screen share system. Participants 7 and 10 express a slight disappointment in this experience, suggesting that what they heard through the computer speaker is not necessarily what they would have expected to hear based on the given score markings. Particularly concerned with dynamic markings and pianistic timbres, participant 10 suggests that the percussive effect of a fortissimo piano was not communicated through the given recording, while participant 7 adds that the aesthetic experience of a concert hall would be completely different to the given setting. We therefore emphasise that on top of the highly subjective topic that is investigated here, the experiment presents a technological bias, exploring the synaesthetic experiences of participants particularly as experienced through a speaker. It is thus integral to acknowledge the variability of results that may be taken from this experiment had it taken place in a concert

hall or other live setting. The observations of non-chromesthetes admittedly concentrate on changes in harmony and instrumentation which, for the most part, would not be impacted by the mode of transmission. For full chromesthetes, however, the importance of timbre cannot be forgotten. While instrumentation also contributes to this change, one must highlight the timbral subtleties that have been investigated throughout this thesis, whether that be the flexible intonation systems of strings, the piercing lyrical spectrum of a flute or the intervallic dampening of a piano. While the present investigations of performance possibilities may emphasise these timbral subtleties in order to communicate Messiaen's proposed chromesthesia, one cannot deny the limitations of technology for the listener, drawing considerations of a method to overcome this 'force of chaos' during performance.

The aural experience of a musical product through a speaker would be transmitted at a limited frequency, with factors such as dynamic levels being controlled by the computer rather than the instrumentalists. In performance, therefore, the study explores the musical parameters through which Messiaen's composer's chromesthesia might be communicated, without being impacted by the technological mode of transmission. As suggested, the trigger points of non-chromesthetes, namely alterations of harmony and instrumentation, are not as strongly impacted by technological transmission, thus suggesting that an emphasis on these factors may aid our efforts for cyclic absolute deterritorialization by strengthening the possibility for manufactured synaesthesia. Taking bar 6 as an example (fig.4.13), the notated score shows a 'piano' dynamic across all instruments apart from the 'crotales'.⁸³ For the purpose of a recorded performance however, it may be more prudent to perform more of a 'forte' dynamic across the wind and strings sections, in order to emphasise the clear contrast of instrumentation and timbre from the piano solo of the previous phrase. While of course there is no guarantee that an emphasis on instrumentation will elicit manufactured synaesthesia amongst listeners, I instead aim to unlock the *possibility*, increasing cyclic absolute deterritorialization by allowing listeners to create their own interpretative territory, whether this may be of a synaesthetic basis or not.

⁸³ Crotales, sometimes known as 'antique cymbals', are a percussion instrument consisting of tuned cymbals laid out in the style of a glockenspiel.

The image displays a vertical musical score for Bar 6 of 'Les Orioles'. The score is written in 2/16 time and includes the following instruments and dynamics:

- Piccolo:** Treble clef, 8va⁻⁻⁻1, dynamic *p*.
- Flute:** Treble clef, 8va⁻⁻⁻1, dynamic *p*.
- Alto Flute:** Treble clef, dynamic *p*.
- Bass Trombone:** Bass clef, dynamic *p*.
- Violoncello:** Bass clef, dynamic *p*.
- Contrabass:** Treble clef, (sons réels), dynamic *p*.
- Crotales:** Treble clef, 15ma⁻⁻⁻1, dynamic *f*.
- Gong:** Percussion clef, dynamic *pp*.

Figure.4.13. Bar 6 of 'Les Orioles', notated as on the original score, with 'piano' dynamic markings across all instruments apart from the Crotales.

The current experiment has linked composer's chromesthesia with the experiences of performers and listeners. Without explicit score markings from the composer, synaesthesia would not necessarily stand out as an instinctive approach for performers and listeners. When considered in this way, however, explorations of colour can impact performance approaches, drawing performers to different points of emphasis within the piece. The points of strongest

commonality in fig.4.12 align with aspects of composer's chromesthesia, and with additional colour similarities amongst other full chromesthetes, I cannot deny that Messiaen's chromesthetic experience has played a part in the composition of *Les Orioles*. By considering the 'musical' (technical) reason for instinctive colour changes, performers can begin to shape their performance around their own experience of 'colour'⁸⁴. Whether related to harmony, interval structures, timbre or instrumentation; performers, by considering colour, can take any number of approaches, emphasising 'species' level change ('difference') to communicate their own experience of 'colour' to the listener. Listeners may or may not perceive these 'coloured' changes which, although forming some 'uncertainty' in the listener's experience, promotes absolute deterritorialization by providing flexibility in the listener's overall interpretation of the piece.

Projected Chromesthesia

Whereas 'manufactured synaesthesia' has throughout this chapter *encouraged* non-chromesthetic listeners to form their own mental image of a piece of music, I close this chapter by suggesting a more direct link between composer's chromesthesia and the experience of the listener, through the concept of 'projected chromesthesia'. Projected chromesthesia indicates the explicit communication of colour in a visual way, such as linking a musical performance to a light show, which forms an almost 'forced' colour correspondence.

The idea of projected chromesthesia is evident in many areas of the entertainment industry, such as Walt Disney's *Fantasia* (1940). Structured as an orchestral concert with a cinematic backdrop, *Fantasia* incorporates well-renowned orchestral music by composers such as Bach, Tchaikovsky and Stravinsky. The images that are experienced on screen, however, are stated by the narrator to be Walt Disney's own visual interpretations of the music. We therefore experience 'projected chromesthesia', with the composer (or in this case director) initiating a colour correspondence that can be promoted to the listener as a possible 'path' to follow. This in many ways mirrors Messiaen's proposed associations between colour and pitch, but additionally, much can be learnt from *Fantasia* in regard to the concept of colour as an

⁸⁴ 'Colour' for the performer may be literal (as in full chromesthesia) or metaphorical (colour as a feeling of change rather than an explicit colour).

internal subject or an external object. The opening of the film narrates three types of image correspondence, based on the ‘purpose’ of the music involved:

There are three kinds of music on this Fantasia programme, first is the kind that tells a definite story. Then there’s the kind that, whilst it has no specific plot, does paint a series of more or less definite pictures. Then there’s the third kind, music that exists simply for its own sake (Fantasia, 1940).

This might be considered in relation to Messiaen’s chromesthesia, considering which category his music falls in to and exploring the impact this would have on the synaesthetic correspondence of performers or listeners. Does Messiaen provide enough programmatic information to enable the performance of a ‘story’, or should we instead aim for a plane of colour with no definitive shape, leaving behind flexibility for the listener to conjure their own interpretation of colour, shape or indeed story?

As part of the current investigation, I hosted a concert (27/04/2022) which presented three of Messiaen’s birdsong works against a backdrop of coloured lights. The three works presented were: *Abîme des Oiseaux* (1941), *Le Merle Noir* (1952) and *Le Merle Bleu* (1953), each of which employed a different combination of instruments – solo clarinet, flute and piano, and solo piano respectively. During preparation for the concert, a light show was designed to accompany all three pieces, with lighting changes chosen as per the current investigation. Points of change were centred around harmonic, registral and timbral changes. The colours chosen were also based on the current investigation of Messiaen’s composer’s chromesthesia. It is worth noting, however, that given the lack of explicit labelling by Messiaen on the scores of the three chosen pieces, the present lighting design was an interpretation of Messiaen’s experience based on *inspired chromesthesia*. Projected chromesthesia is therefore suggested here as a secondary process through which composer’s chromesthesia can be filtered for the benefit of audience experience. The concert was conducted as an ‘interactive experience’, with the audience being given a verbal introduction to each of the pieces prior to the performance. This introduction informed the audience of the context of the piece, based on the programme notes or score markings that Messiaen has provided. The audience was therefore aware of the narrative behind each piece, and could begin to visualise the experience that Messiaen might have had through composer’s chromesthesia. The aim of the concert was to explore audience reactions to projected chromesthesia, considering whether

their experience of the music and/or the birdsong narrative might be enhanced by the addition of a light show.

To prepare for the concert, I collaborated with a lighting engineer who composes his own music to accompany various experiences of light, colour and shape. Discussion could therefore take place from a music-analytical perspective when designing the light show for each piece. I provided an annotated score for each of the three pieces, marked with observations that I had made in relation to a number of topics discussed throughout this thesis. Beginning with *Abîme des Oiseaux*, observations were focused on the detailed programme notes that Messiaen has provided, linking notated features of the composition with aspects of the narrative as indicated by the composer. We (myself and the lighting engineer) decided that structurally the light show would be split into two ‘realms’: broader planes of colour to align with depictions of environment in the movement’s two ‘A’ sections; and more sporadic moving lighting to indicate the birdsong of the central ‘B’ section. Once these two ‘topics’ were decided, we could then begin to divide the sections into specific colours according to the musical content of each phrase.

We split the ‘A’ sections into two main colour schemes. The first was based on Messiaen’s use of the second mode of limited transposition at the opening of the piece. According to Messiaen’s *Traité de Rythme, de Couleur et d’Ornithologie* (1949-1992), the transposition of the mode that is used here relates to ‘golden brown’. We therefore created a colour palette based on this premise, with ‘wings’ of gold, brown and red spreading out from the clarinetist during the concert. These colours were used until the composition moved away from the mode. While there is no defined correspondence of composer’s chromesthesia in this latter half of the ‘A’ section, we decided on an ‘inspired’ choice of green, in order to contrast the modal section and complement the idea of environment rather than bird. Lighting transitions were made to complement Messiaen’s use of crescendo at various points, with the intensity of lights gradually building to match the intensity of the clarinet.

Throughout the ‘B’ section, a plane of colour became less important, with the aim instead falling to the ‘sporadic’ movement of the bird character. We decided that the pitches moved too quickly during this section to focus on composer’s chromesthesia, so we instead used spotlights to mirror the movement of the bird, flashing in time with the melodic movement. Again gradual light transitions were used at points of crescendo in the score, but again a

single colour was maintained here (plain beige lighting) to focus on the bird itself rather than Messiaen's own experience. The 'A' section returned upon the reintroduction of the second mode of limited transposition, at which point the lighting returned to a plane of colour. This original scheme was maintained until the close of the piece.

A slightly different approach was taken to *Le Merle Noir*. As the only piece in the concert to involve two performers, we decided to focus more on the relationship between the flute and the piano when creating the light show, as this would enhance the audience experience and allow them to understand how the two instruments work together in each section of the piece. We therefore assigned a single colour to each instrument (red for piano and blue for flute) and instead added plain beige spotlights to enhance specific melodic features of the work. The red and blue lighting was used as a static plane of light above each performer, which was added upon each instrument entry. Where the coloured lights represented an instrument, the spotlights were used to represent Messiaen's blackbird character. During the cadenza sections in particular, flashing or gradually fading spotlights were employed to mirror the actions of the bird. For example, each iteration of the iambic-trochee figure (fig.1.6) was accompanied by a spotlight 'flying' across the back of the stage, to portray a sudden flight or gesture from the bird. Staccato semiquavers were similarly accompanied by smaller faded spotlights, to suggest a distant second bird character in contrast with the legato 'song' developed around the three-note motif.

During the 'Presque Lent' section, Messiaen does employ the seventh mode of limited transposition. The composer does not, however, discuss this mode in relation to colour in any of his own publications. We therefore took this modal basis as inspiration, but could not rely on composer's chromesthesia throughout this section. Inspired chromesthesia was therefore used to create a light show that mirrored harmonic progressions as the section progressed. To begin, the opening call and response phrases are focused around F#. While this is not a tonal centre, the phrases land on the pitch numerous times, giving the perception of a 'cadence point' for the listener. Fig.4.2 suggested an alignment between F# and 'sparkle', so we chose to maintain the beige spotlights for this section, using a subtle flashing effect to emulate the 'sparkle'. Once the section reached its dissonant block chords, we looked to the melody notes (D#, C#, G and F) to determine the focal pitches. Related to violet, green-blue, yellow and copper green respectively, we decided to focus on green lighting for this section, combining the colours indicated by the melody and mirroring the dense blend of colours within each of

the chords. Returning to individual instrument colours upon the second cadenza, these colours were maintained to the end of the piece, with the spotlights again being used to portray bird movement and character throughout the closing ‘Un Peu Vif’ section.

The final piece, *Le Merle Bleu*, was the longest and therefore biggest project in creating a light show. Messiaen once again provides detailed programme notes for this piece, presenting a story that can be conveyed to the audience. Through the programme notes and score markings, there is a clear contrast throughout this piece between bird characters and portrayals of landscape. This was drawn upon in the creation of a light show. To begin, we chose to focus throughout on the colour blue, to mirror the title character blue rock thrush, along with the blue of the water and the waves that are portrayed throughout. This blue colour was maintained as a static light directly above the piano, which remained throughout the piece. Rather than using a different colour for every ‘character’, we again decided to focus on simplicity for the audience, maintaining the blue colour and instead introducing different shapes or movements of the lights to emulate each of the characters within the piece. The ‘martinets noirs’ for example, were portrayed using a gentle fluctuating light at the back of the stage to mirror the wave-like contour of the motive’s pitches. The ‘merle bleu’ motive similarly incorporated a sudden flashing light upon the sudden demisemiquaver runs.

The main use of colour within this piece came with ‘la mer bleue’ motive, marked by Messiaen as ‘doux, harmonieux et contemplatif’ (calm, harmonious and contemplative). The slower movement and ‘harmonious’ character of this motive allowed us to make some considerations around composer’s chromesthesia here. Taking the upper melody notes as the main inspiration, we used a single fading spotlight at the top of the stage to portray composer’s chromesthesia for each of the chords within the motive (for example, a blue spotlight for A, grey for E and violet for B_b). These were employed in addition to the maintained blue light above the piano, to form an extra possible interpretation rather than a replacement for the movement’s core narrative.

After formulating all of these light shows, the performance was a success. The light shows were conducted efficiently by the lighting engineer and complemented each of the given performances. Fig.4.14 below demonstrates the results of a questionnaire given to audience members following the concert. The full data set is taken from 79 completed questionnaires.

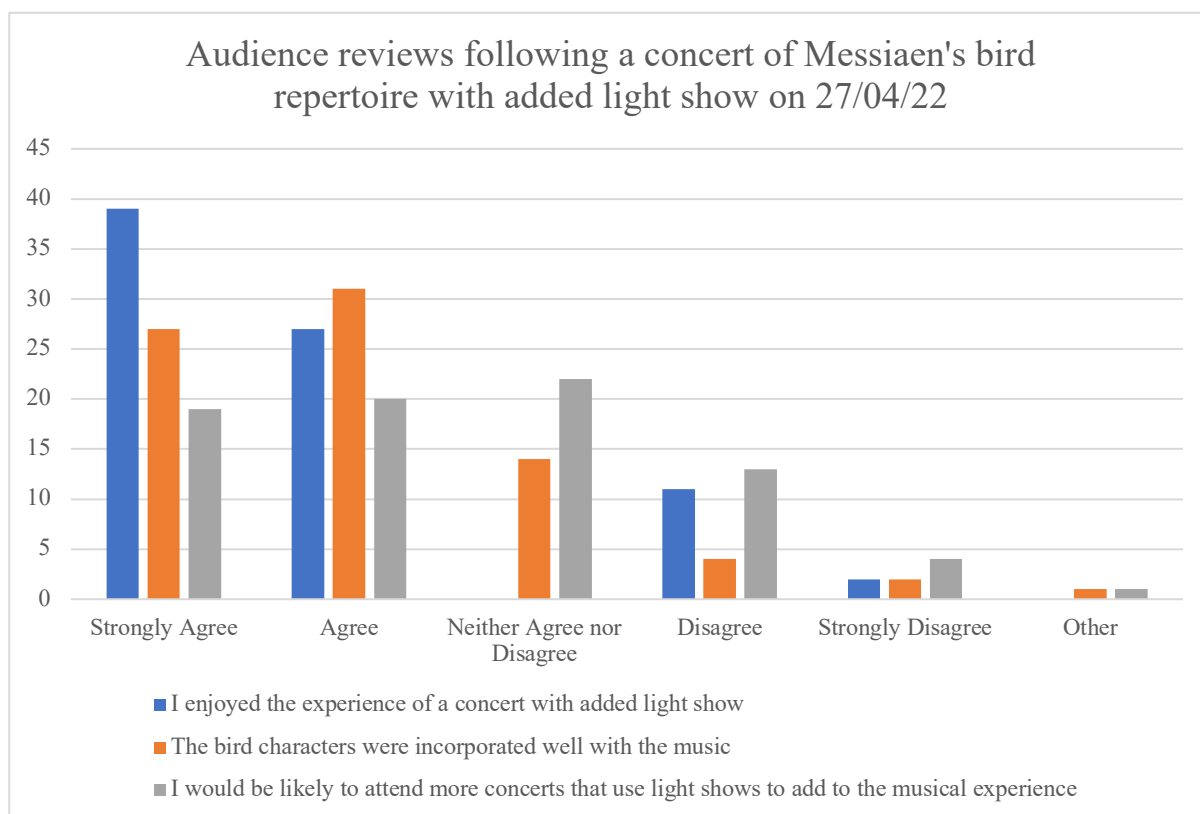


Figure.4.14. The responses of audience members to three statements regarding the incorporation of a light show to a performance of Messiaen's birdsong works (27/04/2022).

As shown above, the overall enjoyment of audience members was high, with 39 in strong agreement that they enjoyed the incorporation of a light show. While a similar consensus was reached regarding the incorporation of bird characters into the performance (27 strongly agree), audience members were less sure on their enthusiasm to attend future concerts with light shows (22 neither agree nor disagree) . Considering the impact of projected chromesthesia when compared with earlier explorations of inspired and manufactured synaesthesia, I will briefly examine some of the opinions behind the data shown above.

Amongst those that were satisfied or positively impacted by the use of lights, there were a number of opinions that demonstrated the effectiveness of projected chromesthesia. Despite the explicit colours that were projected throughout the concert, a number of listeners commented that they perceived the lights as a *suggestion* of possible visualisations, rather than as a path that they are obliged to follow. Amongst these listeners were two chromesthetes, both of whom enthused on the added perspective provided by the light show.

The first, an ‘associator’⁸⁵ who experiences colours when listening to music with their eyes closed, suggested that the “incorporation of a light show complemented the natural vibrations of the instruments as they were played”, which in turn added extra suggestions of colour to the ‘associative’ colours that they already experienced. A second synaesthete, who frequently uses their experiences of coloured hearing within their career as a fine artist, was similarly enthusiastic regarding the possibilities that were unlocked by the light show, adding a second perspective to their present experience. Additionally, among non-chromesthetes, listeners were grateful for the verbal introduction to each piece of music, with one listener suggesting that given the challenging nature of the repertoire, the context behind the light show allowed “everybody to go on a different journey as your imagination is set free”. One further audience member suggested that the light show “was like peering into Messiaen’s brain”. From this it is clear that despite the explicit use of colour, projected chromesthesia does not necessarily limit the continuity of deterritorialization during performance, with audience members instinctively interpreting the lights as a suggestion or a possibility rather than a fixed chromesthetic approach.

As is to be expected of a public event, not all audience members were as enthusiastic about the incorporation of a light show on this occasion. Of those that did not appreciate the idea of projected chromesthesia, the most popular opinion was that it created a distraction from the music. During the present concert, flashing lights were employed to characterise Messiaen’s fast-paced birdsong motives, in combination with more ‘static’ expanses of light during the slower scenic motives. Two listeners in particular emphasised that when concerned with Messiaen, the music itself is complex enough, without the need to add an extra visual element. “The contrast between light and dark and the flashing spotlights” were therefore seen to detract from the music itself, with multiple listeners suggesting that “the stroboscopic lights were too much”. Opinions were, however, fairly mixed when concerned with how to improve the light show. Where the above listeners found elements of the light show to be too strong, there were also a number who suggested that “the music was so powerful as to make the light appear quite weak by comparison”. As has been highlighted throughout this chapter, the varying opinions of audience members emphasise the subjectivity of chromesthesia, regardless of whether it is a ‘natural’ or a projected experience. Audience satisfaction with a

⁸⁵ As explored earlier in this chapter, an ‘associator’ describes a synaesthete who visualises colours ‘in the mind’s eye’, whereas a ‘projector’ sees an external colour, much in the same way as the light show of projected chromesthesia.

light show might therefore be heightened by a more detailed verbal or written introduction to the concept, with the emphasis that projected chromesthesia is always a possibility and never a rule.

A final observation made by multiple audience members at the current concert was concerned with the means of projecting light and the efficacy of the equipment that has been employed. The concert took place in an auditorium that opened in January 2022. The technology within the venue is therefore of a high specification, but at the same time, the auditorium had not been open long enough for the technology to be tested and developed beyond its initial installation state. During the concert, house lights were employed to project colour from the ceiling, with additional spotlights being projected straight on to the back wall of the auditorium. Some audience members were not satisfied with this approach, however, suggesting that “it was not clear how close the setting of the auditorium was to the ideal setting of projected chromesthesia, and because of this it was not clear how imagination would help to make up for the limitations”. It was therefore suggested by multiple audience members that the light would have been more impactful had they “had a screen or something ‘nice’ to focus on”, with many preferring the idea of a white backdrop rather than the wooden rafters of the venue. Of course, this was not possible in the current circumstances, but the opinion nonetheless provides insight into the level of clear, defined lighting that may be preferable to increase the impact of projected chromesthesia.

The current concert has provided much insight into the ability of projected chromesthesia to increase the impact of Messiaen’s birdsong works. Whether the experience of audience members was positive or negative, projected chromesthesia unlocks the *possibility* to appreciate Messiaen’s music for more than the music itself, drawing performers and listeners to consider the narrative behind the sound and the vision that may have been experienced by the composer himself. The explicit nature of projected chromesthesia arguably provides less visual variety than the more metaphorical processes of inspired and manufactured synaesthesia. The current investigation however, has proven that given sufficient verbal explanation of the process, along with advanced equipment for execution, cyclic absolute deterritorialization can still be maximised by projected chromesthesia, with listeners using the explicit light show as a suggestion or possibility that can be added to their own imagined interpretation of both sound and colour.

Summary

While cyclic absolute deterritorialization remains at the heart of the current investigation, this chapter has allowed other Deleuzian and philosophical theories to take a backseat, to instead explore synaesthesia in relation to Messiaen's own experience. The present study has expanded the concept of synaesthesia to incorporate the experiences of composer, performer and listener, in both an explicit (full coloured hearing) and a metaphorical (inspired or projected experiences) sense. The nature of the study has involved over 100 participants across two 'experiments', and therefore has produced a wealth of possibilities for the incorporation of synaesthesia into future performances. Music-analytical techniques have firstly uncovered possible applications of Messiaen's own composer's chromesthesia, which has been subtly incorporated into a number of his works in alignment with the composer's experiences as depicted in his *Traité de rythme, de couleur et d'ornithologie* (Messiaen, 1949-1992). Most closely related to pitch and modal structure, the incorporation of composer's chromesthesia aligns in many cases with coloured imagery of the birds and landscapes that are explicitly labelled within Messiaen's works. By subsequently communicating these analytical findings to listeners of *Les Orioles* and to audience members of a concert of projected chromesthesia, the current study has uncovered a wealth of opinions both positive and negative, when concerned with the incorporation of synaesthesia (and specifically chromesthesia) into music performance. Where inspired chromesthesia by the performer does not necessarily aim to communicate a colour explicitly to a listener, using colour as a basis for performance provides points of emphasis through timbral, textural and harmonic manipulations. This in turn provides the possibility for explicitly labelled bird characters to be accentuated through performance, promoting character to the listener whether as an explicit colour or as an overall sense of 'bird' (manufactured synaesthesia).

Whether positive or negative, and whether chromesthete or non-chromesthete, this chapter can conclude that chromesthesia can most definitely be employed to promote cyclic absolute deterritorialization. No matter the experience of audience members, all opinions pertain towards the idea that chromesthesia, whether full, projected, inspired or manufactured, allows each participant to go on an individual journey, which in turn unlocks infinite territorial possibilities for the interpretation of Messiaen's music. Maintaining the possibilities for both explicit and metaphorical interpretative experiences, this investigation now moves to consider

a dichotomy between musical space and time, framed through the lens of Messiaen's spectral techniques.

Chapter 5: The Musical Space-Time Paradox and Messiaen's Spectral Technique.

Earlier chapters have explored various harmonic aspects of Messiaen's birdsong writing. The current chapter, however, will investigate Messiaen's employment of the harmonic series through the use of spectralism. Spectralism has been associated with French composers of the twentieth century, with Messiaen being an integral progenitor of this group (Moscovich, 1997). Alongside the theories of Viviana Moscovich, Julian Anderson's reading of spectral music accords well with Messiaen's own use of the artistic movement. Anderson suggests that a "fundamental concern shared by most [spectral] composers is with the conscious composition of the degree of predictability or unpredictability of their music, and a consequent fascination with the psychology of perception" (Anderson, 2000, p. 8). As has been explored throughout earlier chapters, this sense of 'unpredictability' stems in many cases from Messiaen's attempts "to abolish the distinctions between [musical] phenomena" (Anderson, 2000, p. 8), instead aiming for a sense of totality or unity throughout his compositions.⁸⁶

Spectral theory is concerned with sound as 'spectra', with these spectra being translated into new audible sounds through composition. The theory is initially an aesthetic component facilitated by the use of timbre as a fundamental compositional element. On a broader scale, however, the theory is ultimately concerned with the breadth of acoustic sound, not as a definite pitch but as a more generalised sonic experience. Composers of the spectral group were concerned with composition as a continuum, in which the spectrum "replaces harmony, melody, rhythm, orchestration and form. The spectrum is always in motion, and the composition is based on spectra developing through time" (Moscovich, 1997, p. 22). Through this insight, Moscovich describes a congruence between space and time, with the spectrum occupying space while becoming generative through its temporal unfolding. This proposition will be developed using a philosophical approach in due course. In the first instance, however, Moscovich's theory can be expanded through the suggestions of Robert Morgan, who indicates that all considerations of musical space include simultaneous considerations of musical time. The spectrum of sound therefore constitutes a multitude of spectra, each of

⁸⁶ Messiaen's 'total' composition approach has been explored earlier, particularly in relation to total serialism.

which is inhabited by a single compositional or ‘technical’ element. Suggesting that each compositional parameter inhabits its available ‘space’ (spectrum) to its own extent, Morgan states that “the spatial model is useful primarily with respect to the ‘aggregate’ quality of musical relationships viewed as a totality” (Morgan, 1980, p. 529)—that is, while each musical element may inhabit its own spectrum, it is the *unification* of these elements into an abstract or finite product that enables a temporal or generative function. In light of this, analytical explorations of spectral technique are concerned with the unification of all harmonic possibilities, whether they be chordal relationships, resonances of the harmonic series or tonal ‘drives’ within a dissonant phrase. The act of composition is therefore determined by “the particular route along which [the range of techniques] moves temporally through the prescribed space” (Morgan, 1980, p. 530). Morgan’s argument emphasises that there are a limited number of ways that a composer can employ a particular musical feature (e.g. pitch or tonality) due to the limitations of the modern notation system. The ways through which these features can be combined and communicated through performance, however, are arguably infinite. The relations between musical spectra are open to interpretation and thus temporal development by both performers and listeners, satisfying the continuity of the current aim for cyclic absolute deterritorialization.

Space and time in music are treated as a dialectic: a metaphysical opposition that is explored as separate features of a musical product. Exploration of this dialectic in music draws parallels with a number of previously explored theories, beginning primarily with the linguistic function of the genotext and phenotext (Kristeva, 1984). As in chapter 1, the genotext and phenotext constitute the foundation or structure of a language and its method of communication respectively. With the genotext maintaining a static, non-signifying structure as with the inhabitation of musical space, the communicative aspect of the phenotext is similar to the generative temporal function of musical time. Both oppositions are co-dependant within this context, with each adding a nuance to the other that helps to articulate it. The present study forms a blend of both theories through the concepts of Gérard Grisey (1987). Grisey proposes that the compositional process provides an *operational* value for musical techniques, but not a *perceptible* value, therefore suggesting a finite product with a single internal role within the composition. Considering the similarity between this and the genotext, the act of composition represents a non-signifying act—a single transformation

through which the concept of relative deterritorialization can be recalled.⁸⁷ The genotextual foundation additionally constitutes the inhabitation of musical space where, for example, a major diatonic tonality may inhabit seven of the twelve possible segments that the chromatic octave can be divided into. The concept of time is therefore added to Grisey's theory through the creation of a *perceptible* value. Similar to the communicative function of the phenotext and the continuity of cyclic absolute deterritorialization, musical time becomes generative when the infinite number of interpretations that can be made by performers and listeners are considered.⁸⁸

Relating the opposition between operation and perception to the present study, one may recall my brief earlier acknowledgement of bird calls being related to music through their employment of a spectrum of sounds (sonic space) that develop over time. Musically, the spectrum of sound within a bird call displays similarities with the communication of the harmonic series, where a static fundamental pitch develops a perceptible value through recognition of its upper partials or resonances by listeners. Messiaen's notated emphasis on upper partials at various points in his compositions highlights the spectrum of sound that is incorporated within his 'bird-like' motives. However, it is the methods through which performers choose to communicate these partials that heighten the impact of the spectral quality, therefore emphasising the temporal, phenotextual aspects of the deterritorialization process.

Whether depicted as a mating call, a display of dominance or a call for food, bird calls can inhabit a wide array of timbral spaces that are dependent on the recipient's perception of their sonic qualities. As a performer, an initial expressive territory may be created by understanding the purpose of the call. Of course, this may not be explicitly stated within a composition, and so the expressive territory itself constitutes a spectrum of possible cyclic interpretations that draw composed elements towards a primal bird-like quality. For example, if all of the upper partials of a pitch are accented with extreme dynamics, one might interpret an assertion of dominance in the timbral quality of the sound, therefore generating a

⁸⁷ As throughout this study, relative deterritorialization (Deleuze, 1980) constitutes a single act of deterritorialization-reterritorialization, in which an object is taken from its original territory and placed into a single new, static territory. In this case, the operational value of a musical technique provides it with a single function which points to an individual territorial destination.

⁸⁸ Similar parallels can be drawn from Deleuze's 'Smooth and Striated time' (1980), but at present we will maintain a spectral sense of space-time. Smooth and striated time will become the focus of chapter 6.

phenotextual, temporal territory based on such a premise. The current study of spectral composition will draw on all of these elements, considering how the inhabitation of space may generate perceptible value during performance.

Any piece of music lays its compositional foundation in the relation between conception and perception (Tristan Murail in Moscovich, 1997), in which a composer may write a piece of music based on the way that they would like their message to be perceived. This premise, however, is conceivably more common within spectral music in which sound is treated as a continuum, therefore promoting a “global not a cellular approach” (Moscovich, 1997, p. 22) to composition. Considering the spectral treatment of sound as the ‘syntax’ of a given work, the study can connect once again to the idea of conception versus perception in relation to the compositional versus the creative process explored below. As unpacked by Jean-Claude Risset, “the validity [...] of a syntax depends on the context and even more on the compositional purpose – and as to the creative process: does it not consist in creating and elaborating new rules rather than in exploiting existing ones?” (Risset, 1977). The current study emphasises the relation between Risset’s query and the treatment of deterritorialization, in which the investigation aims for a generative approach to musical syntax. The translation from conception to perception promotes new territories and new interpretations, rather than being limited by the pre-existing territories of the compositional process. I will therefore align considerations of Messiaen’s spectral compositions with my original Deleuzian approach, considering the space-time dialectic (between creation and perception) in relation to the formation of new interpretative territories during the performance of spectral works.

Spectral Strings – *Réveil des Oiseaux* (1953)

An effective birdsong case study of Messiaen’s spectral composition comes with *Réveil des Oiseaux* (1953). As in earlier chapters, *Réveil des Oiseaux* translates to ‘awakening birds’, and narrates the songs of thirty-seven birds from midnight to midday, in a piece orchestrated for piano with orchestra. Messiaen’s use of spectral compositional techniques within this work stems from his birdsong explorations, investigating methods through which spectralism can increase the relative ‘fidelity’ of birdsong within a human musical performance. Sherlaw-Johnson has recognised Messiaen’s own assertion that “no musical instrument is able to reproduce exactly the quality of birdsong, but this difficulty is partially overcome by the use

of harmonies and harmonic resonances” (1975, p. 118). Aligning with this hypothesis, Messiaen has evidently centred his interpretation of timbre around the harmonic series, drawing all musical elements towards this central focal point. Marilyn Nonken explained that, “in [Messiaen’s] work, all musical factors were viewed in the service of the harmonic-timbral complex and its development over time” in the sense that “pitch, dynamic, duration and articulation were not considered independent parameters but rather elements integrally related to the creation of colour” (2014, p. 33). The present study has explored colour in chapter 4, concerning Messiaen’s experience of synaesthesia. The current chapter, however, does not relate Messiaen’s spectral treatment to colour explicitly, but instead compares it to the use of ‘total serialism’: the incorporation of all musical elements into a single totality. While Messiaen’s treatment of spectralism is primarily concerned with the harmonic series, the composer also considers the impact of duration and articulation, such as additive rhythms. The combination of musical elements stems from the concept of sound as a spectrum, in which “the spectrum is always in motion, and the composition is based on spectra developing through time” (Moscovich, 1997, p. 22). Much like the relationship between genotext and phenotext, sound as a spectrum is generative, constantly progressing to a new territory through the interpretations of performers and listeners. The present investigation will explore the extent to which spectral techniques were employed by Messiaen, particularly in emphasising the natural birdsong elements of his work. Through this, I will consider the use of the harmonic series to combine the overall sonic qualities of natural sounds with the technical control of composed musical sounds.

Réveil des Oiseaux is concerned with the cycle of birdsong from midnight to midday, incorporating cadenza sections to introduce individual bird species, as well as components of the polyphonic dawn chorus. Messiaen’s use of spectralism, however, occurs primarily within the ‘Song Thrush’ motive. Existing literature surrounding the song thrush in particular is sparse, but some existing theories relate to the current spectral investigation. Much like the explorations of the blackbird and nightingale in previous chapters, early investigations of the thrush family have proposed spatial and temporal variation in the songs of these birds, with Willoughby Lowe emphasising that “in this little island of ours [the United Kingdom], where even human beings have different dialects and languages, the Thrush may also sing

differently in different parts of the country” (1944, p. 410).⁸⁹ This alone demonstrates natural variation in the song that may have inspired Messiaen to explore the breadth of the sonic spectrum. A more modern approach, however, comes with the 2014 study of Emily Doolittle et al. While not fully applicable to the current investigation, the work of Doolittle et al provides a hypothesis from which possible relations can be drawn between the songs of the thrush family and the work of Messiaen. Doolittle et al. (2014) consider the song of the hermit thrush which, while clearly a different species than that of Messiaen’s composition, is derived from the same bird family (genus) and has previously been investigated due to its similarities to the song thrush. The exploration hypothesised that “the birds couple their vocal fundamental frequency to the resonances of their vocal tract, in a manner similar to wind instruments”, through which “the frequencies of the individual song notes are integer multiples of an implied base frequency” (Doolittle, et al., 2014, p. 16617). In relation to spectral technique, the 2014 study suggests that the ‘integer multiples’ of the song notes are based around the overtone series of a fundamental pitch. Spectral composition techniques similarly involve the expansion of sonic spectra through the use of multiple integers of the overtone series. I will thus propose that Messiaen’s use of spectralism in this case is a naturally-occurring element of birdsong, considering the extent to which cyclic absolute deterritorialization can be achieved when explored in this way.

Upon marking the entrance of the Song Thrush, the composer’s performance direction states:

The violin and viola chords are a resonance of the trumpet theme; they should blend into the main sound of the trumpet and change the timbre; but we still have to hear them (Messiaen, 1953)[Translation mine].

Messiaen emphasises here that his melody line is primarily placed within the trumpet part, highlighting the fundamental pitches around which the harmonic series can be interpreted. The strings therefore represent partials both above and below the fundamental pitch, which may be considered unusual and will be explored further in due course. The score for this work is presented in concert pitch, meaning that the melodic trumpet motive is based around

⁸⁹ It is emphasised that Messiaen’s composition is not based on settings within the UK, but the theory of Willoughby Lowe instead provides context at a ‘genus’ level about the thrush family in the broadest sense.

the pitches E and B \flat . As demonstrated by fig.5.1, the strings highlight multiple harmonic frequencies within the overtone series, based around the fundamental pitches shown here.

40

Main melody line (trumpet)

$A\flat$ - $\flat 11^{\text{th}}$
 $E\flat$ - $\flat 8^{\text{ve}}$
 A - 4^{th}
 E - Root

$B\flat$ - $\flat 5^{\text{th}}$
 F - $\flat 2^{\text{nd}}$
 B - 5^{th}
 $F\#$ - 2^{nd}

8vb

Harmonic relations of the string parts to the main trumpet line

Detailed description: The figure shows a musical score for measures 40-43. The top three staves are in treble clef, 3/4 time, and represent the trumpet part. The bottom staff is in bass clef, 3/4 time, and represents the string part. The trumpet part features a melodic line with notes: A \flat (quarter), G \flat (quarter), F \flat (quarter), E \flat (quarter), D \flat (quarter), C \flat (quarter), B \flat (quarter), A \flat (quarter). The string part provides harmonic support with chords. Annotations include a list of harmonic relations for the trumpet line (A \flat - $\flat 11^{\text{th}}$, E \flat - $\flat 8^{\text{ve}}$, A - 4^{th} , E - Root) and another list for the string parts (B \flat - $\flat 5^{\text{th}}$, F - $\flat 2^{\text{nd}}$, B - 5^{th} , F# - 2^{nd}) with a bracket labeled '8vb' indicating an octave below. Arrows point from the text labels to the corresponding parts in the score.

Figure.5.1. A representation of the harmonic resonances in the string parts of the song thrush motive, in relation to the main melodic pitches of the trumpet part.

Fig.5.1 highlights a number of pitches both above and below the fundamental melodic pitch. Given that the harmonic series is based on pitches that can be heard *above* the fundamental pitch, this score suggests that Messiaen is primarily focused on the function of pitch *classes* rather than specific pitches. One may infer that the use of upper and lower partials is Messiaen's attempt to broaden the timbral quality of the motive, inhabiting a larger proportion of the available sonic space and enabling a greater multitude of interpretations to be made regarding the perceptible and communicative value of the motive. In November 2020, investigations were made between myself and a quartet of performers, through which

we explored a number of approaches that could be taken to these harmonic partials. The quartet of performers will be referenced collectively here as participant 6, as discussions took place through a collaborative approach, with all four members of the quartet contributing to each topic. The initial instinct upon hearing Messiaen's above performance direction, was that the trumpet is an odd instrument choice in the context of birdsong. Participant 6 (24/11/2020) therefore suggested that the furthest that we may hope to travel in cyclic absolute deterritorialization here is a *representation* (an approximation of a recognisable character) rather than an *imitation* (direct replication of birdsong as heard in nature) of bird, highlighting the theory of 'realistic' or imagined bird character more so than real bird as explored throughout this thesis. Participant 6 additionally stressed their instinctive approach to spectral technique as a 'standard performance version' of the harmonic partials in the sense of playing exactly what is written in the way that it is written – the 'default' interpretation of the notation for participant 6. Emphasising that this instinctive 'default' stems from the notation of the string parts as full pitches rather than harmonics, participant 6 highlights that it is only after a specific consideration of the overtone series that their performance approach might begin to change. Within the naturally-occurring overtone series, as the interval between partials becomes progressively smaller, the intonation is impacted, with the frequency ratios creating a series of partials that mathematically sit at an interval between semitones (Saus, 2020). As a result, our discussion reached the conclusion that the use of full pitches combined with a lack of specificity regarding intonation suggests that Messiaen has chosen notes that are based on the overtone series, but do not replicate the series as it would be naturally experienced. The instinct would therefore be to treat all of the violin and viola pitches as equal entities, exploring them as a chord that plays into the intervallic dissonances to maximise the breadth of timbral space.

Of course, all of our investigations aim to unlock new performance possibilities. Participants therefore contemplated other approaches—beyond their initial instincts—that could alternatively be employed to maximise cyclic absolute deterritorialization. It was briefly suggested by participant 6 that in the context of the string pitches alone, "the lower pitches should be a bit fuller than the higher pitches" in order to promote a more open chordal texture. When combined with the trumpet theme however, we explored the idea that the conductor rather than the performer is most primed to balance the harmonic resonance within this motive, with a consideration of the natural timbre of the *instruments* rather than the bird coming to the fore. Participant 6 emphasised that due to the bold, open nature of the

trumpet's timbre, the melody instrument in this case will project much louder than the eight individual string players tasked with creating the harmonic resonance. The string players would therefore instinctively play strongly and equally, with the conductor instead being responsible for the creation of a timbral 'blend' as requested by Messiaen in his performance notes. The performance approaches suggested by participant 6 all enable cyclic absolute deterritorialization, but are at the same time concerned with the *harmonic* placement of the notated partials on an intervallic or internal level, more so than the contextual relevance of the harmonic series to the natural birdsong.

Participant 3 (03/11/2020), however, considered similar approaches from the perspective of the listener, exploring the extent to which this motivic area may replicate a bird to an external audience rather than to the musically-trained performers themselves. Participant 3, comparably to participant 6, emphasised the importance of the conductor in balancing the various orchestral families that are involved in this motive. The former, however, highlights that in modern society it is an idealised aspiration that the conductor might find the rehearsal time to inform the performers of the bird-based harmonic resonance. Participant 3 discussed these approaches to a different extent to participant 6, highlighting once again the variety of interpretative territories that we are capable of creating through performance. Participant 3 places importance on Messiaen's assignment of each string pitch to an individual player in this instance. With the labelling '5, 6, 7, 8', Messiaen has assigned the central desks of violins and violas to perform this motive, therefore creating a dispersal effect that is unique to this moment of the composition. Differently to the use of solo string parts, the specificity of dispersal in this motive necessitates "clarity and precision of intonation" that unlocks the expressive possibility for the strings to blend with the timbre of the wind melodies. The instinct of participant 3 was additionally to choose the highest string that could be employed for each pitch, in an attempt to increase the brightness of timbre and blend with the natural tone of the trumpet. While this is an exploration of expression with a more technical focus, participant 3 emphasises that if this clarity of intonation is achieved, then the dispersal of the strings compared with that of the trumpet in the orchestra will create a spatial orientation much like that of the birds in their natural habitat. The proposed approach therefore highlights bird character, rather than an imitation of the song itself. By emphasising a broader sense of character, listeners are immersed into the narrative scene of birds amongst nature. As accentuated earlier, the trumpet is an unusual choice to represent a bird, and so while we may conclude that cyclic absolute deterritorialization is not as 'cyclic' here as in other motivic

areas, the use of spectral techniques unlocks a number of expressive territories that progress away from the purity of technique and *towards* the birdsong aspects of the cyclic aim.⁹⁰

Fig.5.2 demonstrates the full harmonic series of the pitch class E, the first note of the above trumpet melody (fig.5.1). As shown, the harmonic series travels upwards from a given ‘root’ or fundamental pitch, in intervals of progressively smaller sizes. Before exploring this further, it is important to note that the frequencies of the natural overtone series are calculated in increments that do not fit with the equal temperament tuning that is convention for Western musicians. While the equal temperament system is based on the overtone series, the exact pitches involved cannot truly be represented by the piano, with a number of the more distant partials naturally sounding several cents sharper or flatter than those depicted by the piano. As will be explored in due course, the piano is an instrument strongly associated with spectral technique, as investigated by Marilyn Nonken (2014). Since I am not investigating a piano-based motive at this stage, however, the piano is only used within fig.5.2.a as a visual aid to demonstrate the relationship between overtones. The interval between each overtone becomes increasingly narrow as one progresses through the series. “The frequency spacing remains the same” (Saus, 2020) however, as shown by the different visual representations observed between fig.5.2.a and fig.5.2.b below.

Fig.5.2.a demonstrates a ‘musical’ display of the harmonic series, with a logarithmic approach explicating the intervallic narrowing as the series progresses. Note the strongest (most red) waveforms at the bottom of the diagram here, in which one can observe a much wider wave at the left hand side (the fundamental pitch), with the waves becoming both narrower and shorter as the intervals diminish in size. Fig.5.2.b, however, takes a ‘scientific’ approach, prioritising frequencies and exploring a linear display that highlights the ever-present relationship between frequency and interval size. Here a shift in the shape of the spectrogram is observed, in which frequencies are distributed evenly but do not align with the natural narrowing of ‘musical’ pitches. By demonstrating that the semitones of the piano are in fact uneven in their frequencies, there is a clarity in the mathematical dispersal of overtones. As a result, fig.5.2.b demonstrates equality in the construction of its wave forms, with each wave possessing an equal width, and the balanced diagonal progression across the

⁹⁰ Please refer back to fig.0.2.b to recall the ‘journey’ that may be taken during the process of cyclic absolute deterritorialization.

diagram highlighting uniformity in the frequency distance between each overtone. As a result, it is increasingly imperative to consider frequency *ratios* rather than frequency *size* when exploring the ‘purity’ and impact of intervals within Messiaen’s work. Using fig.5.3 as an example, one can observe each of the features discussed, with consistent frequency size combining with varying frequency ratios to determine the narrowing interval structure of the harmonic series. As the study moves once again to explore Messiaen’s employment of the harmonic series, the disparity between interval and frequency should be considered, including the impact that this may have on the perception of listeners with or without knowledge of musical structures such as this.

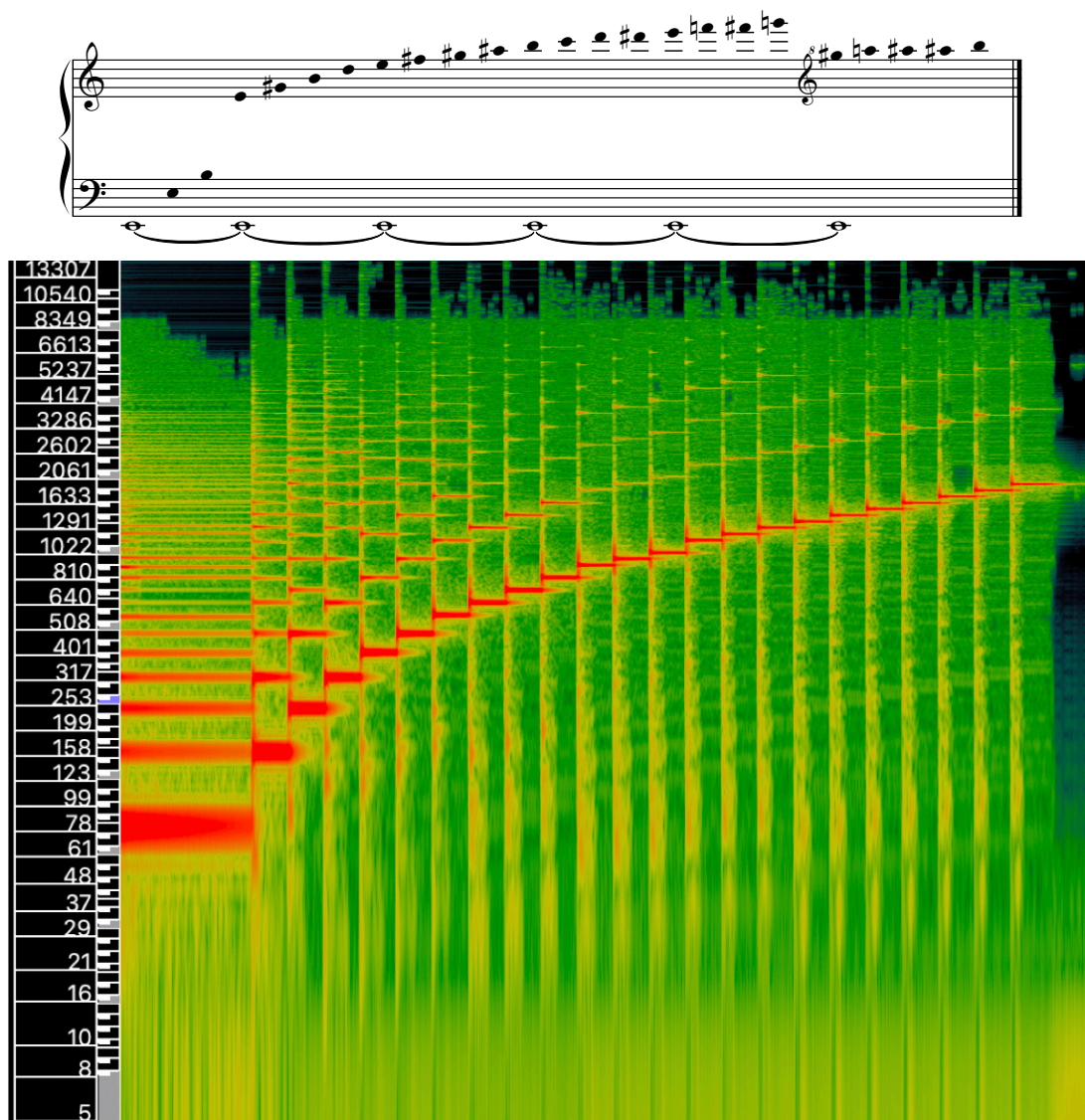


Figure.5.2.a. A ‘musical’ logarithmic representation of the overtone series of the fundamental pitch E, as explored surrounding Messiaen’s phrase.

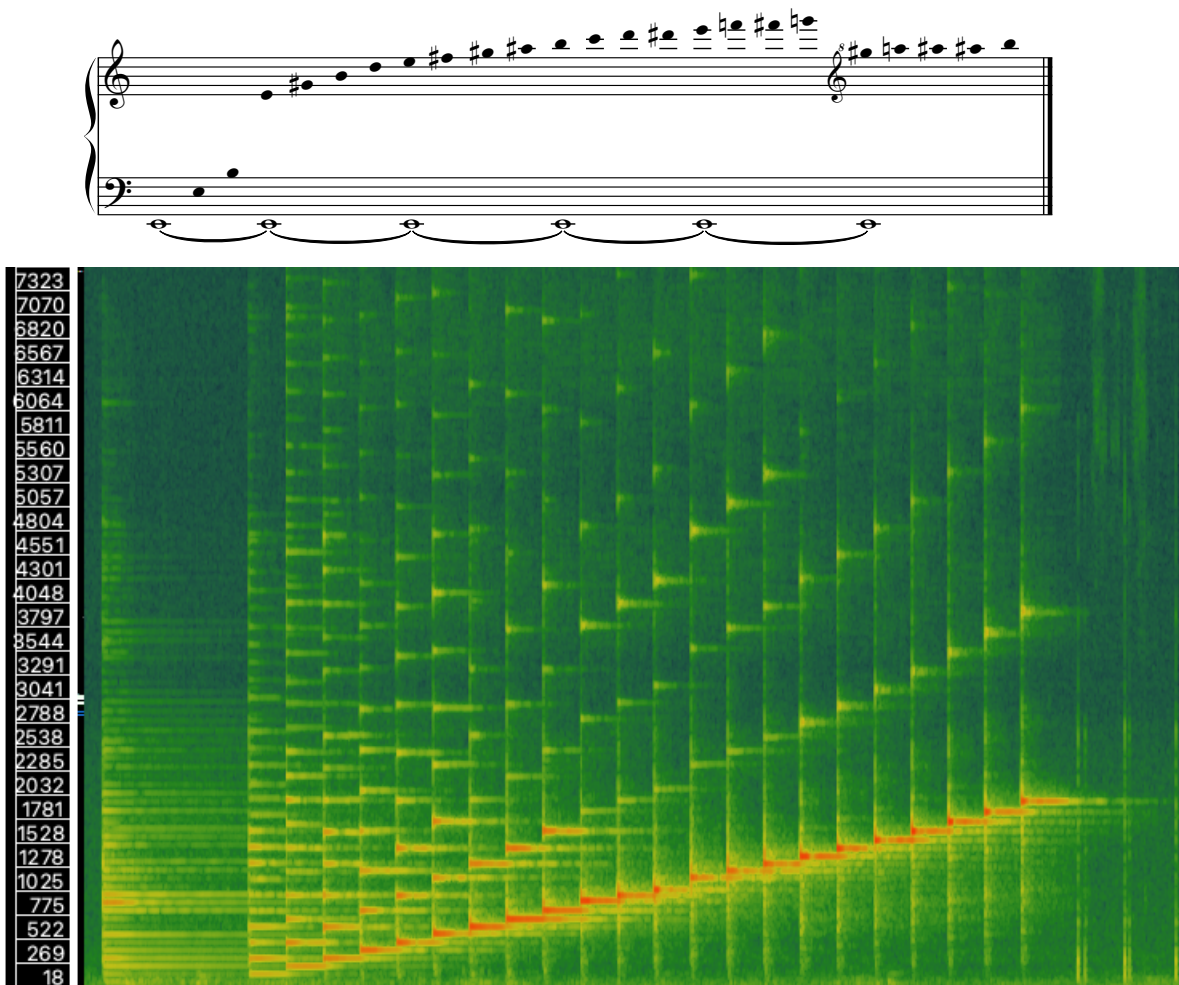


Figure.5.2.b. A ‘scientific’ linear representation of the same overtone series, prioritising frequency size rather than pitch.

Pitch	C₃	C₄	G₄
Frequency	130.8Hz	264.6Hz	392.4Hz
Frequency Ratio		2:1	3:2
Interval		Octave	Perfect 5th

Figure.5.3. A demonstration of the first three overtones of the harmonic series with a fundamental pitch of C₃, including their frequencies and the frequency ratios that determine their interval size.

Messiaen has employed pitches which are positioned both above and below the fundamental pitch, as explained by both fig.5.1 and fig.5.2. As a result of his pitch employment, one may instinctively suggest that Messiaen is more concerned with the scale degree or pitch *class* of a partial rather than its specific placement in the overtone series. When considered in this way, some of Messiaen's chosen pitch classes, such as B (V)⁹¹ and F# (II), could be considered 'conventional' in the sense that they are found fairly low down in the harmonic series (3rd and 9th respectively) and are both considered to be consonant pitches within the diatonic major scale. Messiaen has, however, also employed a number of harmonic resonances that would not necessarily be heard by the human ear. While Messiaen himself has stated within his *Traité de rythme, de couleur et d'ornithologie* (1949-1992) that he can hear the $\flat V$ partial (B \flat in this case), his employment of E \flat ($\flat 8^{ve}$) and F ($\flat II$) are positioned at 15th and 17th respectively within the overtone series. The distance of these partials from the fundamental note may seem an unusual choice for Messiaen, but it invites consideration of these harmonic components in relation to performance practice.

As contemplated above, one may instinctively believe that the harmonic resonances here are a 'standard performance version' of the overtone series due to their notation as complete pitches rather than instrumental harmonics. I previously concluded that Messiaen's lack of specificity regarding intonation means that performers will, at most, produce a *representation* rather than an *imitation* of the overtone series and, therefore, of natural sound. The study is, however, continually concerned with unlocking new performance possibilities. Fig.5.2 elicits a multitude of possibilities through which the bird character may emerge at the fore of performance. The distant partials demonstrated here are all found on fig.5.2.a. Note, however, that the pitch as a 'true' partial of the fundamental note is consistently positioned at a slightly different frequency than the pitch on the pianistic (equal-tempered) scale.⁹² Consequently, while Messiaen may not have specified the intonation that he intended for this passage, one may suggest that the naturalistic elements of the motive could be emphasised if a performer altered the intonation of these distant partials to more closely mirror their natural occurrence. In doing this, not only could performers maximise cyclic absolute deterritorialization by highlighting the natural resonance of the fundamental birdsong pitch, they can also

⁹¹ 'V' refers here to pitch class B as the dominant of the fundamental pitch E. This labelling continues throughout.

⁹² For exact figures: B \flat is naturally heard 49 cents flatter than the pianistic pitch, E \flat is naturally 12 cents flatter and F is naturally 5 cents sharper compared to the equal tempered scale. This can be seen on fig.5.2.a with the red waves sitting slightly 'out of line' with the piano keyboard on the left hand side of the diagram.

increasingly satisfy Messiaen's performance note to 'blend into the sound of the trumpet' by complementing the 'just' intonation of the trumpet's natural resonance.

In further accordance with fig.5.2, one may infer a timbral broadening of the overall sonic space with Messiaen's pitch choices. Looking to the logarithmic example of fig.5.2.a, there is evidence of small areas of red wave forms far below each fundamental pitch, where the fundamental is indicated by each horizontal red wave. These more vertical red lines occur upon the initial impact of each pitch, and are not sustained for the full length of the note. While they are evidently less resonant, or audible, than the overtones of each pitch, these waves do imply a metaphorical 'undertone' beneath a partial, in which a lower frequency appears to be present within the sonic spectrum of the pianistic note. In reality, these 'undertones' are not something that would be heard by the human ear, and are most likely an auxiliary resonance that is not actually being formed by the sound. These resonances may instead be caused by the 'artificial' vibration of a piano string below that of the fundamental pitch. These subtle wave forms nevertheless provide an additional basis through which to increase the inhabitation of sonic space. Considering the impact of this on performance, if we were to play into the dissonances of the more distant partials that Messiaen chose to employ (B \flat and F for example), these metaphorical 'undertones' might clarify why the composer used pitches both above and below the fundamental. Metaphor or not, the possibility to broaden the timbral spectrum of the motive develops once again the number of interpretative territories that could be made by listeners, expanding the harmonic, tonal and narrative components of the phrase.

On the other hand, Messiaen has also employed the perfect fourth scale degree (A) within his string parts, a pitch that is part of the diatonic major scale and therefore closely related to the root note. Within the harmonic series, however, this pitch is first encountered at position 21, far away from the fundamental pitch and, of course, when considering the presence of just intonation within string instruments, it is possible that this 'perfect' fourth would not exist at all.⁹³ Despite this, the *interval* of a perfect fourth is clearly present between the third and fourth partials of the harmonic series, meaning that while the fourth *scale degree* is not necessarily audible as an overtone, the *interval* of a fourth still holds great importance to the

⁹³ It is worth noting that the perfect 4th is often avoided in genres such as jazz, where it would be considered a 'weak' or even dissonant tone within the chordal and modal tendencies associated with the genre.

sonic experience of a given pitch. This concept appears in parallel with Messiaen's use of upper and lower partials, in the sense of emphasising the interval of a perfect fourth between E and A, rather than a specific rise from tonic to subdominant. The song thrush motive is not composed within a specific key, and so while E is considered as a fundamental pitch, it is a root only within the context of melody, not a scalar or tonal root. The A pitch class therefore does not hold the subdominant function that it would within tonal music, thus strengthening its function as an interval rather than a scale degree per se. Once again broadening the timbral space that is occupied by the motive, the interval of a fourth is present throughout the string parts, with an alternation between perfect and augmented fourths being observed between each harmonic partial that is employed.

While I have recognised the relevance of the perfect fourth interval between partials of the harmonic series, Messiaen has stated an affinity for the augmented fourth in his *Traité de rythme, de couleur et d'ornithologie* (Messiaen, 1949-1992), suggesting this as the furthest audible partial and yet a highly applicable component of his own overtone experience. I therefore consider the philosophical 'function' of these two intervals, beginning with the discussions of Edgar Willems. Willems' discussion of interval functions is particularly pertinent to the current study, through a consideration of the parallels that can be drawn between perfect and augmented fourths (Willems, 1977). Willems considers our perceptions of harmonic intervals in terms of the 'sensorial', the 'affective' and the 'intellective', constituting the emotional, reactive and cognitive respectively. In an attempt to deterritorialize and unlock expressive territories, the current investigation pinpoints the impact of sensorial (emotional) explorations in particular. Willems proposes contrasting feelings or senses between the perfect and augmented fourths, with the perfect fourth exuding "hardness and cold" and the augmented fourth representing "fracture and heat" (Willems, 1977). This contrast provides additional rationale for Messiaen to fill a broad range of the available sonic space through his spectral techniques, with the production of contrasting senses broadening the possibilities for sensorial stimulations from performers and listeners. Even further than this, we recall that the fundamental pitch of the current study is E, which in Messiaen's case has been placed in a central position within the pitch range of his harmonic resonance (fig.5.1). As suggested by Marco Costa et al. (2000), register may impact the overall perception of an interval, with higher registers promoting a more positive emotional response, and lower registers primarily eliciting negative emotions. Messiaen's central placement of the fundamental pitch therefore expands his interpretative spectrum, employing

upper and lower resonances to maximise the number of possible sensorial interpretations and subsequently maximising the number of new expressive territories that may be unlocked during performance.

In discussion with performers, the concept of an alternation between perfect and augmented fourths has elicited varied responses and possibilities for performance. While both participant 3 and 6 consider the mathematical construction of the two intervals in question, the former is more concerned with the disparity between the two. Participant 3 stresses that while the perfect 4th as a *scale degree* is a particularly distant overtone, the perfect 4th *interval* is feasibly the most consonant. Demonstrating that the perfect 4th is an inversion of the perfect 5th, participant 3 suggests that human listening—or at the very least the Western enculturation of equal temperament—tends towards hearing the inversion due to our aspiration to draw consonance from all that we hear. In their opinion, the perfect 4th (inverted perfect 5th) is therefore employed by Messiaen as the first consonance of the overtone series to play into the *human* element of music consumption. This proposal stems from the concept of human logarithmic hearing, in which “[we] must be sensitive to detect small changes in signal, and at the same time, [we] must have a broad response range because many natural signals vary over several orders of magnitude” (Olsman & Goentoro, 2016, p. 1). As a result, no matter the size of the change, the breadth of response range that humans must adapt to means that we favour simple ratios such as the octave at 2:1 or the perfect 5th at 3:2 (fig.5.3).

The proposition of participant 3 stems, however, from the lack of proof as to whether birds possess the same logarithmic hearing that humans do. As we filter the bird through our experience of its compositional character, it is important to consider that something dissonant to humans may be consonant to the bird, or vice versa. Messiaen therefore could have chosen to alternate between perfect and augmented fourths to inhabit the intervallic ‘space’ in a simultaneously consonant and dissonant way. While forming a sense of consonance for human listeners, Messiaen unlocks the *possibility* of a bird’s sonic interpretation, highlighting the varied features of a metaphorical ‘bird’s tonality’. In order to maximise the possibility for cyclic absolute deterritorialization, one is drawn once again to a performance in which all of the spectral partials have equal importance, creating an expressive territory that draws on both the perfect and augmented fourths and thus recognises possible hearings of the motive for both humans and birds.

Participant 6 similarly recognised these intervals, but suggested more importance for the augmented 4th during performance. Having experienced birdsong-inspired works by a number of composers, participant 6 proposed that the augmented 4th is a common feature of many of these works, demonstrating that perhaps this interval is a naturally-occurring feature of the birdsong itself. Discussion with participant 6 did once again consider the variation between human and bird experiences, suggesting that *if* an augmented 4th is a natural element of birdsong then perhaps the birds perceive the interval in a different way than the dissonance that we are so enculturated to hear. It is important to maintain clarity, however, that the association of the augmented 4th with a *dissonant* component of birdsong is a Western idea that stems from training based on the Western Classical Tradition. The discussion ensued as to whether the augmented 4th could be perceived as a consonance not only within birdsong, but also within other human cultures. Adam Neely (2021) published a YouTube video which explored a number of different functions for the tritone, both consonant and dissonant. Quoting Nicola Vicentino (1555), Neely suggests that the augmented 4th is “vivacious and forceful in ascent, and funeral and sad in descent”. Neely indicates that outside of Classical tradition, music such as the Simpsons Theme (1989) and Maria from West Side Story (1956) uses the augmented 4th in an uplifting way, resolving upwards to the perfect 5th to create hope and enlightenment. Similarly, in jazz and blues tradition, the perfect 4th is often avoided, with the augmented 4th of the lydian mode being preferred when used over a major chord progression (Russell, 1953, p.57).⁹⁴ While the frequency ratios of a note and its perfect 4th are much more mathematically related than a note and its augmented 4th (fig.5.2.b⁹⁵), the augmented 4th can be used within a consonant context in a number of musical traditions. Discussion with participant 6 therefore considered the augmented 4th to be *otherworldly* (outside of the Western Classical tradition) rather than *inhuman* and therefore suggested possible performance approaches that explore this otherworldly nature in the timbral quality of the interval.

From the discussions of both participant 3 and 6, the current study can demonstrate a comparable overall perception of the relationship between perfect and augmented 4ths, with variable expressive territories created by the more detailed aspects of their respective

⁹⁴ Russell’s preference for the lydian mode over the major scale relates to ‘tonal gravity’, in which the consonance of a chord is determined by stacks of fifths from the root note. Following a sequence of fifths, one would encounter the augmented 4th, not the perfect 4th.

⁹⁵ A perfect 4th sits at a frequency ratio of 4:3, whereas an augmented 4th possesses a ratio of 45:32. These ratios also vary between tuning systems, the given examples representing just intonation.

performance approaches. The comparison that both participants are able to draw between human and bird ‘worlds’ demonstrates the communicative potential of Messiaen’s spectral technique and the ability of the motivic statement to fuel cyclic absolute deterritorialization. While perhaps not maximising the bird element as fully as other factors that this thesis has explored, discussion of Messiaen’s spectral technique highlights the breadth of interpretation that can come from an acknowledgement of both worlds. Such a variety of approaches has stemmed purely from a comparison of intervals, but we must also remember that “if a composition is expressive of some emotions, this is not merely the results of its interval set” (Costa, et al., 2000, p. 18). It is important to maintain awareness of the other factors that play a part in human perception of spectral resonance as explored earlier, such as the timbral qualities of the instruments that have been employed, and the rehearsal setting through which a performance may be created. Consequently, while the current investigation accords well with Messiaen’s birdsong works, the function of spectral technique is acknowledged within many of the other explorations of this thesis, whether that be instrumentation, synaesthetic correspondence or harmonic motivic content.

The Piano

The use of spectral technique within composition written for string instruments provides clarity to harmonic resonances thanks to the just intonation of the instruments involved. Messiaen, however, also incorporates spectral techniques on the piano which, while not necessarily unusual, draws into question the efficacy and audibility of the harmonic partials when employed within an instrument of equal temperament. This topic was referred to briefly in chapter 3, but the possibilities that can emerge from spectral technique specifically will be explored further at this point. The investigation in this instance explores the first piano cadenza of *Réveil des Oiseaux* (1953), employed to represent a single nightingale and therefore acting as a ‘character profile’ to convey the expressive and narrative qualities of this bird species.

Rather than an exploration of multiple harmonic resonances, Messiaen’s use of the piano largely employs textural transformations to alter the extent to which the instrument may inhabit its sonic space. As touched upon in earlier chapters, the first birdsong cadenza is structured in monophonic octaves (Kraft, 2000) (fig.5.4), meaning that while a single melodic

line is employed to represent the individual bird species, the resonance at the octave allows the sound to inhabit more of its timbral space, therefore unlocking more generative expressive territories. Of course, one may suggest that an octave, being the second partial of the harmonic series, does not expand the timbral spectrum of a sound sufficiently in order to unlock new harmonic possibilities. Consideration should simultaneously be made, however, of the placement of this octave in particular in the piano, an instrument of equal temperament that has prompted disagreement between past scholars as to its true timbral flexibility.

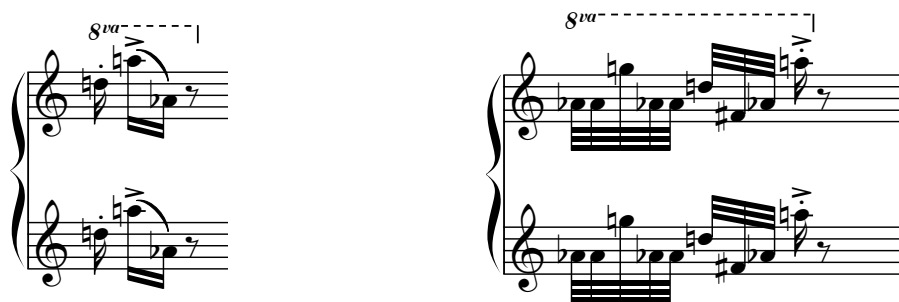


Figure.5.4. Messiaen’s notated monophonic octaves, in which the consistency in pitch class is emphasised by notating identical pitches, with a performance direction instead being employed to highlight the raised octave of the upper line. Both excerpts are taken from the first cadenza (bar 1) of *Réveil des Oiseaux*.

Equal temperament, as a system in which “all twelve tones of the chromatic scale stand equidistant from each other in both a logarithmical and musical sense” (McGarry, 1984, p. 54), invites deviations from ‘pure’ interval structures, with logarithmic calculations being used to determine the frequency of each semitone (fig.5.5). Within equal temperament, the perfect 5th is flattened and the major 3rd sharpened in comparison to the expectations of just intonation.

**Just Major Third
(e.g. E₄ = 327.032hz)**

The total 2:1 ratio of the perfect octave.

$$\times 2^{4/12}$$

4 semitones inhabited for a major 3rd out of a total of 12 in an octave.

**Equal Temperament Major Third
(e.g. E₄ = 329.628hz)**

Figure.5.5. A demonstration of the logarithmic calculation used to determine the frequencies of equal tempered intervals (here a major 3rd), with the calculation being based on the use of twelve equal semi-tonal degrees ('cents') within a full octave. The example here uses a root/tonic pitch of C₄, and demonstrates the deviation that this calculation creates from the 'just' interval.

Consider this calculation, however, when applied to the interval of an octave, in which the index would produce a figure of $2^{12/12}$. Given that 12/12 is equal to 1, the calculation of an equal tempered octave is simply to double the frequency of the fundamental pitch. Following the 2:1 ratio of the octave in just intonation, the octave becomes the only interval that can be described as mathematically 'pure' within both tuning systems. Returning to the use of monophonic octaves, the interval of an octave is particularly applicable in relation to spectral technique as, within the given piano cadenza, it is the only interval that can be heard in its purest form. Once again, one may argue that the 'purity' of this monophonic texture inhabits a limited amount of sonic space and therefore reduces the possibility for new expressive territories, at least in relation to harmony. As demonstrated earlier, however, it takes many more factors than an interval structure to elicit an emotional response from a musical phrase (Costa, et al., 2000). Incorporating the narrative function of the cadenza, Messiaen's 'introduction' to the nightingale is highlighted at this point through the portrayal of recognisable characteristics of the bird's typical song. Consequently, the use of monophonic octaves can broaden the timbral spectrum through the use of doubling, without the inclusion of any more distant harmonic partials that may cause a distraction or 'interruption' from the individuality of the bird that is being portrayed. Due to the aural similarity between two pitches that are an octave apart, I will consider whether there remains a possibility to unlock

new territories from this cadenza, exploiting spectral qualities of the monophonic octaves to create an accurate depiction of the birdsong ‘case study’.

While the mathematical depiction of monophonic octaves may appear ‘factually correct’, performers have varied attitudes to equal temperament that may in turn impact performers’ overall approach to the cadenza. Participant 3 (03/11/2020) in particular suggested that, given that Messiaen was an organist by trade, “an instrument being tuned in equal temperament does not mean that it is played in equal temperament”. Some performers therefore choose to emphasise certain pitches within a chord in order to give the *impression* of a ‘pure’ interval structure. For example, within a major triad, pianists may choose to dampen the major 3rd in order to imitate a flatter intonation.⁹⁶ As a result, participant 3 instinctively emphasises the right hand part of Messiaen’s cadenza, to create a brightness of timbre that provides the opportunity to hear the harmonic partial a perfect 4th below the upper melody line. Of course, this partial is symmetrically the perfect 5th above the *lower* melody line, and therefore in considering both possibilities, one may perceive a sense of both ‘expected’ (low down in the harmonic series) and ‘distant’ partials. One may question how this approach promotes cyclic absolute deterritorialization through birdsong, but it is a theory that once again comes alive when considered as a component of the broader composition. In earlier explorations of spectral technique within Messiaen’s string parts, the investigation concluded that the composer’s use of the overtone series had the potential to unlock interpretative territories that promote birdsong character, thanks to the breadth of sonic space created by his stacks of fourths. Participant 3 supports a brightness of timbre in the piano lines to draw on the perfect 4th partial, therefore emulating the stacks of fourths as experienced in the strings. Participant 3 suggests that “when Messiaen the organist writes a stack of fourths, he wants a particular colour; he wants the locked effect of intonation that he knows is possible”. Through this, it is suggested that an interpretation of Messiaen’s writing involves a harmonic, timbral, textural and narrative colour, all of which combine to fuel the interpretative potential of spectral technique. While the latter string performers may consider the intonation of each individual partial to create the implied ‘locked effect’, the inference of participant 3 is that the brightening of the upper octave within the piano line is sufficient in implying a perfect 4th within just intonation. I therefore indicate maximal deterritorialization through a single

⁹⁶ Please note here that I am not suggesting that a dampened major 3rd will physically alter the equal temperament piano, but rather create a timbral alteration that, to a listener, may create an aural impression of flattened intonation.

performance alteration, broadening the interpretative territories that could be inhabited by each individual listener.

How does this map onto the overall birdsong narrative, one may ask. In discussion, participant 1 (19/10/2020) instinctively provided clarity to the detailed approaches of participant 3, with an interpretation that immediately placed narrative at the fore of performance with much similarity in technical approach to that of the above discussion. With an initial reaction that “if you just play the top stave, it sounds significantly more like birdsong than if you play the piece”, participant 1 experimented with the overall sonic quality of the right hand line prior to exploring the spectral implication of Messiaen’s lower octave. Considering once more fig.5.4, the interval contour and rhythmic rapidity of the melody line has significant bird connotations and, whether specific to the labelled species or not, there is a distinct possibility of interpreting bird character from the musical elements of these motives. Consequently, when combining this with the upper pitch range of the right hand, participant 1 is clear in stating the strength of birdsong character than can be drawn here. The conclusion from this discussion was therefore extremely similar to the fundamental philosophy of cyclic absolute deterritorialization. After being introduced to the concept of deterritorialization at the start of our discussion, participant 1 argued that an initial cycle of deterritorialization has been completed by Messiaen during the composition process. In taking the bird, Messiaen has deterritorialized the birdsong by placing it into a musical territory, as in the majority of cases explored thus far. Here, however, the use of a solo instrument with an explicit bird species label forms a predetermined destination for the motive, and thus Messiaen has begun to extend the line of flight back towards the initial bird territory. While participant 1 may not have explored the spectral implications of this in as much depth as participant 3, both reach similar conclusions, with the overall approach suggesting a brightness of timbre that unlocks not only expressive *territories*, but also the ability to inhabit a wider array of harmonic and narrative *spaces* within the context of the broader composition.

Additional elements of Messiaen’s spectral attitude can be observed through the general interval contour of the opening piano cadenza. As discovered in chapter 1, Messiaen was concerned with the unification of all musical elements into a single totality, particularly in relation to serialism. Much in the same way, the study discerned that harmony and timbre are integral constituents of a multi-dimensional whole. Through this, the composer developed “a fascination with timbre and the sensuality of sound, a concern with perception and its relation

to acoustics, and a sense of musical temporality closely related to process and transformation” (Nonken, 2014, p. 35). Here Nonken suggests a reliance on timbral colour for performers and listeners. By incorporating melody, harmony, duration and attack (volume) into the overall timbral space, Nonken suggests that a motive can be perceived through a combined sense of whole, rather than through multiple individual constituents of the composition. One may therefore suggest that in order for a spectrum of sound to become generative through time, one is not solely reliant on the harmonic series but on *all* compositional components of a musical work. Returning to the cadenza in question, I will consider the discrepancies in interval contour that favour auditory perception and interpretation over the realism of birdsong. Through this, I will explore the possibility of using these interval contours to unlock new interpretative territories during performance.

Messiaen’s approach to major and minor seventh intervals within his transcription notebooks has been explored in previous chapters, with his notebooks from 1952 and 1953 demonstrating contrasting tendencies in relation to this interval. Due to the consistent use of the minor seventh throughout Messiaen’s 1952 notebook, I earlier queried whether he may have deliberately altered this interval within his 1953 notebook, to broaden the sonic range and create a leading tone function through the combination of major sevenths (leading to the tonic) and tritones (leading to the dominant). In relation to the current spectral investigation, I will explore the relevance of Dirk de Klerk’s theory that “for the minor third and the seventh harmonic we can tolerate somewhat larger deviations [from the pure interval] than for the fifth and major third” (Klerk, 1979, p. 141). De Klerk appears to allude here to a degree of deviation between ‘just’ and ‘equal’ temperaments, a deviation that is particularly large at the point of the interval of a seventh ($2^{11/12}$). The seventh is therefore regarded as ‘out of tune’ to the extent that alterations between minor and major sevenths will not make a notable difference to the aural perception of the phrase. While this study will never be able to apply this theory with 100% assurance, I can safely indicate that Messiaen favoured the major seventh over the minor seventh for the sake of tonal grounding created by the leading tone, without the sonic resonance being so greatly different as to alter the possibility of unlocking expressive territories.

Following further discussion with performers, a somewhat disparate set of opinions was formed in relation to interval distribution. Firstly, in support of the above argument, participant 1 highlights that the harmonic series naturally falls at a pitch directly between the

minor and major 7ths as defined by equal temperament. Participant 1 therefore states that *if* natural birdsong is related to the harmonic series,⁹⁷ then Messiaen could have written a minor *or* a major 7th within his birdsong transcriptions and been no less ‘correct’ in his interpretation. Of course, this is ‘correct’ only in relation to human logarithmic hearing and harmonic enculturation. Focusing on the piano, however, participant 1 suggests that if it suited Messiaen’s compositional intention—whatever that may have been—to stretch the seventh slightly sharper, then this is justified given the limitations of twelve semitones within the pianistic octave.

I therefore consider the implications of minor and major 7ths on phrasing, exploring their respective ‘fit’ within the tonal or harmonic structure of an individual passage. Moving away from the above argument, participant 1 counters that the tonal implication or ‘stability’ of the major 7th is perhaps *less* than that of the minor 7th despite its leading tone function within a scalar context. When considering the minor 7th as a constituent of a dominant 7th chord, there is a clear cadential function that demonstrates strong tonal placement. While acknowledging that the dominant 7th chord employs the minor 7th *scale degree* as opposed to the interval, participant 1 suggests that the interval maintains the same cadential function owing to the enculturation of human listeners. As with the connotations of intervals discussed earlier, the dominant 7th as a cadential feature is a part of Western music enculturation, and so by no means does the current study indicate that the tonal implication of the minor 7th is a ‘universal’ component. The impact of intervallic variation therefore maximises the possible interpretative territories that can be unlocked by the personal enculturations of both performer and listener. Participant 1 also suggests that Messiaen’s preference for the major 7th within *Réveil des Oiseaux* is more likely to *reduce* tonal function, with this interval possessing less of an implication within ‘conventional’ harmonic and tonal progressions. The interval is therefore, in the opinion of participant 1, “devoid of instinctive resolutions”, suggesting that Messiaen’s tendency to stretch his sevenths to the major promotes less of a tonal scheme and is more likely to open his harmonic preferences to broader interpretative territories.

⁹⁷ There is not yet sufficient evidence to definitively state whether birdsong is based around the ‘human’ harmonic series, but please recall the work of Emily Doolittle above which indicates parallels between some bird species and the overtones of wind instruments.

Participant 3, however, highlights the flexibility of the seventh on an equal tempered piano, in contrast with participant 1. While agreeing that the harmonic series naturally falls somewhere between the piano's minor and major 7th, participant 3 emphasises that performers tend to *hear* the major 7th as being 'out of tune' in a flattened direction, with the minor 7th sitting sharper than would be the convention of just intonation. The aural interpretation of Messiaen's interval structure therefore indicates once again maximised expressive territories, with the 'flattened' intonation of the major 7th incorporating an expressive characteristic beyond that of the Western tonal system, additionally considering narrative style and implication. Despite the intonation discrepancies that are drawn from equal tempered seventh intervals, participant 3 also proposes that in general, there is a harmonic rather than a tonal implication⁹⁸ to be drawn from a major 7th, similar to the above exploration of leading tone function. With the major 7th being constructed of a perfect 4th and tritone (augmented 4th) there is somewhat of a harmonic implication that draws back to the earlier investigation of Messiaen's spectral strings and their alternation between perfect and augmented 4ths. As explored extensively earlier, there is a certain level of consonance to the perfect 4th despite its distant position within the harmonic series. Due to its inverted relationship to the perfect 5th, the human ear is able to interpret such an interval as a consonance. The augmented 4th, however, can be considered as an 'other-worldly' or 'exotic' feature which, while distant and dissonant within the *Western* harmonic series, cannot be ruled out as a consonance within other enculturations or species (such as birds). Consequently, the recognition that participant 3 gives to the inner structure of the major 7th draws on a number of sound worlds. Messiaen, therefore, may choose this interval to once again unlock interpretations that combine the characteristic elements of the music, to the experiences of humans and birds at the same time.

Summary

The present chapter has explored Messiaen's spectral writing in relation to the musical space-time dialectic, considering the relevance of spectral harmonies to the overall portrayal of birdsong. While supplementing the cyclicity of my ultimate aim (cyclic absolute deterritorialization), the explorations of Gérard Grisey (1987) and Viviana Moscovich (1997)

⁹⁸ When contrasting harmony with tonality, the former refers to individual drives (within a chord for example) whereas the latter refers to a broader scheme of keys, modes and modulations.

add a nuance specific to the harmonic spectrum of the current investigation. Through considerations of Messiaen's string and piano writing, one can conclude that a performance approach that broadens the timbral space through an emphasis on multiple harmonic partials may aid the strength of birdsong connotations that can be made. Messiaen's use of spectral harmonies varies across a number of his compositions, but the feature that pertains most strongly is the use of 4ths. The combination of perfect and augmented 4ths within both string and piano writing forms a combination of aesthetic qualities associated with both Western and 'other-worldly' cultures. I therefore hypothesise that Messiaen's use of spectralism highlights the combination of human and bird within his music, both for performers and listeners. While the current chapter has explored *musical* space-time, this thesis moves now to consider 'physical' applications of the same dialectic, exploring Messiaen's incorporation of 'real' space and time into his compositions.

Chapter 6: Space and Time: Musical or Realistic?

Throughout chapter 5, the concept of a musical space-time dialectic was considered in relation to the manipulation of sonic ‘spectra’ during composition. Considerations of sonic ‘spectra’ involve explorations of the compositional process as a continuum in which each musical parameter inhabits its own spectrum that develops through time. During composition, each musical parameter (melody, harmony, rhythm etc) is employed as musical *space*, with each component maintaining a static or internal function within the notation. The current chapter, however, will suggest that the transformation from composition to performance initiates a consideration of musical *time*.

As explored by Jeremy Begbie, “music is a temporal art” in which “time and space are [...] in a sense independent of what they ‘contain’” (2000, p.32). Prior to modern studies that explicitly investigate musical time, many historic philosophers and theologians discussed the temporality of music more generally. The following theories have been chosen as they can be aligned to modern studies of musical time, which in turn will be compared to the Deleuzian trajectory of this thesis. Other modern studies could be discussed, including those of Bergson, but the use of historical lines of thought allows the fundamental Deleuzian trajectory of this thesis to be maintained.

Time and temporal relations are a matter of the way events as they appear to us are organised in the field of phenomena (Kant, 1781)

Perceptions through hearing are exclusively in time; hence the whole nature of music consists in the measure of time (Schopenhauer, 1818)

In music, space as such passes over into the inherently filled point of time (Hegel, 1835)

The concept of musical ‘events’ as discussed by Kant have been explored in this thesis⁹⁹ from a Deleuzian point of view, where “an event breaks time into two unequal parts: the past

⁹⁹ Deleuzian explorations of an ‘event’ are found in chapter 3, with reference to James Williams’ 2012 chapter on Deleuze’s Difference and Repetition.

before the event and the future ahead of it” (Williams, 2012). One may therefore infer that Kant’s reading of time suggests the organisation of past, present and future, with ‘events’ being organised according to the phenomena that they represent. Considered in relation to temporal progression in music, Benedict Taylor has questioned the impact of an ‘event’, asking “does time itself ‘flow’ or is it merely events in time that do?” (2016). Given Williams’ summation that time is split and thus transformed at the “introduction of the new” (2012), one might suggest that time cannot progress without the presence of events that can be analysed and compared. The generative ‘flow’ of time would therefore be caused in music by the perceptions that are made of a work’s compositional components. With each element of a composition (melody, harmony, modulations for example) constituting an ‘event’, a listener’s experience of the work is constructed by combining multiple events, as has occurred during the composition process.

As I begin to consider perception, Schopenhauer’s statement accords well. Benedict Taylor highlights that “music, after all, is an art that is primarily of the ear, not the eye, and ever since Augustine, time has been considered more susceptible to aural than to visual sense” (2016). This thesis has explored ‘visual’ responses to music in relation to synaesthesia, but it is maintained that the act of performance is primarily an aural stimulus. The current chapter is concerned with the crossover between ‘musical’ space and time in the sense of composition and performance, with space and time in the sense of a visual setting or time of day. Susanne Langer and Thomas Clifton have both made inferences around the ‘visual’ aspects of musical time, which supplement Schopenhauer’s theories surrounding perception. Langer firstly described “music as an image of time” (1953). Langer appears to suggest that while the combination of ‘events’ within a musical work may invite temporal ‘flow’ or progression, a listener’s perception of the piece can be a single image; a ‘snapshot’ of the time that the performance takes place or the narrative is told. Clifton supplements this in stating that “there is a distinction between the time which a piece takes and the time which a piece presents or evokes” (1983). Where the act of composition presents a work with a ‘length of time’, the interpretative act of performance forms a ‘place in time’ – and it is this ‘place in time’ that the current study explores.

Robert Morgan (1980) builds on Hegel’s earlier exploration, suggesting that the transformation from composition to performance allows compositional ‘events’ to be organised into the aural stimulus that is so integral to the interpretation of a performance. In

saying this, Morgan suggests that it is the unification of all musical ‘spaces’ (melody, harmony, timbre etc.) that enables the development of a generative temporal function, thus supporting Clifton’s view that music evokes time through performance. The present investigation examines the combination of musical or compositional ‘events’ with representations of ‘natural’ elements of space and time. These natural elements will be referenced as ‘realistic’ space-time. The term ‘realistic’ is referenced in a Lacanian way as a representation of reality: a portrayal of existing places around the world that Messiaen describes through his compositions. Whether a portrayal of a specific time of day, or a specific geographical location, realistic space-time is found in abundance within Messiaen’s birdsong works, incorporating a natural inspiration source that could promote deterritorialization beyond the birdsong itself.¹⁰⁰

Austin McQuinn states that “birds enchant us with their vocal presences and they charm us with their eternal twittering to which we can attach any number of meanings” (2016, p. 17). McQuinn suggests that birdsong is ‘eternal’: it does not have a fixed form, a fixed time or a fixed placement in nature. Humans anthropomorphise their sense of time on birds, longing to attach a single song to a single bird, to associate an aural experience with a fixed being, location or time and to create a static comprehensible product. However, “the absence of anything but birdsong is the absence of a human reaction: [...] the superimpositions and juxtapositions of bird songs appear wholly unmotivated by anything other than the wish for them to be there in the right place at the right time” (Griffiths, 1985, p. 169). When engaging with birdsong, a reaction occurs that takes the original song out of its place in time and invites the initial stage of deterritorialization. In conveying realistic space-time, however, this reaction is expanded, with performers responding to both the aural birdsong stimulus and the visual image created by Messiaen’s explicit labels of place or time of day.

In combining the sonic spectra of a musical work (melody, harmony, for example) with the visual spectra of realistic space-time, the combined spaces (‘events’) create a ‘temporal journey’ that is communicated through the act of performance. To compliment this process, this study explores a nuanced component of Deleuzian theory that takes the fundamental space-time dialectic and places it into a context that promotes the ‘journey’ of

¹⁰⁰ Messiaen’s own description of realistic time can be found later in this chapter, with reference to the programme notes of *Réveil des Oiseaux* (1953).

deterritorialization. Deleuze's theory of smooth and striated space (and time) (Deleuze & Guattari, 1980) constitutes the aggregate quality of all combined musical features. The present study will relate the process of performance to a representation of this aggregate quality, to a 'journey' far more developed than that of the musical techniques themselves. Within Deleuze's exploration, he expresses a number of different approaches to smooth and striated space, but the current study will highlight the 'musical model'.

As indicated by Deleuze, "the striated is that which intertwines fixed and variable elements, produces an order and succession of distinct forms, and organizes horizontal melodic lines and vertical harmonic planes" (1980, p. 478). With the striated becoming representative of melody and harmony, the smooth space constitutes "continuous variation, continuous development of form; it is the fusion of harmony and melody in favour of the production of properly rhythmic values, the pure act of drawing a diagonal across the vertical and the horizontal" (Deleuze & Guattari, 1980, p. 478). The 'striated' melody and harmony form the essence or foundation of the composer's message: the 'loose weave' of the fabric that constructs the musical product. The 'smooth' rhythmic space therefore shapes the melody into a communicable product with 'perceptible value' (Grisey, 1987) which, as in chapter 5, unlocks the continuity of interpretative possibilities that this study aims for. Rhythm crosses diagonally through the 'weave' of melody and harmony to bind the elements of the musical fabric. This diagonal motion, however, suggests that rhythm "has direction not dimension. It is a milieu not a territory"¹⁰¹ (Adkins, 2015, p. 232) and therefore the smooth space can only ever be considered as a component of a larger product. It is therefore the combination of smooth and striated time that enables the continuity of absolute deterritorialization.

The interpretative potential of a musical work is ultimately derived from the flexibility of its 'smooth time'. The diagonal that rhythm draws across the melodic-harmonic fabric "traverses both and opens it onto something new" (Adkins, 2015, p. 233). The striated space of melody and harmony constitutes the fundamental structure of a 'being', and this accords well with Deleuze's notion of the interior milieu. Fig.6.1 provides a reminder of the functions of different milieu components, with the interior milieu housing the fixed foundation of a product that is enclosed beneath the variable outer casing. Of course, melody and harmony

¹⁰¹ As explored in chapter 1 of this thesis, a 'milieu' constitutes smaller components of a product, all of which combine to form its overall territorial origin.

could be employed in a multitude of ways within a composition, but the current study of striated space considers melody and harmony as fixed components of a composition after it has been notated. Rhythm too possesses its own interior milieu in relation to theoretical ‘rules’ that are followed within Western classical notation systems. One cannot deny that four crotchets are equal to a semibreve, or that a 6/8 time signature constitutes six quavers in a bar, but the present study explores the hypothesis that rhythm may also form an annexed milieu.

As stated by Deleuze, the annexed milieu constitutes “energy sources and action-perceptions” (Deleuze & Guattari, 1980, p. 313) that form a ‘surplus’ within musical composition: an addition that is not ‘compulsory’ to the structure of the work but that adds to its overall interpretative potential. Rhythm is not fully fixed, with its annexed milieu being inhabited by ‘expressive additions’ such as tempo markings, opportunities for rubato, ritenuto and fermatas. It is for this reason that rhythm is assigned by Deleuze to smooth rather than striated space. Where rhythm does still possess some fixed qualities, its annexed milieu means that every performance could be different, with varying interpretations of tempo and rubato enabling a ‘loss of fixed values’, as is imperative within Deleuze’s smooth space. While a full freedom of rhythm and tempo is not implied, Messiaen’s tempo markings are consistently an approximation, and thus as stated by Adkins, tempo should not be determined first. It instead “should be the result of playing” (2015, p. 233) and thus is partially the performer’s prerogative, determined by their individual perception of the aggregate striated and smooth spaces.

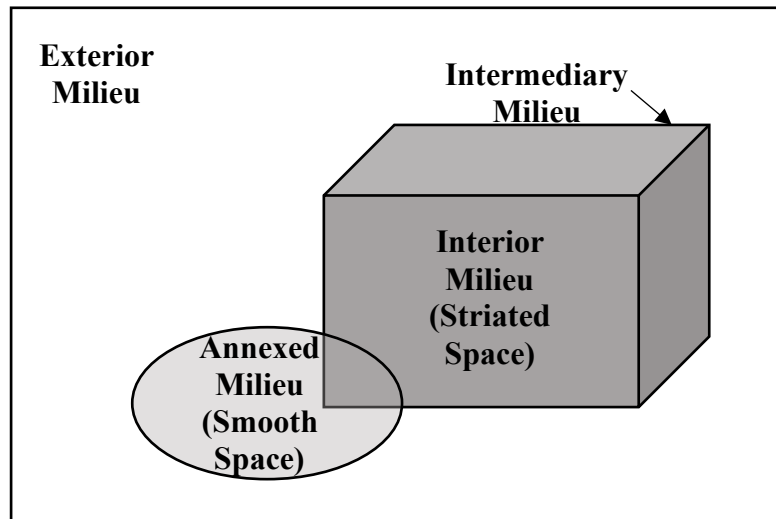


Figure.6.1. A reminder of the relationship between various milieu components, all of which combine to form a 'living thing' or product.

Elizabeth Grosz relates smooth and striated space-time to deterritorialization. Highlighting the 'unpredictability' of smooth space, Grosz suggests that every product is "a mixture of specific integrations of both chaos and order" (Grosz, 2003, p. 83). The fixed state of melody and harmony compares to a sense of 'order', with the detail of their notation providing a defined *dimension* to the striated space of a composition. Rhythm, however, relates more closely to 'chaos' due to the malleability of its function within performance. Rhythm provides *direction* due to its 'shaping' of time, but this direction can only be defined through performance. Performance therefore harnesses the infinite possibilities of rhythmic 'chaos' by defining direction. Through this, a performer's interpretations of rhythm enable the possibility for the cyclicity of absolute deterritorialization that is the ultimate goal of the current study.

Considering the 'shaping' of time through rhythm, I return momentarily to Paul Klee's *Twittering Machine* (1922) as explored in chapter 3 (fig.6.2). In many ways, rhythm *is* time, with the term being defined as 'musical time and timing'. As explored earlier, Klee suggests that his 'machine' is the entrapment of time, and one could indicate that the notational format of rhythm falls into this entrapment. Klee suggests that human influence on the 'machine' enables a transformation out of the precision of time into a 'free' product. Within the paradigm of striated and smooth space, the variable aspects of rhythm—those that are determined by the influence of human performers—thus represent the birds in Klee's image,

breaking free from the confines of the notational system through the interpretations of human performers. The remainder of this chapter will therefore consider how these interpretations of smooth and striated space can resonate with explorations of ‘realistic’ space-time. Through comparisons with Klee’s model, Deleuze’s smooth and striated time will be aligned with Messiaen’s representations of ‘real’ birds, considering similarities with the ‘entrapment’ of birds by the compositional machine. As with many previous explorations in this thesis, the ultimate goal of the present study is experimentation. While the investigation aims to experiment with Messiaen’s proposed representations of realistic space-time, it is maintained that “it does not follow that all experiments, all creations, will increase power rather than decrease it” (Adkins, 2015, p. 243). I will therefore explore the extent to which performance might add interpretative flexibility in the context of Messiaen’s space-time embodiments, considering whether rhythm’s annexed milieu can be considered truly ‘infinite’ within a predetermined narrative context.

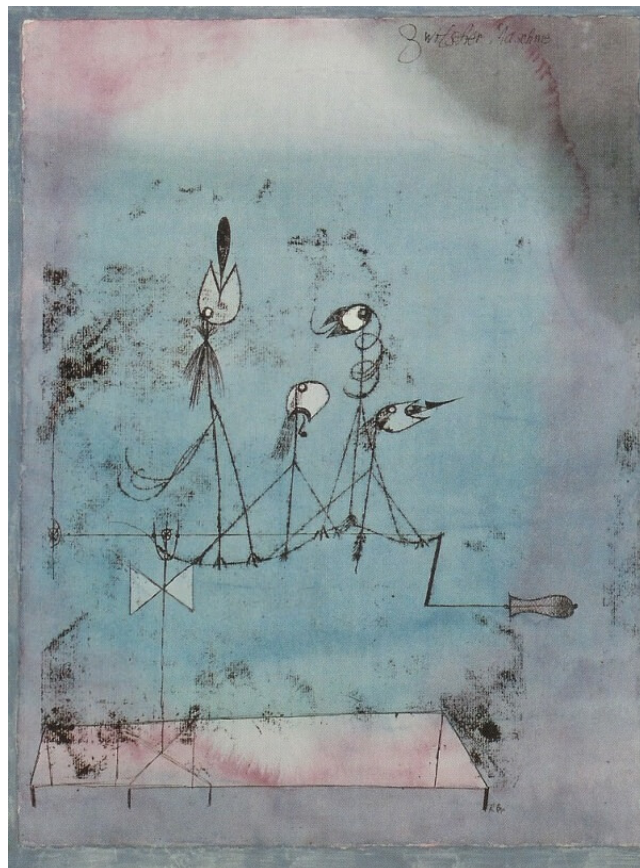


Figure.6.2. Paul Klee’s ‘Twittering Machine’ (Klee, 1922).

Space as Place – *Catalogue d'Oiseaux* (1958)

Catalogue d'Oiseaux (1958), translating to 'Catalogue of Birds', is a thirteen movement work for solo piano. While the title of the work immediately depicts a bird-based narrative, the piece is in fact filled with narrative irony and multiple interpretative possibilities that will be explored in due course. As stated by Loo Fung Chiat, "[Messiaen] actually notated the transcriptions in a specific time and place, presenting it as if it were a precise documentary work" (2005, p. 1). While each movement of the work possesses a title that references a specific breed of bird, Chiat's suggestion is of a simultaneous consideration of realistic space-time throughout the composition. The current study will explore Messiaen's principal inspiration for this work: the employment of different bird species to portray the French region that they are most commonly known to inhabit. Messiaen provides programme notes for each movement of the work, to highlight the French region that is the focus of each section. The work is therefore explicit in its visual representation, with performers being presented with detailed imagery that aims to influence their overall approach to the movement. The work is constructed from a variety of explicitly-labelled narrative 'characters', through which "the sounds of the physical environment and the birdsongs always alternate and, by this relationship, the music becomes a complex of synaesthetic phenomena" (Kim, 1989, p. 164). In previous chapters, I have discussed synaesthesia in relation to Messiaen's experience of coloured hearing. The present investigation, however, considers the ways in which sound may be perceived in relation to visual images much more detailed than a single landscaped colour. I will explore Messiaen's 'compositional sound' in comparison with images of physical landscapes, whether a coastal scene, a bird's flight through a forest, or a spectrum of colours spreading between the land and the sky.

The third movement of this 'Catalogue of Birds' is 'Le Merle Bleu', which investigates the song and indeed the surrounding habitat of the Blue Rock Thrush. Messiaen provides programme notes for each movement of this work, with these notes depicting the overall narrative of the movement. The composer's programme notes for 'Le Merle Bleu' are as follows:

In the month of June. Le Roussillon, la Côte Vermeille. Close to Banyuls: the cliffs of l'Abeille and Rederis. Overhanging the cliffs, above the sapphire blue

sea. Cries of black swifts, rippling water. The cliffs stretch into the sea like crocodiles. In an echoing rock crevice, the blue rock thrush sings. It is a different blue than the sea: purplish blue, slate, satin, blue-black. Almost exotic, recalling Balinese music, his song mixes with the noise of the waves. You also hear Thekla's Lark which flies in the sky above the vineyards and rosemary fields. The herring gulls howl far off in the sea. The cliffs are terrifying. The water comes to die at their feet in memory of the blue rock thrush (Messiaen, 1958)[translation mine].

Through the above notes, Messiaen demonstrates his experience of the serenity of a cliff's edge on the south coast of France, in a province that traverses the region from Perpignan down towards the Spanish border. He explains that his initial transcriptions were completed in this setting during the month of June, creating a fairly detailed initial image of the setting and climate that is portrayed throughout the movement. Having personally visited this region of France in the past, I can attest to the tranquillity and distinctive quality of the setting, with the crashing waves of the coast combining with the mountainous landscape of the Eastern Pyrenees and the sandstone villages hidden among the cliffs. With a programme note as detailed as this, the question remains as to *how* and *to what extent* Messiaen manipulates the smooth and striated musical space in dialogue with the portrayal of realistic space.¹⁰² The compositional process will therefore be explored as an aggregate of milieu components, each of which alters the possibility for cyclic absolute deterritorialization in this context.

Structurally, 'Le Merle Bleu' employs a palindromic arch form (fig.6.3), which steers the movement's narrative direction by forming a cyclic effect to mirror the passing of time throughout a day. Considered in ABCB'A' form (Kim, 1989), this movement in particular is a fairly literal palindrome, with the recurring B and A sections existing in retrograde to the original form, therefore allowing the movement to conclude at a point that resembles its opening. This cyclic compositional style is primed to accelerate cyclic absolute deterritorialization through a persistent reminder of the movement's original inspiration. As highlighted by Roderick Chadwick and Peter Hill, however, this palindromic form has often

¹⁰² As earlier, realistic space is defined here as representations of real landscapes, with realistic time referencing a season or time of day. This term will be used throughout to contrast the musical space-time that is dictated by notational accuracy, with Messiaen's own description of realistic time being explored in the latter half of the chapter.

been interpreted as strophic form hybridised with arch form and reprise form, in the sense that it “constitutes four verses framed by an introduction and coda” (Chadwick & Hill, 2017, p. 147). The concept of a palindrome therefore stems from the structure of these verses, with verse one and four based around the Rederis cliff and verse two and three based around the l’Abeille cliff. The impression of arch form based around ‘verses’ therefore highlights not only the temporal progression of the landscapes in question, but also emphasises Messiaen’s persistent alternation between bird and landscape-based motives.

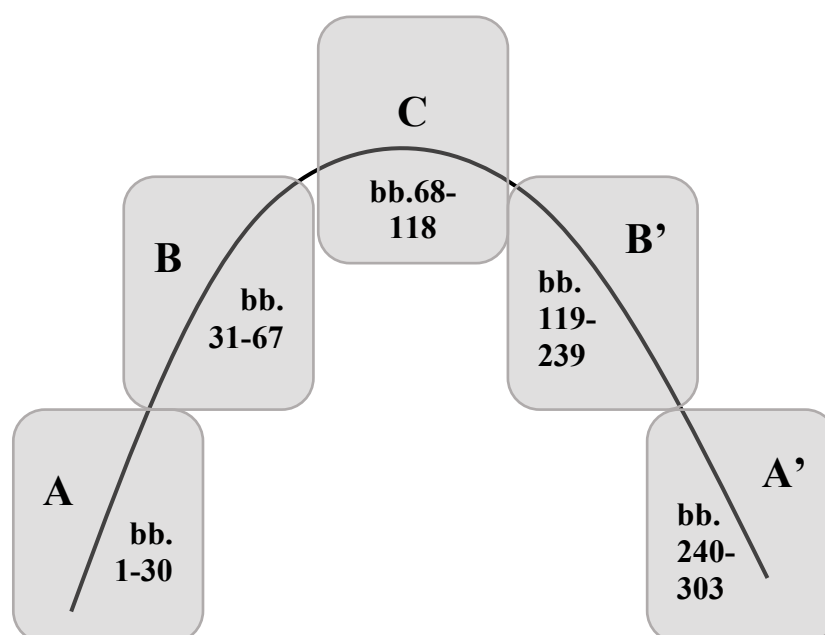


Figure.6.3. A demonstration of the palindromic shape of the arch form that is employed within ‘*Le Merle Bleu*’.

As explored, Messiaen’s programme notes combine a spatial setting with a specific time period. This combined approach aids the motivic and narrative development of the movement, with the retrograde recurrence of themes serving a recapitulatory function in highlighting the development of a ‘character’ over time. In relation to the previous study of *musical* space-time, this cyclic recapitulatory function is reminiscent of the ‘co-dependence’ of musical space and time. In this sense, musical space cannot occur without time: melody and harmony cannot be performed without a performer’s interpretation of temporal rhythmic content. Equally, however, the two are considered as separate milieu components. In a

‘realistic’ sense, the portrayal of place and time are reliant upon each other within ‘Le Merle Bleu’, with the narrative aim being to depict the passing of time within a specific setting. Time therefore becomes generative as both a realistic and a musical element, expanding interpretative possibilities from the experiences of individual performers and listeners. Thinking momentarily outside of the musical realm, one may consider two people walking through a park on the same day, at the same time. While the environment that they encounter may be physically the same, the mood, emotions and past experiences of those involved will alter the way that they may perceive the scene around them. In music, similarly, the perception of a listener is impacted not only by their emotions at the time of listening, but also by their past experiences of music and of the realistic space-time that is being portrayed. The simultaneity of musical and realistic space within ‘Le Merle Bleu’ could therefore heighten the subjectivity of perception, unlocking another level of possibility from which the piece can be interpreted and therefore promoting cyclic absolute deterritorialization through both notated and perceptive parameters.

Of course, the crux of the current investigation is concerned with Messiaen’s use of birdsong, a feature that is woven inconspicuously into ‘Le Merle Bleu’ as a component of the composition’s narrative depictions. One may argue that Messiaen’s birdsong motives here are reminiscent of Wagnerian leitmotifs in the sense that they form “identifiable and recurring musical patterns” (Kalinak, 2010, p. 52) that aid the listener’s ability to engage with and form individual interpretations of their musical experience.¹⁰³ Motives (or leitmotifs) are explicitly labelled within the score of ‘Le Merle Bleu’, removing a level of interpretation by indicating the angle from which the motive should be interpreted. Due to their overt nature, the current study will explore how Messiaen is able to fuse his birdsong motives with those representative of scenery or place, considering the impact of such a process on the ability to continuously deterritorialize the musical product through performance.

Throughout ‘Le Merle Bleu’, Messiaen’s birdsong motives are alternated with those representative of scenery, instilling a narrative in which bird-like ‘characters’ are introduced and subsequently depicted within their respective habitats at a specific point in the day. The present investigation will begin by considering Messiaen’s portrayals of birdsong, considering his ‘characters’ as introductory case studies to the narrative. Beginning with the

¹⁰³ A more detailed discussion of the leitmotif can be found in chapter 2 of this thesis.

call of the Black Swifts (*Martinets Noirs*), the labelled motive alternates between two highly dissonant chords, built primarily on tritones, augmented 5^{ths}, minor 7^{ths} and major 7^{ths} (fig.6.4). Characterised by a rippling fluctuation, the Black Swifts motive undergoes extension and development as the movement progresses, but I nonetheless emphasise the consistency of its interval contour throughout. The form of this motive is therefore determined by striated space, with the ‘matter of fact’ vertical nature of harmony taking precedence when identifying each iteration of the birdsong motive.



Figure.6.4. The interval structure of Messiaen’s ‘Martinets Noirs’ motive upon its opening iteration.

Despite being centred around ‘striated’ harmony, a generative temporal function can still be drawn from this motive through considerations of the ‘smooth’ rhythmic space. Given the specific articulation markings on Messiaen’s score, one may infer a limited interpretative space here with a predetermined direction for performance. Upon discussion with performers, a similar consensus was drawn. Participant 1 (19/10/2020) firstly suggested that “the musical takeaway from the motive is the jaggedness and asymmetry of the rhythm”, with the depth of performance directions meaning that there is no room for rhythmic imprecision. Participant 1 suggests that Messiaen strips away human instinct here to create a performance that represents the “automated manner of a bird”. By similarly suggesting that they would perform the motive in the same way without the explicit bird label, participant 1 indicates that the motive is not necessarily representative of the bird’s song, instead being employed as “an indication as to the manner of the bird [...] the manner of its movement”. While merely a suggestion, an interpretation of this motive that draws on the progression of its physical movement would be conducive of the temporal ‘smooth’ space of the work, thus allowing the

bird motive to aid rather than interrupt Messiaen's portrayal of realistic space. With the bird being considered as a component of the landscape, an additional promotion of cyclic absolute deterritorialization may be implied, with both performer and listener prioritising the imagery of the work's narrative, rather than being interrupted by the contrasting sound source of the bird's song.

Participant 10 (17/03/2021) additionally emphasised that together with the rhythmic specificity, the interval contour of the *Martinets Noirs* motive provides an insight into the movement or gesture of the bird rather than its song. Participant 10 highlights that this contour, as a component of the striated space, works alongside the rhythmic smooth space to highlight the relative 'flow' of movement in the birds compared to the static nature of the preceding *Les Falaises* (cliffs) motive.¹⁰⁴ As will be explored in due course, participant 10 suggests that the cliffs motive is composed in a 'block' style to highlight the enormity of the cliff's presence within the landscape, therefore contrasting the persistent fluctuation of the *Martinets Noirs*. Participant 10 thus suggests that while we may not be aware of *Messiaen's* intentions for the bird motives here (whether he was transcribing song or imitating movement), the performers will be inclined to follow the movement or gesture of the motive in order to draw as far as possible on the narrative contrasts between the notated bird and landscape motives.

The motive of the 'title character' Blue Rock Thrush (*Le Merle Bleu*) similarly presents a four-part vertical structure that is reliant on its use of major and minor 7ths. The Blue Rock Thrush, however, arguably possesses the most 'melodic' motive of this movement, with its fluctuating rhythms and use of the added value¹⁰⁵ enabling continuous development, both in notation and interpretation. Through this, the vertical and horizontal techniques of striated space are combined to create a motive which, while consistently recognisable, possesses a rhythmic smooth space that can be varied upon each iteration. By employing the added value (fig.6.5.a) to compliment the falling contour of the motive, Messiaen combines rhythmic and harmonic elements to heighten his emphasis on melodic narrative and, indeed, narrative progression. The potential for the augmentation and diminution of the added value therefore combines with the interval contour outlined in fig.6.5 to mirror the flight or the song (as

¹⁰⁴ This movement's scenic motives will be discussed in more detail as the chapter progresses.

¹⁰⁵ As explored in chapter 1 of this thesis, the added value constitutes a small rhythmic increment that is added on to a phrase in order to reduce its metricality and create an implication of rhythmic 'surplus'.

interpreted by performer or listener) of the Blue Rock Thrush. The interval structure shown in fig.6.5.b demonstrates a subtle tendency towards tonal harmony within this motive, with a large proportion of the pitch-class content being consonant to a ‘tonal centre’ of A. A clear sense of tonality is not implied here, but rather a combination of intervallic relations that include a perfect 5th between A and E, a major 7th between A and G[#], and a major 3rd between A and C[#]. These relations promote a momentary consideration of composer’s chromesthesia,¹⁰⁶ in which Messiaen’s proposed correspondence links the pitch-class A to the colour blue. While clearly reminiscent of the colouring of the Blue Rock Thrush, the colour blue also draws connotations with the natural coastal habitat of the bird, thus relating Messiaen’s birdsong ‘snapshots’ to his intended portrayals of the French coastal setting. Considering this chromesthetic correspondence in relation to the motive’s smooth and striated space, there are subtle comparisons between the current motive and other aspects of the movement. Fig.6.5.b demonstrates that the first two iterations of the *Merle Bleu* motive express elements of both landscape and birdsong motives that have been present throughout the opening sections of the movement. This along with the chordal texture of the motive may indicate a reduction in ‘accuracy’ of the natural birdsong transcription here, but it once again draws the listener towards the portrayal of place, presenting the title ‘character’ with a contextual placement within the landscaped setting of the work.

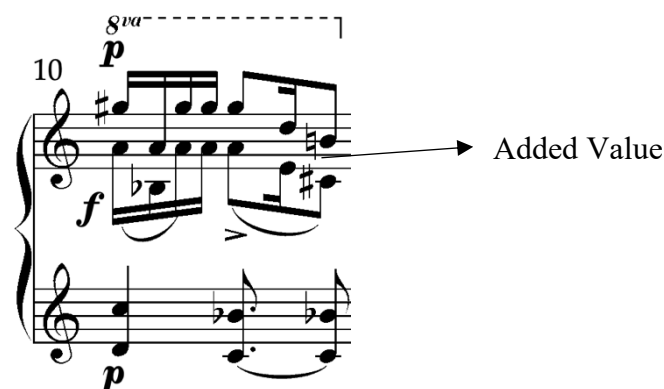


Figure.6.5.a. Messiaen’s employment of the added value within the ‘Merle Bleu’ motive.

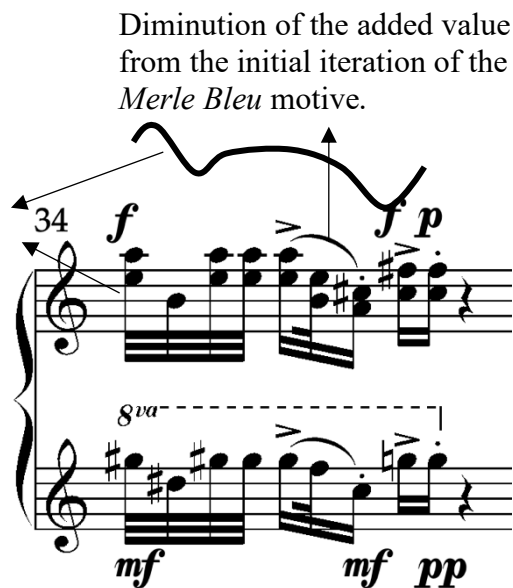
¹⁰⁶ Please refer to chapter 4 of this thesis for a full list of Messiaen’s proposed pitch-based colour correspondences.

Major 7th interval structure of *Martinets Noirs* motive.



Blocked syncopated rhythm reminiscent of *Les Falaises* (cliffs) motive.

Wave-like contour and rapid demisemiquaver rhythm reminiscent of *L'eau* (water) motive.



Diminution of the added value from the initial iteration of the *Merle Bleu* motive.

Figure 6.5.b. The identification of relationships between the ‘*Merle Bleu*’ motive and Messiaen’s scenic motives within this movement.

In relation to deterritorialization, the subtle ‘blue’ connotation here creates a possible pathway for this motive’s line of flight: a predetermined narrative destination or ‘territory’ that Messiaen aims to communicate. Combining this with the relationship between bird and scenic motives, the potential for absolute deterritorialization could be slightly limited here, with the predetermined destination of the motive implying less continuity in the process of deterritorialization. The Blue Rock Thrush motive, however, forms a strong representation of realistic space, which promotes *cyclic* deterritorialization, even if the continuity of the process is slightly reduced. The placement of the *Merle Bleu* motive within the overall narrative provides a proposed territory based on the original physical and sonic territory of the bird within its habitat. At the same time, however, Messiaen’s rhythmic flexibility surrounding the augmentation and diminution of the added value gives performers and, to an extent, listeners, ownership of the motive’s ‘smooth space’. While the motive’s narrative destination might be predetermined, the flexibility of the smooth space unlocks an infinite number of ‘journeys’ that could be taken in order to reach the final destination.

As inferred by participant 10, the combination of bird and landscape in this motive mirrors the overall arch form function of the movement. Suggesting that works composed in arch form are often cyclic “for the audience’s sake”, participant 10 suggests that the performer acts as the audience’s guide for the *Merle Bleu* motive. By drawing on the comparative elements of fig.6.5.b during performance, performers can increase the recognisability of narrative components for the listener. In this sense, participant 10, in agreement with earlier musings by participant 1, proposes an aim for consistency in performance, with each of the comparative elements being performed in the same fundamental way across both birdsong and scenic motives. In doing so, participant 1 highlights an increase in cyclic absolute deterritorialization thanks to heightened motivic recognisability for the listener. Through comparisons between multiple motivic areas, performers can combine striated (intervallic and harmonic structures) and smooth (rhythmic) spaces in order to enhance the overall representation of realistic space-time across the composition.

While I have explored the relation between landscape and birdsong motives, Messiaen’s landscape motives additionally possess their own roles in the more direct portrayal of realistic space. As explored briefly in chapter 1, Messiaen’s *les Falaises* (cliffs) motive is based around the employment of Hindu *deçitalas*, with varying levels of augmentation and diminution impacting the narrative of each iteration of the motive. While a more precise analysis of the Hindu *deçitalas* specifically can be found in chapter 1, the present study is concerned with the placement of the motive within the musical smooth and striated space. Highlighting a rhythmic technique such as the *deçitala* emphasises smooth space, with the striated melody and harmony serving a subsidiary function in the listener’s overall perception of the motive. With the first iteration presented as an example below (fig.6.6), the score presents a block-like vertical structure to the motive, with a virtually non-existent horizontal progression that highlights the dissonance of a harmony centred for the most part around major 7ths and augmented 5ths. Given Messiaen’s enculturation in Western art music, listeners will likely consider the dissonant harmony in this case to be ‘unpleasant’, thus drawing towards the diagonal temporal progression of the smooth space as depicted above. With this diagonal progression providing the ‘rhythmic weave’ within the musical fabric, the study is not so much concerned with the *temporal* generative state of rhythm in this case, but rather consider the ‘grandeur’ of longer rhythmic values here in combination with the static block formation of melody and harmony. In relation to the cliffs landscape, this combination of

harmony and rhythm creates an overall image that combines the depth and breadth of realistic space that is portrayed.

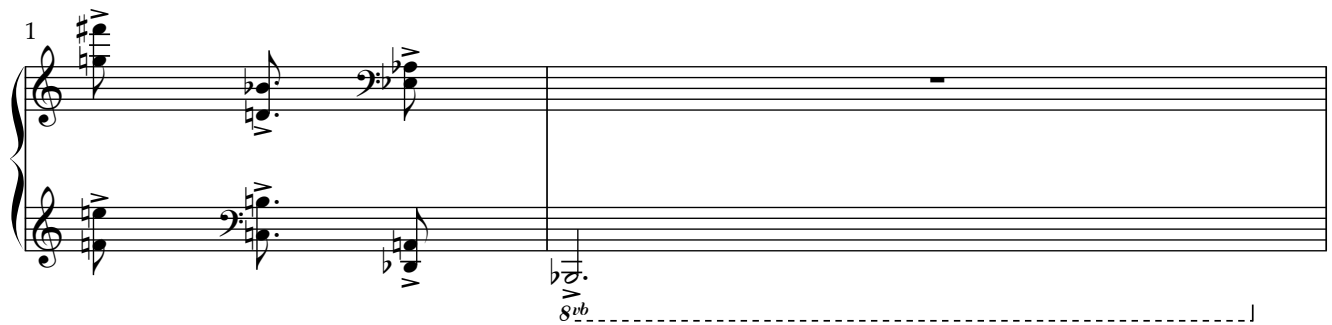


Figure.6.6. The first iteration of Messiaen’s ‘*Les Falaises*’ motive, following the *Râgavardhana Hindu deçitala*.

Considering the block-like vertical structure and breadth of pitch within Messiaen’s *Les Falaises* motive, comparisons can be formed with the ensuing *L’eau* (water) motive, exploring its rippling contour in relation to the ‘gesture’ of the phrase. As shown in fig.6.7, the prominence of contour here over the specificity of individual musical parameters draws investigations of the generative smooth space of the motive, similar to *Les Falaises* above. With a lack of ‘memorable’ melody, *L’eau* motive is defined by a persistent demisemiquaver rhythm, along with a dissonant harmony centred around 6ths and 7ths. Through this, the priority of the motive falls to narrative perception, with its features described here forming an ‘onomatopoeic’ function in which the musical content of the motive mirrors the realistic space (water) that is being portrayed. Participant 10 promotes this ‘onomatopoeia’, providing a comparison between *L’eau* and *Les Falaises* in relation to the physical act of performance. Acknowledging the contrasting rhythmic contours of the two motives, participant 10 suggests more of a ‘vertical’ performance style for the *Les Falaises* motive, with each chord being blocked out, using a weighted finger technique to emphasise the static breadth of the landscape. By contrast, however, participant 10 concentrates on subtle finger work throughout the *L’eau* motive, presenting a visual stimulus that highlights the rippling nature of water in opposition to the static nature of the preceding cliffs.



Figure.6.7. Messiaen's 'L'eau' motive, demonstrating a rippling contour of pitch and a consistency of rapid demisemiquaver movement alternating between treble and bass tessituras.

Les Vagues (waves) motive is the last of Messiaen's thematic areas to alternate with the bird 'character' of *Le Merle Bleu*. While serving a similar function to the *L'eau* motive in terms of imagery, I consider more specifically the 'musical mechanics' of this motive, considering how Messiaen has employed complimentary technical parameters in order to blend the striated and smooth space of the motive. Messiaen's *Les Vagues* motive undergoes extensive development and variation across its numerous iterations, but is fundamentally defined by a 'vague' rhythmic progression of fluctuating demisemiquavers (fig.6.8). One may question the extent to which this fluctuating rhythm could be considered 'memorable' for the listener, therefore reducing the clarity of 'diagonal' smooth space within this motive. Outside of specifically notational parameters, the labelling of this motive (*Les Vagues*) presents an explicit explanation of its function, and therefore a justification for its undulating contour and consistent development. Messiaen is increasingly explicit in the case of this motive, providing a level of detail that emphasises the composer's narrative intention not only to the performer but traverses the visual score to the listener. As is evident in fig.6.8, the articulation and dynamic markings promote an emphasis of contour here, urging the performer towards a predetermined interpretation and therefore providing a predetermined 'territory' for the motive to inhabit. With the overall contour of *Les Vagues* being comparable to that of the *L'eau* motive, participants 1 and 10 both indicate a reliance on articulation and dynamics to communicate the persistent undulation within the motive. Both participants suggest that an approach such as this allows a progression from the striated *content* to the smooth *context* of realistic space portrayal.

These expressive markings similarly contrast the stylistic details of the *Merle Bleu* motive, between which *Les Vagues* is interspersed. It is from this subtlety of expression that the realistic nature of space comes to life here. As investigated in previous chapters, Messiaen's notebooks suggest that the composer transcribed a number of birdsongs during his compositional journey with *Catalogue d'Oiseaux*. The instincts of performers, however, tend towards the gesture or movement of the bird more so than the 'accuracy' of its song. In performance, therefore, the fluidity of a bird's flight becomes apparent, developing alongside its melodic motive in a leitmotivic fashion. In the case of *Les Vagues*, however, striated melodic development is experienced, that sits beneath a consistent contour, mirroring the permanence of movement within a tidal wave. In performance therefore, *Les Vagues* sits in a much more static narrative position than any of Messiaen's bird motives. Performance therefore promotes cyclic absolute deterritorialization in relation to the bird, while conducting a single act of relative deterritorialization due to the predetermined image-based destination of *Les Vagues* and, indeed, all of the landscape motives discussed thus far.

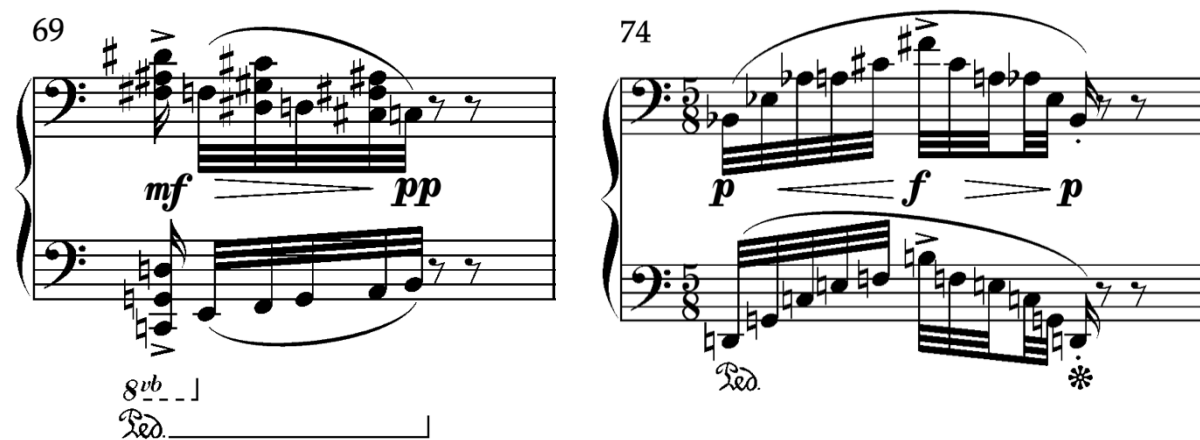


Figure 6.8. The first two iterations of Messiaen's 'Les Vagues' motive.

While the current study is primarily concerned with Messiaen's use of birdsong, the clarity of realistic space that is indicated through his landscape motives is comparable to instinctive approaches regarding the gesture or movement of birds. In relation to the fundamental aim for cyclic absolute deterritorialization, Messiaen's portrayal of realistic space clarifies his visual narrative, composed in a way that is clear to the performer through the score alone, without the need for written performance notes. As explored earlier in this chapter, Messiaen's portrayals of realistic space constitute an amalgamation of musical spectra,

constructed of the objective striated space of melody and harmony, and the generative smooth space of rhythm. I earlier suggested that striated and smooth spaces are additional milieu components within the process of deterritorialization, with the smooth space in particular being open to continuous varied interpretations during performance. Messiaen's presentation of realistic space, however, invites a simultaneity of striated and smooth spaces during the communicative element of deterritorialization, and this simultaneity was emphasised by Deleuze himself. Deleuze highlights that "the two spaces in fact exist only in mixture: smooth space is constantly being translated, transversed into a striated space; striated space is constantly being reversed, returned to a smooth space" (Deleuze & Guattari, 1980, p. 474). Deleuze suggests cyclicity and reciprocity between striated and smooth spaces, with each developing through reference to the other. Performances of Messiaen's 'space' motives can therefore accelerate cyclic absolute deterritorialization through this very premise, highlighting a sense of constant return through the relation between the striated and smooth spaces of a motive. While the distinctive rhythm of the Hindu Râgavardhana draws the investigation instinctively to the smooth space of the *Les Falaises* motive, Messiaen's water-based motives (*L'eau* and *Les Vagues*) are more strongly defined by their constant movement, more so than an identifiable rhythmic progression. As suggested above, a performance of these motives is more likely to promote deterritorialization by emphasising striated elements. By highlighting melodic and intervallic progressions, performers may aim to 'reverse' the objectivity of the striated space and instead 'return'¹⁰⁷ to the persistence of the smooth space in both a composed and a realistic sense.

The fusion of Musical and Realistic Time – *Réveil des Oiseaux*

As throughout chapter 5, musical time is considered a generative act, and the current study explores the divergence between this *purely* musical act and an act of musical representation with reference to 'realistic' time. 'Realistic' is again employed here in a Lacanian way as a representation of reality. 'Realistic' is employed in the place of 'real' as representations of time do not necessarily pass at the same rate as time as we live each day.¹⁰⁸ The passing of time could be considered a 'universal truth', in the sense that there are 60 minutes in an hour

¹⁰⁷ The terms 'reverse' and 'return' are used in this context with relation to Deleuze's considerations of smooth and striated spaces.

¹⁰⁸ An example of 'realistic' time comes with Messiaen's *Réveil des Oiseaux* in which a full day is represented through a 20 minute composition.

and 24 hours in a day. A study by Kevin Healy et al. (2013), however, concluded that small-bodied animals with a fast metabolic rate, can perceive more information within each unit of time. These ‘small-bodied animals’ include birds. This means that, while birdsong may seem to possess a fast tempo and be almost incomprehensible to human listeners, a bird is able to perceive more information in a smaller amount of time, therefore the song will present itself in a much slower and clearer way. In the context of this study, Messiaen has ‘slowed’ the birdsong from how he heard it in the field, to suit musical notation and human recognition. The current chapter will therefore hypothesise that Messiaen’s ‘slowed’ bird motives aid his portrayal of ‘realistic’ time, by showing the rate and clarity with which the birds themselves will perceive their songs.

The study of realistic time will explore aspects of *Réveil des Oiseaux* (1953). This work is, as discovered earlier, “based on the ‘song cycle’ of the birds from midnight to midday” (Johnson, 1975, p. 121). Vital to the current investigation is Peter Hill’s theory that “in *Réveil des Oiseaux* Messiaen had truth to nature as a priority, [whereas] in subsequent works of the 1950s the musician gradually gained the upper hand over the ornithologist” (Hill & Simeone, 2005, p. 215). With a return to deterritorialization, the present study considers Messiaen’s portrayal of realistic time in relation to the ‘realism’¹⁰⁹ of birdsong that is involved. Previous literature contains very little acknowledgement of Messiaen’s own description of *Réveil des Oiseaux*, in which a detailed description of the composer’s ‘realistic time’ portrayal is given within the score as follows:

Spring

Midnight... Midday...

Midnight: The nightingale solo forms the first piano cadenza. Two other nightingales have a conversation with the first: always on the piano.

A big silence. Some songs of the night: the little owl on first violin, the wryneck on piano, Cetti’s warbler on E_b clarinet, wood lark on piccolo, the nightjar on strings. A new nightingale shared between the flute, clarinet and piano.

¹⁰⁹ As throughout this thesis, ‘realism’ does not refer to true authenticity or imitation of birdsong, but rather refers to a recognisable bird-like character that is adapted for human engagement.

4am, dawn, the awakening of the birds: melodious warbler, cry of the hoopoe. The song thrush on trumpet, oboe and resonance of strings. Then a big tutti starts. Successive entries of: robin on piano, blackbird on first violin, redstart on xylophone, cuckoo, chaffinch, chiffchaff, carrion crow, hoopoe, magpie. All dominated by the golden oriole on horns and cellos with resonances of strings, and the song thrush on trumpet, oboe and resonance of strings. Four blackbirds on four flutes, and two robins on a glockenspiel and a celeste, completes the ensemble.

At the sunrise, the tutti stops suddenly.

Morning songs: solo blackcap forms a new piano cadenza. It continues with accompaniment of the turtle dove on fluttertonguing flutes. Then the whitethroat on celeste, and the call of the linnet on clarinet. Two other calls: song thrush and golden oriole. Solo blackbird forms the third piano cadenza. Small ensemble formed by two blackbirds on piano and two robins on celeste and glockenspiel. Two new calls of golden oriole and song thrush. Cry of the hoopoe and laugh of the green woodpecker.

Final piano cadenza: It builds bit by bit from fragments of songs, calls and cries of: greenfinch, blue tit, song thrush, serin, blackcap, golden oriole, nuthatch, wren, goldfinch, starling, Bonelli's warbler, carrion crow, redstart. Piano cadenza ends with a duet between robin and blackbird.

Midday: big silence

Again breaking the silence: Two chaffinches on two violins, the knocking of the great spotted woodpecker on wood block. Finally, only the cuckoo remains very far away, on pianissimo Chinese blocks (Messiaen, 1953)[translation mine].

Messiaen is extremely explicit in all of his descriptions of *Réveil des Oiseaux*. The following investigation will therefore not necessarily explore the crossover between musical and realistic time as a hypothesis formed from music analysis, but rather will use the above programme notes as evidence of Messiaen's realistic time, that has been condensed to suit the nature of his musical work.

Looking first at the overall structure of the work, it may not be unusual for a song cycle of Messiaen's era to be composed in arch form, and that is certainly the case here. In a much

clearer way than *Le Merle Bleu*, the structure of *Réveil des Oiseaux* mirrors the shape of an arch (fig.6.9), demonstrating hypothetical ‘symmetry’ within a passing day that is centred around the dawn chorus. Of course, as with the passing of time within a day, the symmetry of arch form here is an illusion. As shown in fig.6.9, while the overall length of each ‘side’ of the composition is equal, the length of each orchestral interlude varies greatly, spanning between four and ten rehearsal figures each. Messiaen is perhaps less concerned with the inhabitation of a purely musical arch form, instead drawing on realism with regard to the relative length of each part of the day. Arch form can therefore be perceived in relation to two halves of the composition that are bound by the central anchor point of the dawn chorus. The current study will consider motivic variability between each of the defined sections of fig.6.9, exploring the extent to which the composer’s representations of *realistic* time have been presented with the generative, communicative function that is integral to the development of *musical* time.

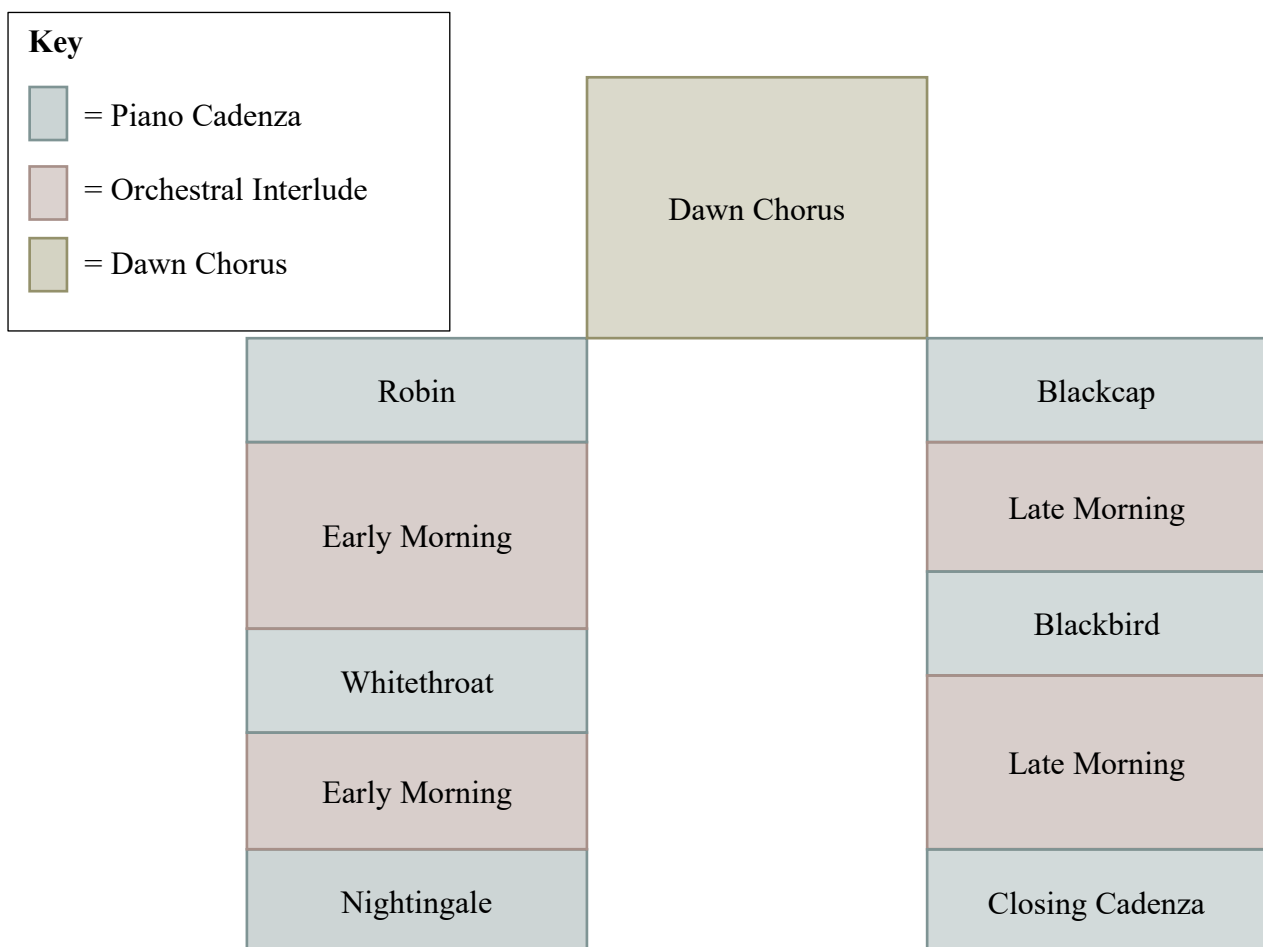


Figure.6.9. An interpretation of David Kraft’s (2000) arch form diagram, altered to demonstrate the differing lengths of each section of the work.

Looking first to the opening cadenza section, a bird ‘character’ is experienced that has been explored within earlier chapters. The nightingale was examined in chapters 3 and 5, considering the impact of the piano on possible perceptions of the cadenza’s thematic content. Within this earlier investigation, I proposed a reduction in ‘realism’ caused by Messiaen’s notated monophonic octaves. In relation to the *communicated* realism of the motive, however, I previously suggested that monophonic octaves may allow the melodic structure of the motive to inhabit more of its timbral space, without causing a distraction from the individuality of the bird that is being portrayed. As demonstrated in fig.6.9, Messiaen’s nightingale cadenza serves as a ‘snapshot’ of a character that is interspersed with representations of realistic time, and thus relates consistently to the interpretative processes of smooth and striated time. With the melodic (and harmonic) nature of the monophonic octaves relating to the objectivity of striated time, the timbral broadening of the octaves during performance relates to smooth time through the accentuation of Messiaen’s ‘enhanced’ motivic statement. Deleuze also infers a relationship between texture and smooth time, suggesting that “texture can be crafted in such a way as to lose fixed and homogeneous values, becoming a support for slips in tempo, displacements of intervals and son[ic] art transformations comparable to the transformations of op[tical] art” (Deleuze & Guattari, 1980, p. 478). Taking ‘son art’ as sonic and ‘op art’ as visual (optical), Deleuze suggests that the crafting of a texture more complex than a single monophonic line reduces the homogeneity of the musical phrase. Through this, the phrase is opened to the possibility of translation from strict sound to image-based interpretation. Texture therefore functions in the same way as smooth time, with the reduction of homogeneity allowing for the communication of a message beyond that of the notated line itself. In relation to cyclic absolute deterritorialization, the use of monophonic octaves throughout this and all of Messiaen’s cadenza sections expands the inhabitation of timbral space and unlocks the possibility to develop the listener’s image-based interpretation, whether directly related to bird character or not.

While the nightingale is clearly relevant to the communication of the work’s overall narrative, I consider how this relates to a representation of realistic time, particularly in relation to the orchestral sections of the work. As described above, Messiaen’s cadenza sections serve in this work as ‘snapshots’ of bird characters, with the nightingale representing the first in a series of ‘songs of the night’ according to the composer. The present study therefore recalls a brief exploration in chapter 1, concerning the function of a cadenza as a

‘parenthesis’ to a broader musical phrase or section. As defined by Bribitzer-Stull, the cadenza serves as a ‘musical parenthesis’ in the sense that “although [it] certainly adds something to the music, removing [it] does not damage the harmonic-contrapuntal syntax” (Bribitzer-Stull, 2006, p. 214). Within the current investigation, I am in no way suggesting that Messiaen’s composition would have the same impact on the listener if the nightingale cadenza were removed, but rather implying that the solo piano ‘zooms in’ on the surrounding early morning setting. Considering the nightingale—and indeed all of the cadenzas within the work—as ‘surplus’ or additional information, I therefore explore how these solo sections have been constructed to aid Messiaen’s portrayal of realistic time for both the performer and the listener.

Despite the detail of Messiaen’s programme notes, he does not state with clarity the relation between his cadenza sections and the ‘time-based’ orchestral tutti. One can infer from the structure of the score, however, certain structural and expressive elements that might relate to the specific narrative setting of the section. Concerned first with structure, Messiaen states that, following a nightingale solo, “two other nightingales have a conversation with the first” (Messiaen, 1953). While gradually building the texture of the piece from the opening monophonic octaves to the full polyphonic tutti of the orchestral interlude, one may relate the structure of the opening cadenza to the title of the composition –*Awakening of the Birds*. As the cadenza builds from one nightingale to three, the developing texture mirrors the gradual awakening of a watch of nightingales, slowly rising from the night to converse with each other. A similar meaning may be taken from Messiaen’s use of dynamics throughout this cadenza, with frequent crescendos and diminuendos highlighting the gradual fluctuation from the quiet of the night towards the rise of the dawn chorus. The study highlights of course that these compositional details are investigated in relation to space and time. Whether composed for a temporal function or not, however, the possibility that the nightingale cadenza might be interpreted in this way strengthens the section’s inhabitation of smooth space (or time), and thus its ability for cyclic absolute deterritorialization. As explored earlier, Deleuze proposes smooth space as “the continuous variation, continuous development of form; [...] the pure act of the drawing of a diagonal across the vertical and the horizontal” (Deleuze & Guattari, 1980, p. 478). Through both the parenthetical function of the cadenza and the interpretative potential surrounding the musical presentation of realistic time, one can draw additional information from the nightingale ‘snapshot’, forming not only a bird character but an

emergence of that character through time. Both of these features could in turn be employed in performance to promote continuous interpretative variation of the original ‘striated’ material.

During discussion with performers, Messiaen’s nightingale cadenza formed detailed insights into how performers might choose to approach the setting of this piece, both on the micro level of the cadenza itself, and on the macro level of its relation to the rest of the composition. Participant 1 (19/10/2020), as explored in chapter 5, believes that Messiaen’s birdsong transcriptions here are “realistic of the composer’s own field experience”, but at the same time suggests that “he is taking the pitches [of the birdsong] but he is changing it into something else”. Supporting the idea of a contrast between musical and realistic time, participant 1 parallels the structural composition of the nightingale cadenza with the process of cyclic absolute deterritorialization. Participant 1 suggests that Messiaen has taken the bird as he experienced it in the field and deterritorialized it twice, firstly in placing it within the narrative of his compositional context and then again, cyclically, by adding the nightingale label to the final score. For the performer, participant 1 proposes that the monophonic octaves detract from the birdsong character, instead emphasising the time-based setting of the section. The performer is therefore given the option of performing the nightingale by highlighting the upper octave of the texture, or emphasising the setting of the character with an equally balanced voicing between the two hands. While either of these approaches will transform the cadenza from the static striated time of a composed melody to the interpretative smooth time of an expanded timbral setting, participant 1 highlights that either of these performance approaches unlocks interpretative flexibility for the listener, thus uncovering the true continuity of cyclic absolute deterritorialization. Where bird-like quality may be communicated through the rapid rhythmic smooth space, the listener is not directed to a predetermined destination, but rather allowed to interpret this bird-like quality with their own individuality. This may be as a fully developed bird character, or as a gesture within a setting, that blends into the temporal displays of the subsequent orchestral interludes.

Participant 10 (17/03/2021) shares the sentiment of participant 1 regarding the use of octaves within the nightingale cadenza, although the former develops their own analysis surrounding Messiaen’s use of such a texture. While agreeing that the octave texture can both help and hinder the portrayal of birdsong, participant 10 suggests that there could be a naturalistic reason for Messiaen to compose in this way. Given the early morning setting that Messiaen attempts to portray, participant 10 suggests that birdsong would be extremely prominent in

the field, a prominence that could not be emulated with a single line of a solo piano. It was therefore proposed that Messiaen's octave writing forms an addition to his portrayal of realistic time, with the breadth of timbre allowing performers to emulate the prominence of birdsong in the field, even within a concert hall setting. Participant 10 indicates that an equal voicing of both octaves is therefore integral to the inhabitation of smooth time, combining birdsong with realistic time in a compositionally subtle yet aurally prominent way for the listener.

As we relate this opening cadenza to the portrayals of realistic time throughout the remainder of the piece, participant 10 has provided additional insight into the instincts of performers with regard to voicing, balance and the communication of bird character. When discussing the addition of the second and third nightingale characters to the cadenza, participant 10 indicated that the two separate voices of the nightingales would be learnt separately before being mathematically re-combined into two voices with equal weight distribution between the hands and equal importance for the performer and for the interpretation of the listener. Beyond this, however, participant 10 indicates that the monophonic octaves of the first nightingale could have been employed by the composer in order to indicate spatial placement of close proximity in the field when compared with the 'distant' single voice of each of the latter nightingales. We therefore propose a combination of realistic space and time here, with textural techniques being employed to highlight the spatial and temporal prominence of the first nightingale. This prominence increases the first nightingale's inhabitation of smooth space (and time) and heightens its interpretative potential within the overarching process of cyclic absolute deterritorialization.

All of Messiaen's ensuing cadenzas as defined by his programme notes maintain the monophonic octaves of the opening nightingale, broadening the inhabitation of timbral space and therefore increasing the communicated realism of the birdsong elements, if not their 'literal' realism. The piano-based monophonic structure occurs four more times, as shown in fig.6.9, to represent the whitethroat, robin, blackcap and blackbird respectively. I therefore wonder why only the blackcap and blackbird are referenced as cadenzas within Messiaen's programme notes. As suggested during discussion with participant 1, the piano solos representative of whitethroat and robin occur during Messiaen's depiction of the gradual awakening of the birds. These short solo sections, therefore, may not appear as a 'character snapshot', but rather suggest that a single awakening bird is heard with prominence within

the field. The cadenzas of the blackcap and blackbird later serve as ‘morning songs’ following the dawn chorus, and so sit within a temporal setting that would be much more ‘densely orchestrated’ within the field.

I therefore consider the contrasting performance approaches that may manipulate the inhabitation of smooth space in favour of the specific temporal setting of each section. As throughout discussions of the opening nightingale cadenza, participant 10 previously suggested an approach of individual ‘voices’ when considering the polyphony of Messiaen’s two conversing nightingales. It was therefore suggested that a similar approach could be taken to the whitethroat and robin solos, considering the two octaves as separate bird ‘voices’. An approach such as this could allow the section to be communicated as a gradual awakening of voices with equal importance, rather than a character ‘snapshot’ as such. This approach would then unlock a contrasting sense of communication within the defined cadenzas of the blackcap and blackbird, at which point one may choose to emphasise the bird-like characteristics of the upper octave as discussed earlier.

As in previous explorations, the final cadenza section “builds bit by bit from fragments of songs, calls and cries” (Messiaen, 1953). Although structured as a piano solo, there is distinct variation from the consistency of monophonic octaves in the earlier cadenzas, to instead incorporate multiple melodic textures, thus reducing the sense of ‘character snapshot’ that the earlier cadenzas possessed. Why then has Messiaen chosen to include this final cadenza section, given that its function within the piece appears to contrast that of the earlier piano solos? This final cadenza is structured in a similar fashion to a traditional coda, employing fragments of existing material to construct a ‘conclusion’ for the performer and listener. The section therefore combines the temporal functions of Messiaen’s earlier piano cadenzas and his orchestral interludes, maintaining the timbre of a single instrument to draw on the individuality of birdsong, while incorporating the controlled polyphony of the earlier interludes that ultimately defined their temporal function.

While the cadenza sections explored thus far may help Messiaen to portray realistic time, this final investigation is concerned with the realistic nature of time within the composer’s orchestral interludes, each of which is explicitly described in relation to a time of day within the composer’s programme notes. As emphasised throughout the current investigation, each of Messiaen’s cadenza ‘snapshots’ is interspersed with full orchestral tutti. These tutti

explicitly represent realistic time as defined by the composer's programme notes. As can be seen in fig.6.9, the first of Messiaen's 'early morning' sections is much shorter than the second, with three rehearsal marks length for the first section against nine rehearsal marks for the second. Each of these sections incorporates a number of defined birds, including the Little Owl, Wryneck, Chiff Chaff, Cuckoo and Great Spotted Woodpecker to name but a few.

While there are no markings within the score to indicate the 'realistic' time setting of each section, the investigation of chapter 5 is recalled, regarding performance approaches to the spectral techniques of Messiaen's song thrush motive. Within the 'early morning' sections of the piece, Messiaen orchestrates many of his motives using spectral technique, with a dense texture that combines numerous instrumental parts into a single bird motive. This density highlights the prominent melodic lines that inhabit striated space and unlock the possibility of smooth space as explored in chapter 5.¹¹⁰ When considered in combination with the composer's programme notes concerning 'songs of the night', clear melodies, despite a dense orchestral texture, draw the listener's attention to the individuality of each bird as it awakens throughout the early morning period (fig.6.10.a).

As the work progresses towards the 'late morning', however, consistent polyphony reduces the definition of each individual motive and instead draws attention to a multitude of birdsongs as a collective community (fig.6.10.b). A varied approach to the striated and smooth spaces of these sections is thus experienced, with the 'fixed' components of melody and harmony being less defined. These fixed components are instead replaced by a texture so complex that it minimises the homogeneity of the section and leaves it open to inhabit its own smooth space (and time). In performance therefore, performers could take a more collective timbral approach to these sections, highlighting the temporal setting by giving all instruments equal importance, no matter their timbre, register or harmonic density. As suggested by participant 3 (03/11/2020), within an orchestral setting, rehearsal time is often scarce and so performers are likely to consider the importance of only their own part, before exploring the impact on the collective orchestral whole. While this may not be beneficial for the melodic centre of the 'early morning' sections, there is an integral flexibility within the

¹¹⁰ Within chapter 5, we proposed a number of performance approaches that considered the relation of the harmonic series to the bird motives. While it cannot be confirmed whether birds experience the harmonic series in the same way as humans, it was suggested that performance approaches that treat Messiaen's strings writing as a harmonically complimentary accompaniment to the wind and brass melodies will be most efficient in highlighting the bird-like tendencies of the overall motive.

'late morning' sections that relies on the simultaneity of individual thematic statements amongst performers.

The image shows a musical score for five staves, numbered 40. The top four staves are in treble clef, and the bottom staff is in bass clef. The music is in 3/4 time. The top four staves show a melodic line in the upper register, while the bottom staff shows a complex, multi-layered accompaniment in the lower register. The music consists of a melodic line in the upper staves and a complex, multi-layered accompaniment in the lower staves, all sharing the same melodic contour.

Figure.6.10.a. An example of Messiaen's song thrush ('Grive Musicienne') motive from the 'early morning' section, in which there is a clear sense of unity with all parts performing spectral resonances of the same melodic line.

207 1re Tourterelle

Flute *p*

Clarinet in Bb Grive Musicienne *f*

Celesta Fauvette Grisette *p*

Piano *mf* Fauvette à tête noire

Violin Merle *f*

Figure.6.10.b. An example of Messiaen's 'late morning' section, maintaining a chamber ensemble size but developing a sense of polyphony amongst multiple simultaneous bird motives.

Summary

The current study has expanded on the explorations of the previous chapter regarding the inhabitation of musical space-time. By aligning musical space-time with Deleuze's concept of smooth and striated time, I have expanded the functions of various compositional parameters (melody, harmony, rhythm, texture) in the interpretation of a musical work.

Where melody and harmony are often ‘fixed’ (striated) due to the nature of Western notation systems, rhythm and texture can be—and are in the case of Messiaen—left open to the interpretation of the performer. The flexibility of these parameters has allowed Messiaen to transform his work from the technical nature of *musical* space-time, to the visual imagery of *realistic* space-time. Through the use of programme notes that direct but do not limit the performer, Messiaen’s compositions are open to cyclic absolute deterritorialization through their portrayals of realistic space-time. The message that the composer provides within his programme notes does not instruct the performer in their performance approach, but rather imparts a visual image – a final destination (territory) that the performer may wish to reach through their interpretation of the more ‘flexible’ musical parameters (rhythm and texture). The current chapter has begun to form an amalgamation of previous explorations, combining the functions of musical and realistic space-time. As the investigation draws to a close, the final chapter moves now to combine all of the theories explored: to provide a framework that can apply not only to Messiaen’s work, but to a wide array of future performance approaches.

Chapter 7: *Abîme des Oiseaux*: A look back at the emergence of Messiaen's legacy.

Abîme des Oiseaux, translating to 'Abyss of Birds', is one movement of eight from Messiaen's *Quatour pour la Fin du Temps* (Quartet for the End of Time, 1941). Messiaen has offered detailed programme notes for this work, explaining that the piece was "conceived and written during [his] captivity [in a prisoner of war camp] and was performed on 15th January 1941" (Messiaen, 1941)[translation mine]. Recognising the wide array of compositional choices made within this work, Messiaen provides a philosophical function for each compositional technique, and the current study will use these philosophical functions as the basis for its analysis. Within the programme notes of his original score, Messiaen states that:

[The work] was directly inspired by the apocalypse. Its musical language is essentially intangible, spiritual, Catholic. The modes realise melodically and harmonically a sort of tonal unity, and place the listener in space or infinity. Special rhythms, outside of all measure, contribute powerfully to elongate time (Messiaen, 1941)[Translation mine].

The above highlights an abundance of techniques that have already been explored in earlier chapters with relation to Messiaen's later birdsong works. These techniques include the modes of limited transposition, added value and Hindu rhythms, and the concept of musical and realistic space-time. *Abîme des Oiseaux*, however, has a composition date much earlier than those works explored in previous chapters, and is not built from live 'in the field' transcriptions. The current investigation will therefore 'look back' on the work to explore how Messiaen's earlier uses of these compositional techniques may have impacted our interpretation of them in later birdsong works.

Speaking specifically of the third movement of his quartet, Messiaen states:

Abyss of Birds – Clarinet solo. The abyss is time, with its sadness, its weariness. The birds are the opposite of time; they are our desire for light, stars, rainbows and jubilant voices (Messiaen, 1941)[Translation mine].

In his initial programme notes, Messiaen stated that the apocalypse is a central component of this work's narrative. Developed in relation to the third movement, Messiaen remarks that 'the abyss is time'. Messiaen suggests that humanity is consumed by the weariness of their last moments of existence during the apocalypse. While an overall depiction of an apocalyptic world is evident throughout the eight-movement composition, the key element of *Abîme des Oiseaux* is the attempt to gain freedom from the apocalyptic abyss into a timeless realm. Time is therefore a key narrative concept throughout this movement, and so I recall chapter 6, which explored Deleuzian smooth and striated time, both in relation to performance paradigms and to narrative portrayals of 'realistic time', such as the present escape from time as an abyss. As previously discovered, Deleuze depicted striated time as "that which intertwines fixed and variable elements, produces an order and succession of distinct forms and organises horizontal melodic lines and vertical harmonic planes" (1980, p. 478). Combining this with the smooth time of "continuous variation, continuous development of form; [...] the pure act of drawing a diagonal across the vertical and the horizontal" (Deleuze & Guattari, 1980, p. 478), one experiences an amalgamation of musical 'essence' or structural foundation, with a communicable message. The current study therefore explores the compositional construction of *Abîme des Oiseaux* with relation to striated space-time, considering how each musical parameter might be performed within a smooth space that communicates the 'realistic' time of Messiaen's narrative abyss.

Beyond the explicitly labelled narrative space-time within this movement, the reader might recall the broader context within which Messiaen composed this work. Literature cited above by authors such as Anthony Pople and David Morris emphasises the setting of Messiaen's compositional process, with the composer's confinement to a prisoner of war camp seemingly mirroring the apocalyptic abyss of time within the work's narrative. Leslie Sprout, however, is one who has suggested that the prisoner of war camp did not impact Messiaen's published composition. The following passage is taken from a 1958 radio interview with Messiaen, which has been paraphrased by Sprout:

Messiaen resisted the notion that what he endured in the camp had any effect on the music he composed there. [...] The reference to the 'end of time' in the *Quartet's* title was not to be understood as the passing of time in captivity, but to the abolition of time that the Apocalypse would bring. [...] It is a purely symbolic evocation of musical construction; that is, to his abolition of a regular

pulse and experimentation with irregular rhythmic durations in the *Quartet* (Sprout, 2004).

Sprout suggests that performers should recognise Messiaen's 'fictitious'¹¹¹ intentions for the work. Performers should, according to Sprout, research or be informed of these intentions in order to prioritise the published work, not the circumstances of its conception. In the reality of performance, however, one cannot guarantee this depth of knowledge, with performers throughout the current investigation having indicated an instinctive approach that draws on the technical parameters of the score more so than its context. In this scenario, I am of course aware of Messiaen's programme notes, which highlight the setting of the compositional process and thus heighten the performer's awareness of the composer's incarceration in a prisoner of war camp, whether intended or not. I therefore consider whether the striated *musical* space has been inhabited sufficiently by Messiaen's musical language to communicate the 'smooth' narrative of his programme notes, or whether performers are more inclined towards the *nostalgic* space (considerations of a historic era or circumstance more so than the music itself) of the composer's circumstantial incarceration at the time of composition.

Combining all of these 'time-related' theories, I am, in relation to *Abîme des Oiseaux* specifically, presented with yet another narrative contrast, between the restriction and urgency of time and the relative freedom and hope of a bird. The bird is "presented almost as a Christ-figure, granting the hope of salvation" (Pople, 1998, p. 41) and breaking the limitations of an apocalyptic setting to present a flight towards freedom. Earlier in Messiaen's preface to the work, he proposes an angel who descends from the sky to proclaim God's wishes of the apocalypse. With the statement that "there will be no more time" (Messiaen, 1941), Messiaen suggests that the bird—our light, freedom and lack of time limits—is in fact created as a *result* of the apocalypse; that the apocalypse uncovers the opportunity for a new environment, an escape from the earthly abyss of time. The current study will explore this contrast between the abyss and the bird, as two milieu¹¹² components that provide both comparable and contrasting possibilities for interpretation during

¹¹¹ Fictitious here implies that the work is based on a philosophical narrative rather than Messiaen's actual experiences.

¹¹² As throughout this thesis, a 'milieu' is defined as a smaller component of a product or being. Further detail can be found in chapter 1 or in the glossary of this thesis.

performance. This will be developed by ‘looking back’ at the compositional techniques of *Abîme des Oiseaux* in relation to Messiaen’s later musical output.

Despite the detailed programme notes that Messiaen provides for performers, his depictions of birdsong are somewhat vague. Most likely due to a lack of ornithological experiences at this stage of his career, Messiaen is not explicit regarding the species or even quantity of birds involved in the narrative of this movement. Discussion with performers therefore turned to the versatility of this programme, investigating their instinctive approaches to the piece, whether focusing on technique, narrative or the birds themselves. Both participant 7 (07/12/2020) and participant 8 (05/02/2021) expressed differing opinions regarding instinctive approaches, with the attitudes of each developing vastly as their experience of the piece progressed.

While both participants suggested that the complexity of the piece required an initial focus on technique, participant 7 drew away from the technical and ‘musical’ function of notation, suggesting instead that the notation should inform the performer of the work’s narrative. Indicating that notation is often lacking in this regard, participant 7 suggests that they want to make the piece their own, not Messiaen’s. As a result, while they are intrigued and interested to read the programme notes and narrative details of the composer, participant 7 emphasises that this is not their absolute aim. Their instinctive approach is primarily concerned with the notational markings, taking into account the details that have been included and manipulating them to suit personal performance preferences. Participant 7 proposes that the only things that are absolute are metronome markings, with every other musical feature being ‘made to work’ within the confines of the notational system. When discussing the birdsong elements of the piece specifically, participant 7 was largely in favour of the ‘realistic’ over the ‘real’, in the sense of representing a bird ‘character’ more so than imitating birdsong directly as heard in the field.¹¹³ Suggesting that a clarinet could never hope to ‘be’ a bird, participant 7 proposed that performers consider which elements of the music could be replicated, with the “freedom and lightness” of a bird at the fore of the approach. With freedom playing an integral part in the narrative of the movement as well as in the natural qualities of a bird, I discussed the concept of rhythmic freedom, with participant 7 suggesting that Messiaen’s

¹¹³ As throughout this thesis, ‘representation’ relates to a metaphorical bird character, much in the same way as a leitmotif. ‘Imitation’ instead refers to a ‘copy’ of the original birdsong, with the aim of making the motif sound exactly as it did in the field.

rhythmic notation is likely to have been an approximation of the bird character that he aimed to create.

The concept of rhythmic freedom provides a link between the approach of two participants. Participant 8 is equally in favour of rhythmic freedom, proposing a performance that is centred around a sense of rubato within the birdsong sections. Looking more broadly at the general narrative of the work, however, participant 8 concentrates more on programme notes and additional sources of literature than participant 7. Having experienced the movement multiple times throughout their career, participant 8 envisaged that their approach today would vary greatly from that of their first performance, with past experiences being overlaid to create a composite approach to the piece. Similar to the instinct demonstrated above, participant 8 acknowledged that upon a first reading of the piece, the notation will most likely be of utmost importance to the performer, particularly since Messiaen's individual notation style is different to that of the majority of other Western Classical composers (primarily in his lack of reliance on conventional time and key signatures). Depicting a distinction in which music is usually "either within a time signature or completely free", participant 8 recognises that Messiaen's bars of uneven lengths sit somewhere in between, with a sense of *metric* freedom being overshadowed by the need for the bars to be *rhythmically* related. While being inclined to decode Messiaen's notation upon a first reading of the piece, participant 8 recognises that the notation quickly becomes a 'short hand' or reminder, with the number of evident narrative layers enabling a multitude of performances with consistently varied philosophical approaches. It is at this point that the views of participant 8 begin to diverge from those of participant 7, demonstrating the ability for deterritorialization within an array of performance territories even at an instinctive level.

While participant 7 chose to employ the notated features of the score to convey the narrative, participant 8 aimed to take this one step further. Participant 8 states that the audience, in actively listening, should automatically be able to engage with the work's narrative. Through this, participant 8 suggests that the performer should engage much more with contextual and philosophical elements of the narrative in order to refine the communication of such an idea to the listener. We subsequently discussed an analogy comparable to that of an actor. When an actor takes on a part, they require sufficient understanding of the character in order to *represent* the part. One may imply a similar requirement within music performance, and within the scope of the current investigation, the analogy has been developed to consider

Deleuze's concept of 'becoming'. In previous chapters, I touched upon Deleuze's 'becoming' as "neither imitation nor resemblance, only an exploding of two heterogeneous series on the line of flight" (Deleuze & Guattari, 1980, p. 10). As part of the theory of 'involution', Deleuze suggests that if an object 'becomes' a new product, it undergoes 'involution' or development between two parameters. This is not to say that the development of a musical product is *limited* by performance, but rather that the performance of a narrative "runs its own line 'between' the terms in place and beneath assignable relations" (Deleuze & Guattari, 1980, p. 239). With reference to birdsong here, performers should not attempt to imitate 'real' birdsong, nor should they be satisfied with an 'artificial' representation of birdsong. Instead, performers might choose to take Messiaen's notation as the parameter from which 'involution' can take place. Taking the original birdsong as one 'extreme' and technical notation as the other, a performer's interpretation of Messiaen's score allows development between the two parameters, with the notation 'becoming' a character that is based on the original narrative of the work.

In relation to 'becoming', participant 8 suggests that Messiaen's score is rhythmically clear as to where the bird character lies, with imitation being prevented by pitch which, clearly, is limited to the twelve pitches of the chromatic octave. Emphasising the necessity of striking a balance between 'real' and 'realistic' modes of communication, participant 8 infers that it is Messiaen's programme notes that allow the performer to draw away from the purely musical elements of performance, to extend the interpretative power and unlock the infinite territories that the current study is aiming for. As suggested above, the 'involved'¹¹⁴ elements of Messiaen's birdsong sections come from the freedom of rhythm within the bird character. Participant 8 instinctively employs rubato throughout the birdsong sections in order to draw the listener into the contrast between the birdsong and non-birdsong sections of the work. Having developed this approach by listening to recordings of birdsong during their first preparation of the movement, participant 8 recalls their experience of the natural diminution and elongation of rhythmic values in birdsong; a contrast to the rigidity of notation that could only be overcome by the expressive freedom of a rubato approach.

¹¹⁴ Throughout *A Thousand Plateaus* (1980), Deleuze employs the term 'involved' as an adjective for 'involution', referring to a product that has already experienced involution as a process.

Musical Language: Rhythmic and Harmonic Applications

Added Value

By now, the reader will be familiar with the concept of the added value¹¹⁵ as a technique that forms an integral part of Messiaen's metricality, or lack thereof, within a number of his later works. Given the composition of *Abîme des Oiseaux* prior even to Messiaen's *Technique de mon Langage Musicale* (1944), one might propose that Messiaen's employment of the technique here 'introduces' the added value to the listener, before it is developed throughout later compositions. Within the movement in question, the use of the added value is very much related to the placement of bar lines, forming the impression of deliberately manipulated 'demetricalisation', as experienced in multiple other instances. An example of this is found when revisiting the earlier investigation of *Le Merle Noir* (1952), in which the added value within the 'Presque Lent' section counterbalanced the steady quaver pulse that was otherwise employed throughout the phrase. Given that this section of the work was not explicitly intended to represent birdsong, chapter 1 concluded that the added value served a 'genotextual' demetricalising function, using Kristevan philosophy to denote the foundational construction of a phrase. The added value therefore highlights the deliberate manipulation of notated time (rhythm) rather than naturally occurring *un*-metricality.

The use of the added value in *Le Merle Noir* builds on the earlier *Abîme des Oiseaux*, in which Messiaen's placement of the bar line manipulates the accentuation that is given to the added value. Anthony Pople has demonstrated that "bar lines seem to be used by Messiaen only as a point of psychological orientation for the performer" (1998, p. 41). This manipulation of the bar line invites reconsideration of Deleuzian smooth and striated time, where "in a smooth space-time one occupies without counting, whereas in a striated space-time one counts in order to occupy" (Deleuze & Guattari, 1980, p. 477). From this hypothesis there is disparity surrounding Messiaen's chosen employment of the bar line. The existence of a bar line indicates a metric foundation, in which counting within the striated space-time forms 'correct' phrasing and accentuation. Despite the fluidity of length within each individual bar, Pople's theory of 'psychological orientation' suggests that the performer would have a conscious grasp of pulse, and therefore 'counting', throughout their

¹¹⁵ Chapter 1 provides greater depth on the added value, please refer to this chapter for more detail.

performance. Clearly, this thorough counting would draw attention to the added value in the sense of highlighting its placement separate to that of the overall sense of metric unity. One must not forget, however, the emphasis on Messiaen’s melodic fluidity in this movement, with his persistent bid for “the end of mortal time and [...] his hope for an end to ‘the equal and measured time of classical music’” (Pople, 1998, p. 44). Pople here highlights Messiaen’s narrative representation of time as an abyss within the apocalypse, with the ultimate aim being to convey the freedom created by the spirit of the bird. Considering this attempt for freedom from time as the philosophical basis of the movement, the current study moves to explore applications of the added value to the *smooth* space-time.

Quavers grouped metrically, with
semiquaver added to create an
ametrical impression.

7 ½ 5 7 ½ 5

Number of quavers in each
bar fluctuates between two
quantities.

Figure.7.1. A demonstration of the placement of the added value within otherwise metric bars at the opening of ‘Abîme des Oiseaux’.¹¹⁶

Fig.7.1 shows that the added value is prevalent right from the outset of this movement in the form of a semiquaver note. The placement of the bar lines within the motive provides orientation for the performer but does not form metricity in the sense of a recognisable time signature or pulse. The length of each notated bar, however, alternates between 5 and 7½ quavers (10 and 15 semiquavers). These rhythmic fragments cannot be amalgamated into larger rhythmic groupings, suggesting the possibility for deliberately manipulated

¹¹⁶ Please note that all score-based diagrams within this chapter are notated for clarinet in B). Sounding pitches, and therefore the pitches referred to in-text are a major 2nd lower than written.

demetricalisation. At the same time, however, the alternation between the same two figures gives the impression of a two bar phrase around the metre 25/16; unconventional but again promoting psychological orientation provided by the bar lines. Returning once again to *Le Merle Noir*, one may recall a similar experience in the form of stepwise semiquaver increments. In chapter 1, it was suggested that the use of bars in which the number of notated semiquavers increased or decreased in a consecutive stepwise motion implied a distinction between genotext (the added value as a structural compositional device) and phenotext (a communicative metric function in which pulse is controlled by the added value). The use of alternating bars and stepwise increments in the two works explored draws parallels between Messiaen's uses of the added value, particularly given the specific section in which both iterations occur. Both works incorporate the added value during sections that are explicitly *not* communicative of birdsong material. One may therefore suggest that Messiaen creates metric control within these sections which, while not overly conventional in pulse, enables the compositional material to be transformed from a static structural element to a communicative narrative component. A compositional technique is therefore experienced here that is employed frequently within *Abîme des Oiseaux*, and that bears strong influence on the later works of Messiaen's oeuvre.

Exploring the added value in relation to Deleuzian theory, the rhythmic technique promotes striated space-time in the sense of 'counting in order to occupy' the intended phrasing of the motive depicted by the bar lines. By contrast, the *function* of the added value constitutes smooth space-time, in which Deleuze proposes rhythm as the diagonal that cuts across the horizontal and vertical of melody and harmony (1980). Without the added value one may be inclined to emphasise harmonic consonance and dissonance during performance due to the conjunct, chromatic nature of the opening phrase. The presence of the added value, however, draws the performer to the rhythmic structure of the motive, inhabiting a smooth space-time due to the direction rather than dimension of rhythm that initiates flexibility in tempo, phrasing and accentuation for the performer.

Added value employed in a way that invites the iambic-trochee debate in its representation of the ‘bird-like’ character.

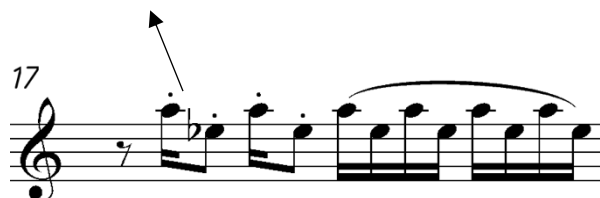


Figure.7.2. An instance of the added value within the *Presque Vif* section of the movement, representative of Messiaen’s ‘bird-like’ narrative character.¹¹⁷

Fig.7.2 demonstrates Messiaen’s employment of the added value within the second section of the work which, although not explicitly labelled, is thought to represent the bird-like character of the movement. Each rhythmic fragment employs the added value first, indicating its importance *within* the phrase and contrasting its use as an anacrusis to a new phrase as in the previous example. As explored in chapter 1, it was not uncommon for Messiaen to employ the added value in this way. Referring back once again to *Le Merle Noir*, earlier investigations considered contrasting approaches between iambic accentuation of the longer quaver duration, and trochee accentuation of the added semiquaver, particularly within the cadenza sections of the 1952 work. In this later work, the disparity was partially resolved by Messiaen’s notated accentuation of the added value semiquaver, thus implying a trochee approach of a stressed followed by an unstressed unit. *Abîme des Oiseaux*, however, is not quite so detailed in its notated articulation, with both the semiquaver and quaver increments being labelled with a staccato marking. Consequently, there could be a slight increase in performance flexibility in this case, with the performer able to interpret the treatment of the added value within the overall phrase. Absolute deterritorialization is therefore maximised and while not necessarily cyclic, the continuity of deterritorialization enables a flexibility of interpretation that unlocks infinite territories based on the added value.

¹¹⁷ One could interpret the added value here as the quaver E_b due to the prevalence of semiquavers throughout the rest of the phrase. Following Messiaen’s definition of the added value as a “short value added to any rhythm”, however, this study interprets the semiquaver A as the added value. This is also in keeping with the use of a quaver rest at the start of the bar, which would form a metrical phrase if quavers were continued across the following beats.

Comparatively, Messiaen has introduced two contrasting functions of the added value within *Abîme des Oiseaux*, based on its placement at the start or end of a rhythmic unit. While I have emphasised its demetricalising use at the end of a unit, one may argue that its use in fig.7.2 demonstrates more of an *unmetric* function derived from a naturalistic placement within the original sound source. The ‘Presque Vif’ section of this work is concerned with the ‘bird-like’ character of the piece, as explored here. Given that this work came at such an early stage of Messiaen’s compositional career however, “one must conclude [...] that several birds are present in ‘Abîme’, but that at this point in Messiaen’s output they are unspecified or the transcriptions insufficiently accurate for identification purposes” (Morris, 1989, p. 142). Due to Messiaen’s incarceration in a prisoner of war camp at the time of composition, it is reasonable to assume that he did not employ live transcriptions of birdsong elements throughout this movement. The current study therefore emphasises the variation between *natural* and *naturalistic* in the use of the added value here. I am not implying that Messiaen’s iambic/trochee applications of the added value are necessarily a natural element of the birdsong that Messiaen employed within this composition; it is rather suggested that the combination of shorter and longer fragments forms a *naturalistic* attempt at ‘becoming bird’, providing a narrative function for the semiquaver increment as well as highlighting its impact on the work’s overall metricality (or lack thereof). Nonetheless, consider the consistency in the use of the added value between *Abîme des Oiseaux* and *Le Merle Noir*. Given that both compositions have employed the added value in a similar way, one may suggest that when considered as a pair of works, they both contain a ‘genotextual focus’¹¹⁸ in their rhythmic language, indicating a sense of *demetricalisation* in compositional style, with an *unmetrical* narrative focus to the ‘Presque Vif’ section.

Once again, during discussion of the added value, participants 7 and 8 expressed various opinions regarding performance approach. Participant 7 primarily suggested that they disregard the added value when exploring the metric placement of the phrase. Considering the overall tempo of the opening section, participant 7 suggests that performers may instinctively “count in semiquavers”, subdividing their pulse in order to maintain rhythmic accuracy within such a slow tempo. By counting in semiquavers, the added value no longer functions as a ‘surplus’, but rather sits as a constituent of equal value to all of the rhythmic

¹¹⁸ ‘Genotextual focus’ here indicates that the added value adds to the foundational construction of the two works, with the placement of the added value within the narrative only becoming apparent following performance.

increments within the bar. This rhythmic equality leads participant 7 to also reduce the significance of the bar lines within the opening phrase. As I have discussed, Anthony Pople indicates that “bar lines seem to be used by Messiaen only as a point of psychological orientation for the performer” (1998, p. 41). Pople appears to suggest that while Messiaen’s bars are of uneven lengths, the placement of the bar lines informs the performer of the composer’s overall phrase structure. While participant 7 agrees with this hypothesis, they suggest that the bar lines reconfirm the emphasis that is already formed by the longer rhythmic values at the start of each given bar. Participant 7 therefore recognises the upbeat placement of the added value in relation to the given bar lines, but indicates that in performance they would not necessarily phrase the music in this way, focusing instead on the equality of semiquaver pulse. Having said this, participant 7 is quick to highlight that this approach would only be taken in the earliest stages of learning the piece. With such an extreme lack of metricality within the opening section, participant 7 finds a natural unmetric quality, which could in turn be internalised by the performer as their experience progresses. A performer might therefore remove themselves from the ‘striated time’ of strict counting, to instead occupy a ‘smooth time’ in which the general ‘feel’ of the phrase takes precedence.¹¹⁹

Participant 7 recognises that this approach has, in their experience, produced a wealth of performances both live and recorded that are rhythmically different to the score. This relative ‘inaccuracy’ could promote cyclic absolute deterritorialization in the context of this particular movement. A Spotify search for *Abîme des Oiseaux* reinforces the opinion of participant 7, with performances spanning a vast range of lengths, from 6:42 to 9:01. Of course, the overall length of a performance does not specify rhythmic changes that have been made from the score, but performances from Emma Johnson (2014) and Kim Woo Yun (2021)¹²⁰ in particular highlight a strong sense of rubato throughout the opening section of the piece. With flexibility in quaver length in particular, both performers appear to ‘stretch’ their phrases towards proposed cadence points, or points that create a natural closure to the phrase. As previously explored, Messiaen stated his desire for an ‘end to mortal time’, an aim that is implied both philosophically with relation to the apocalypse and realistically when considering the Western classical tradition. While not necessarily stated explicitly, one would

¹¹⁹ For a reminder of this theory, please refer to our earlier discussions of Deleuze’s Smooth and Striated time within this chapter and chapter 6 of this thesis.

¹²⁰ Johnson, E; Lenehan, J. 2014, *Abîme des Oiseaux*, Brave New World, Champs Hill Records
Yun, K. 2021, *Abîme des Oiseaux*, End of Time Olivier Messiaen, Ensemble Beautiful Rendez-Vous

justifiably predict that the precision of rhythmic notation is just one of the many features that constitutes mortal time. A performance approach that combines rhythm with tempo through the use of rubato therefore promotes Messiaen's narrative, taking the notation into account but ultimately drawing on the 'feel' or aesthetic of the phrase. The use of rubato and rhythmic variations therefore reduces the sense of 'mortal time' but also the sense of *striated* time, removing the focus on individual rhythmic increments to instead "occupy [the phrase] without counting" (Deleuze & Guattari, 1980, p. 477) (smooth time).

Participant 8 additionally related to Pople's view of Messiaen's bar lines, suggesting that their placement is efficient in orienting the performer in phrasing and accentuation. The general approach of participant 8 to the added value, however, is contrasting, exploring a broader metric scheme within the opening section. Participant 8 agrees that in addition to the bar lines, the performer is inclined to phrase Messiaen's opening statements around the notes of longer values. Participant 8, however, suggests that only the second and fourth bar lines demarcate proposed phrases, with the first and third being mostly futile due to their lack of 'rhythmic closure'. Having previously considered the uneven lengths of Messiaen's bars, the instinct of participant 8 to remove the first and third bar lines would manipulate the alternating lengths of the bars to create two longer phrases of equal length.¹²¹ During discussion, participant 8 was careful to emphasise that this was not a conscious decision, but rather that as a Western Classical orchestral performer, their training draws them to somewhat metric and rhythmically logical phrasing.

Going further than this to explore the remainder of Messiaen's opening section, we encountered during discussion the vast contrast between the short bar lengths of the second phrase, and the single almost cadenza-like bar of the third. Instinctively highlighting the deliberate nature of the varied phrase lengths, participant 8 explored the relevance of Messiaen's chosen phrasing to the broader context of the movement. When comparing the second and third phrases of the piece, we discussed the importance of other score markings such as commas, accents and slurs (fig.7.3). With the second phrase employing much more of these than the third, participant 8 concluded that Messiaen indicates different levels of phrasing within the opening section of the movement, with the performer free to employ

¹²¹ Referring to fig.7.1, the combination of bars 1-2 and bars 3-4 creates two longer bars both of 12.5 quavers or 25 semiquavers.

different combinations of accentuation in order to vary the segmentation of the phrase. This ability aids the motivic development and narrative progression of the piece, with the segmentation of motivically important increments highlighting their return in later sections of the movement. Consider, for example, the falling tritone highlighted in the first bar of fig.7.3. One may not consider this to be an important motive at this stage of the piece had it been placed within a larger phrase. The isolation of the individual interval within a single bar, however, accentuates its narrative significance, indicating an emphasis during performance that signposts its recurrence throughout the remainder of the movement.

Taking this overall approach to different levels of phrasing and segmentation, participant 8 places further significance on the added value within the context of bar line placement. Having been an orchestral musician, participant 8 shares the instinct to follow the ‘imaginary conductor’, therefore placing a metric upbeat feel onto the added value due to its placement at the end of a written bar. In relation to the current investigation, the upbeat effect follows the given slurring to consistently land on the longest note of the bar, thus drawing on a smaller level of phrasing within the larger set of bars. By contrast, however, participant 8 also explored the impact of the added value within the birdsong sections of the work. Within fig.7.2, the added value is placed at the start of a rhythmic cell. Participant 8 suggested an instinctive performance approach that achieves a combined rhythmic unit between semiquaver and quaver, therefore accentuating the added value at the start of a rhythmic cell. Not only does this promote rhythmic contrast between quaver and semiquaver, it also demonstrates narrative expansion in the potential for deterritorialization, with the freedom of a larger rhythmic unit differentiating from the metric logic of Messiaen’s proposed ‘mortal time’.¹²²

¹²² Messiaen’s aim for an ‘end to mortal time’ stems both philosophically from the apocalypse and theoretically in relation to Western classical tradition.



Figure.7.3. The second and third phrases of Messiaen's opening section, highlighting the varying levels of phrasing that are indicated by the composer.

The Modes of Limited Transposition

The modes of limited transposition, as explored in chapter 1, are presented in detail within both Messiaen's 1944 publication *Technique de mon Langage Musicale*, and his later *Traité de Rythme, de Couleur et d'Ornithologie* (Messiaen, 1949-1992). The current investigation considers once again the composer's use of the modes within *Abîme des Oiseaux*, which was composed before either of the publications listed above. The modes of limited transposition were explored in chapter 1, and so the current investigation will provide comparisons between *Abîme des Oiseaux* and the works discussed in earlier chapters.

The opening section of *Abîme des Oiseaux* is based fully on the second mode of limited transposition, which holds a long-standing position within tonal convention even prior to Messiaen's own uses of the mode. The second mode of limited transposition, or the octatonic collection, is one that has frequently been found in the works of Rimsky-Korsakov and Stravinsky amongst others. With an eight-note modal octave, the octatonic scale alternates consistently between tones and semitones. Presenting the mode with its characteristic symmetry, the alternating interval structure of the second mode forms a total of three possible transpositions before the original scale recurs. In the case of *Abîme des Oiseaux*, the second transposition of the mode is employed, in which the intervallic alterations are ordered half-whole (semitone-tone). Existing literature by scholars such as David Morris (1989) and Anthony Pople (2012) has questioned the function of the pitch class E within *Abîme des Oiseaux*, highlighting its clear significance yet simultaneous ambiguity across the whole movement. As demonstrated in fig.7.4, however, Messiaen has seemingly chosen the pitch

class E (notated F \sharp) as his ‘modal root’ within this work. While this is not identical in function to a diatonic root, the theory informs analysts of critical features of the interval and phrase structures of the work’s opening section.

Of course, when investigating a ‘root’ function, one might instinctively consider the tonic centre of a diatonic scale. In the case of *Abîme des Oiseaux*, however, the symmetry of the mode highlights two possible pathways through the scale based on the diminished seventh, within which any one of the pitch classes involved could be labelled as the ‘root’ (as demonstrated in fig.7.4.a by the upper and lower case labelling). Arthur Berger suggests that the “interval ordering [of the octatonic] can come into a reciprocal relation with the traditional diatonic to influence the disestablishment of tone centre in nontonal music” (Berger, 2002, p. 188). Berger develops the point proposed above, suggesting that while the octatonic scale may physically possess a root in the same way as a diatonic scale, the symmetry of the mode ‘disestablishes’ the tonic centre and thus weakens the root function. Despite this, Berger’s ‘reciprocal relation’ relates to fig.7.4.b, in which the half-whole octatonic that Messiaen has employed is aligned against the diatonic major scale. Referring to fig.7.4.b, it is recognised that the pitches that occur in both the diatonic major and the half-whole octatonic are E (I), G \sharp (III), B (V) and C \sharp (VI). With the exception of C \sharp , the pitches highlighted outline a major triad. Given the clarity of triadic alignment, it is proposed that Messiaen may have chosen to employ the second mode of limited transposition in order to provide a ‘tonal scheme’ to the movement. As accentuated by Berger and further emphasised by scholars such as Pieter van den Toorn (2012), “if you depress all the notes of an octatonic scale at once, you will scarcely be able to detect anything of the octatonic sound, but you will hear, rather, a cluster comprising an undifferentiated mass of notes out of the chromatic scale” (Berger, 2002, p. 192). In highlighting the ‘clustered’ quality to the octatonic collection as a chord, Berger emphasises the aesthetic difference between this and the octatonic collection as a scale, as has been employed by Messiaen. By considering the scale as individual pitches rather than a chordal harmony, the current hypothesis of Messiaen’s plan for a tonal scheme gains strength. The present study will therefore consider how the half-whole octatonic *differs* from the diatonic major, to consider the ways in which the former has been employed within *Abîme des Oiseaux*.

The alternating semitone-tone intervals that construct the octatonic scale result in a strong pull towards the minor 2nd interval within the mode’s overall sonic quality. The current

investigation also concentrates, however, on the tritone. Considering again fig.7.4.a, it is demonstrated that the two opposing ‘poles’ of the half-whole octatonic cycle sit a tritone apart (E-A# in this case), highlighting not only this individual interval but also depicting the symmetrical nature of the interval and the mode. In an interview with me, participant 1 (19/10/2020) discussed the idea that the minor 2nd and the tritone are ‘reductive of tonality’, in the sense that neither interval creates a harmonic drive that would lead to major or minor diatonicism, or indeed to conventional cadences. There is neither a dominant nor a tonic implication within the minor 2nd or the tritone, thus reducing the cadential function of both intervals. Similarly, neither are aligned between the octatonic and diatonic major scales (fig.7.4.b). The minor 2nd is a semitone away from the tonic and the tritone is a semitone away from the dominant, but within the context of the current study, participant 1 suggests a lack of ‘cadential pull’ due to the fact that neither interval (when considered from the tonic) is present within the diatonic major scale.¹²³ As highlighted by David Morris, it is clear that “the third section of part one [of *Abîme des Oiseaux*] is tritonally oriented” (1989, p. 129), therefore drawing into question once again Messiaen’s use of the mode within the movement overall. As demonstrated in fig.7.5 below, the minor 2nd and the tritone are not only prevalent within the octatonic scale itself, they are also employed with great frequency throughout the opening section of Messiaen’s composition. I therefore question Messiaen’s motivation for choosing this particular mode, and will consider its impact on the overall scheme of the piece through a comparative reflection with later works.

¹²³ This statement implies that while a semitone and a tritone can exist in a major scale (eg. E-F or F-B in C major), the intervals do not exist with the tonic as the root (eg. C-C# or C-F#).

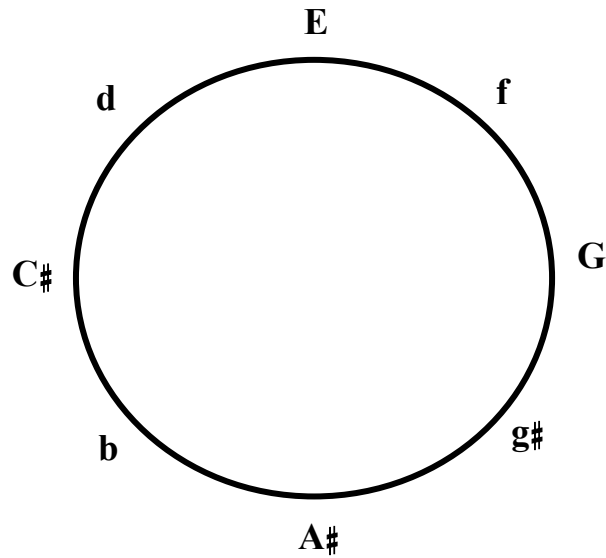


Figure.7.4.a. Mode 2, transposition 2 (half-whole structure), as used by Messiaen in ‘Abîme des Oiseaux’. The ‘root’ is raised to E as it is in the movement, and the two diminished seventh chords involved are indicated by the alternation between upper and lower case letters. This diagram is an adaptation of Pieter Van Den Toorn’s (2012) demonstration of the octatonic cycles.

0	1	2	3	4	5	6	7	8	9	10	11
Diatonic Space (Major)											
E		F#		G#	A		B		C#		D#
Octatonic Space (Half-Whole)											
E	F		G	G#		A#	B		C#	D	

Figure.7.4.b. The alignment of the half-whole octatonic scale against the diatonic major scale, highlighting the major triad as a key element of consistency between the two tonal spaces.

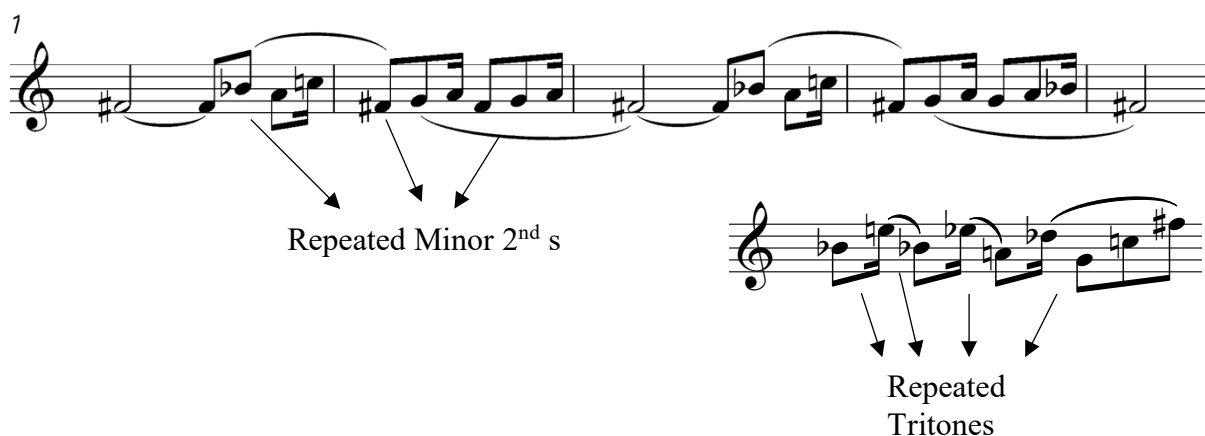


Figure.7.5. Iterations of the minor 2nd and tritone that reduce the alignment between the half-whole octatonic and the diatonic major within the opening section of ‘*Abîme des Oiseaux*’.

Chapter 1 included an investigation of the modes of limited transposition within the context of *Le Merle Noir* (1952). Here focus was drawn to the function of the seventh mode of limited transposition: a ten-note mode that is transposed around the tritone and has six possible transpositions. In this later work, the transposition point around the tritone means that each ‘version’ of the mode can only be split into two symmetrical groupings. Mode 2, however, is symmetrical around each minor 3rd, providing four groupings in each cycle. The smaller number of groupings in mode 7 could strengthen the root function of the mode, with interpretations of the mode coming from only two possible starting points. At the same time, however, one must question the extent to which a ten-note mode could ever serve a tonal function, given how closely it sits to twelve-tone chromaticism. When looking back analytically at Messiaen’s two early uses of the modes of limited transposition, there is a strong contrast between diatonic and dissonant—between tonal and nontonal—which in many ways should induce opportunism in building upon the fundamental aim for deterritorialization. Recalling Ronald Bogue’s reading of deterritorialization, the study experienced “the territorializing act via a detachment [...] of milieu components and a re-inscription [...] of those components as expressive qualities within a territory” (Bogue, 2003, p. 126). With milieu components serving as smaller structural constituents of an overall territory, one may suggest that the disparity between diatonic and dissonant with relation to the modes of limited transposition acts as the ‘detachment of milieu components’. The ability of the performer to then reinterpret these modal passages through *either* a diatonic *or* a

dissonant lens re-assigns the technical components into a number of interpretative territories fuelled by individual expressive acts.

The modes of limited transposition have thus far been explored in relation to a number of topics (musical language, spectralism) and in each instance, participants have been equally enthusiastic about the varying functions of the modes. This consensus is no different within *Abîme des Oiseaux*, with the modes appearing to function in a similar fashion throughout Messiaen's oeuvre. As explored, current literature tends to imply a 'root function' on E (concert pitch) within *Abîme des Oiseaux*. I therefore consider the extent to which this can be aligned to a tonal scheme. The aim of the current investigation is therefore to uncover whether performers would be inclined to structure their performance around Messiaen's use of the mode.

Both participant 7 and participant 8 agree that the supposed root function of this movement is not strong enough to imply a full tonal scheme, but we nonetheless discussed a number of possibilities surrounding its efficacy in increasing cyclic absolute deterritorialization. Participant 7 firstly accepted the proposed root *function* of E, suggesting an emphatic role in terms of the phrasing of the opening section, but quickly dismissing the possibility of any additional function in the broader scheme of the movement. Participant 7 therefore suggests that Messiaen's modal scheme is an additional level of phrasing, to add to the levels already explored in relation to the added value. The concert pitch E thus serves as a 'landing point', combining with the frequent preceding added value to *timbrally* rather than tonally bring the phrase to a close. Participant 7 emphasised that any use of the root function in performance would not be conscious, instead serving as a natural phrasing device within the opening section that is subsequently lost within the birdsong sections of the work. While seemingly an 'unconscious' component for the performer, the proposed 'root' is nonetheless communicated in a way that could increase the continuity of deterritorialization during performance. Messiaen is explicit in his aim for the 'loss of mortal time'. Of course, when considering this statement rhythm would instinctively be a catalyst with relation to time. As in previous chapters, however, Messiaen considered music to be a totality,¹²⁴ with all musical elements being treated with equal importance in the construction of both a notated score and a stylistic narrative. While the root function of the modes of limited transposition is clearly a *harmonic*

¹²⁴ Particular detail on the topic of music as a totality can be found in chapters 1 and 5 of this thesis.

compositional component, the loss of such a function within the birdsong section of the work can only add to the freedom from the abyss of mortal time. Such an emphasis therefore leads to cyclic absolute deterritorialization of the birdsong within the work, with freedom in *all* musical elements enabling the expansion of interpretative territories for both performers and listeners.

Participant 8 largely shared the approach of participant 7, considering the pitch class E to be the “unofficial root” of the opening section. Emphasising once again that this function stems from the frequency, length and positioning of the pitch at the beginning and end of phrases, participant 8 highlights that in performance they would not consciously consider any sense of tonic within this movement. Participant 8 does, however, propose a varied instinctive approach that reflects the conventional tendencies of Western Classical musicians. Participant 8 has extensive experience of earlier classical music that largely abides by the Western tonal system of major or minor. They therefore suggest that the overall note content of Messiaen’s opening phrase creates a subtle pull towards F harmonic minor (concert pitch) with the E serving as the leading tone. While they would not be inclined to draw on this in performance, discussion with participant 8 does invite additional consideration of how we might promote cyclic absolute deterritorialization in relation to harmony. Messiaen’s *Technique de mon Langage Musicale* (1944) outlines that the modes of limited transposition are a development of the Western tonal system. Referring to the symmetrical nature of the modes of limited transposition, Messiaen proposes that the modes are “in the modal atmosphere of several keys at once” and while this will not be consciously perceived by listeners during a live performance, they will “submit to the strange charm of impossibilities: a certain effect of tonal ubiquity in the nontranspositions” (Messiaen, 1944, p. 95). Given the publication of *Abîme des Oiseaux* prior to that of Messiaen’s technique book, I continue to ‘look back’ at the piece: to consider it as a work that does not explicitly acknowledge any of the techniques explored here, but that nonetheless appears to incorporate them as part of its musical language.

Following discussion, participant 8 contemplated Messiaen’s approach to the modes of limited transposition in their own approach to performance. While the presence of mode 2 within this movement is recognised, and the root function that could stem from this is explored, did Messiaen conceive the piece in this way at the time of composition? Since we clearly cannot prove Messiaen’s intentions, participant 8 draws on the ‘root’ function of E

with relation to rhythm or phrasing rather than as part of a tonal scheme. In doing so, a performance of the opening section could favour technical and musical unity, which therefore allows the ‘Presque Vif’ birdsong section to ‘break free’ from the ‘confines’ of the notated score. When considering the freedom of Messiaen’s bird character, such a performance approach extends the overall ability for cyclic absolute deterritorialization. With an emphasis on longer rhythmic values, a pulse counted in slow quaver increments, and pitch that remains in the lowest tessitura of the instrument, participant 8 formulates a performance approach that highlights the apparent contrast between this and the birdsong section of the work. As we move to explore the ensuing birdsong section, fig.7.6 is first considered, demonstrating the construction of the Presque Vif section with short rhythmic increments within a lively semiquaver pulse, alongside a timbral transformation to the uppermost tessitura of the clarinet. While the specific relevance of these compositional choices will be explored in due course, at this stage a contrast in performance is recognised when compared with the opening section. Where both compositional and performance approaches demonstrate such stark contrast, one may suggest an increase in the continuity of deterritorialization thanks purely to the interpretative flexibility of the contrast itself – a feature that will be explored in detail throughout the remainder of this chapter.



Figure.7.6. A demonstration of the compositional style of the Presque Vif section of ‘Abîme des Oiseaux’, including short and rapid rhythmic progressions, and a high tessitura.

Revisiting Blackbird and Nightingale Inspiration

As discovered above, Messiaen’s use of birdsong within *Abîme des Oiseaux* does not explicitly state the bird species that he wished to incorporate, instead suggesting that the birds are an ‘army’ against the apocalypse: “the beast in conflict with the birds” (Fallon, 2009, p. 196). Narratively performers do not ‘require’ the knowledge of a specific bird species in this instance, due to the overall spiritual function of the bird to elicit freedom from the abyss of time during the apocalypse. As analysts, however, we may be inclined to relate each of Messiaen’s birdsongs or bird characters to a specific bird in order to draw comparisons

between each iteration of the narrative component and, of course, with the bird in its natural state. One can never state categorically whether Messiaen used (or not) live transcriptions at all within this composition, or whether he had the means to create detailed enough transcriptions to warrant labelling. I will explore, however, elements of the movement which, when considered comparatively, are reminiscent of Messiaen's later uses of bird species, in particular the blackbird and the nightingale. Considerations of the blackbird and nightingale stem from analytical observations. Neither species is marked on the score, nor are they explicitly mentioned in Messiaen's programme notes for the movement. I will therefore simultaneously explore the relevance of this argument to performers. Performers will consider whether they are aware of the connotations that analysts have placed on this movement, and how a knowledge of this could impact their performance approaches, therefore forming opportunities to create new territories in relation to performance as a process.

David Morris (1989) has proposed comparisons between the birdsong section of *Abîme des Oiseaux* and Messiaen's uses of the two birds stated above, but I will build on this using existing investigations of each of the birds. As demonstrated in fig.7.7, Morris suggests six characteristics of birdsong within *Abîme des Oiseaux* that can be categorised in relation to the nightingale and the blackbird. Within existing literature such as Morris' investigation, studies are not centred around comparisons to later works such as *Le Merle Noir* or *Réveil des Oiseaux*, but rather recognise a subtle reference to the birds within an earlier movement of *Quatour pour la fin du temps: Liturgie de Cristal*. Within his programme notes for this movement, Messiaen states "the awakening of the birds: a solo blackbird or nightingale improvises" (1941). From this, past accounts have identified characteristics that might be associated with these particular bird species, which can in turn be compared to melodic material of the later third movement. By contrast, however, the key word in Messiaen's statement for the current investigation is 'or'. The idea of a blackbird *or* a nightingale reduces even the composer's own certainty in the accuracy of his birdsong, indicating that the two bird species are suggested connotations rather than realistic sound sources. Additionally, while in later compositions Messiaen tends to label each bird species within his score, the performance directions within *Liturgie de Cristal* simply state 'comme un oiseau' (like a bird). Due to a combination of these two factors, the current investigation of the blackbird and nightingale within *Abîme des Oiseaux* will be comparative, considering Morris' features shown below as correlative elements with later works.

Blackbird	Nightingale
Fast three-note motif	Alternating Tritone
Two high-pitched staccato notes	Descending triplets
Rising motif to end the phrase	Trills or Fluttertonguing

Figure.7.7. A interpretation of Morris' (1989) statement concerning Messiaen's incorporation of the Blackbird and the Nightingale into 'Abîme des Oiseaux'.

Considering first the blackbird, fig.7.7 demonstrates three features that have been explored in depth across the course of the current study. The three-note motif in particular has been explored extensively for its use in Messiaen's later compositions. Within *Abîme des Oiseaux*, its use is subtle and infrequent with a particularly rapid rhythmic progression, but it nevertheless is a recognisable melodic motif when compared with the composer's later works. The current investigation therefore explores whether this three-note motif can be considered a pre-existing naturalistic element that Messiaen was familiar with prior to the composition of *Abîme des Oiseaux*. On the other hand, one may suggest that it is only when considering the blackbird connotation across Messiaen's entire oeuvre that we as present-day analysts or listeners come to perceive a specific bird species. The use of the three-note motif in this 1941 example includes a fairly broad interval contour, portraying a major 6th ascent followed by a perfect 4th descent. While this is not necessarily unusual compared with later uses of the motif, the unique quality of this iteration comes with its use of grace notes rather than a discernible rhythmic increment (fig.7.8). Given the lack of rhythmic 'value' that has been given to this motif, one may question its 'strength' in representing the blackbird when compared to uses of the motif in *Le Merle Noir*. Due to this, the approach of looking back at *Abîme des Oiseaux* within the context of later works invites recognisability in the blackbird melody that expands the possibility for deterritorialization for both performers and listeners. The continuity of deterritorialization would therefore rely on past experiences of performers and listeners, with continuity being expanded where individuals are familiar with a broad range of Messiaen's oeuvre and thus have experienced multiple settings of the three-note motif.

By suggesting that the blackbird is only recognisable here when looking back from later works, a certain depth of knowledge regarding Messiaen's oeuvre is necessary in order to draw the blackbird connotation from *Abîme des Oiseaux*. While the contour and overall sound quality may invite a performer or listener to draw a bird-like *character* from the motif, the specificity of the blackbird is reliant upon additional information sources, such as later uses of the three-note motif. During the process of deterritorialization, the motif therefore becomes subject to the 'forces of chaos'¹²⁵ inhabited by the past experiences of performers and listeners. Relating this to the overall process of cyclic absolute deterritorialization, one may consider the specified blackbird within this movement to be a piece of *additional* information—a component of the 'annexed milieu' as explored in earlier chapters—that aids the continuity of deterritorialization but is not integral to the overall process. Acting as a surplus to the specified narrative of the movement, the blackbird connotation aids the cyclic manner of the present investigation by exhibiting the naturalistic elements of birdsong within the movement. Given the specificity of narrative that Messiaen presents, however, one must question the impact that this 'surplus' may have in the context of a narrative based on the concept of birds as an escape from the apocalypse, where the specificity of a species will not alter the overall course of the narrative.



Figure 7.8. A subtle iteration of the three-note motif within 'Abîme des Oiseaux'. This iteration shares an overall contour with the recognisable 'blackbird' motif, but possesses a wider intervallic contour and a more rapid grace-note rhythm, lessening its impact on the overall narrative of the movement.

In addition to the song of the blackbird, performers proposed a 'visual' or gesture-based bird character within this composition, with the bird's flight rather than its song sitting at the fore of the movement. As noted by Pople, "the notes are taken in different registers, ascending towards the highest reaches of the instrument and then descending" (Pople, 1998, p. 46).

¹²⁵ The forces of chaos refer to an interruption to the continuity of deterritorialization due to a pre-determined or implied 'final territory'. Please refer to the introduction and chapter 1 of this thesis for more information on this topic.

Referring to the rising motif of the blackbird and the descending triplets of the nightingale depicted in fig.7.7, Pople suggests a combination of the bird characteristics explored here in order to highlight mannerism over song: an element that performers have displayed preference for in their interpretations of Messiaen's works. The overall contour depicted in fig.7.8 mirrors the rise and fall of a bird in flight, and in relation to deterritorialization, one may argue that interpretations of visual image are capable of being more 'realistic' than an interpretation of aural song. During a discussion with participant 1 (19/10/2020) in the earlier stages of the investigation, we explored the idea that instinctively, the performer will not automatically conclude that Messiaen's bird motives represent birdsong. Instead, participant 1 suggested that across his oeuvre, Messiaen creates "an indication as to the manner of the bird [...] the manner of its movement". With detailed performance directions in all of Messiaen's scores,¹²⁶ participant 1 suggests that the pitches are not the main focus of Messiaen's music, with the composer "stripping away any human instinct to make you play the automated manner of the bird". While this opinion cannot necessarily be applied to Messiaen's *complete* oeuvre, the approach is particularly useful to the current case study. One cannot deny the level of detail that the composer has incorporated within the score of this movement, with programme notes, phrase marking and detailed articulation all presented clearly for the performer. I previously proposed that these score markings will expand absolute deterritorialization within non-birdsong sections and so, while I will explore the instincts of more performers in due course, there is justification here to suggest that deterritorialization may be more prevalent when emphasising image-based representation over sonic realism.

In addition to the blackbird, fig.7.7 demonstrates additional connotations within *Abîme des Oiseaux* that, in looking back, have been aligned with the nightingale. One may recall previous explorations of this bird in relation to the 1953 composition, *Réveil des Oiseaux*. Despite the long piano cadenza that is explicitly assigned to this bird in the later work, there is one feature in particular that resembles the 1941 composition: the use of repetitive, alternating tritones. As demonstrated in fig.7.9, both pieces possess iterations of the tritone, although this interval is the only feature that they share. In fig.7.9.a, *Abîme des Oiseaux* combines the tritone with gradually quickening rhythmic increments. Recalling the earlier exploration of this phrase, the use of the added value at the start of each rhythmic grouping

¹²⁶ Varying levels of performance directions are explored throughout each chapter of this thesis.

could invite the iambic-trochee debate in performance. Considering harmony over rhythm, however, the added value highlights the tritone, with the longer quaver increments presenting the performer with a subtle pause through which they can absorb the full harmonic quality and implications of the interval. It is this combination of harmonic and rhythmic values that draws listeners to consider the bird character that is represented by the phrase. While the interval is of course a crucial component of the melody, one does not necessarily highlight the interval as a single element in this scenario, therefore reducing the likelihood that the nightingale correspondence would be drawn from the overall motive.

By contrast, however, fig.7.9.b demonstrates the tritone within *Réveil des Oiseaux* which, apart from employing different pitch classes, possesses a contrasting tone and melodic structure to that of *Abîme des Oiseaux*. Through the use of acciaccaturas, listeners are much less focused on the rhythmic progression of the motive and thus, despite the brevity of the ‘F’ pitch class, are more inclined to consider the harmonic quality of the interval itself. In contrast to the melodic quickening of rhythmic increments in *Abîme des Oiseaux*, the harmony here arguably draws more of a naturalistic image of the nightingale. As explored above in reference to the blackbird, there is ‘disagreement’ amongst performers concerning an interpretation of the bird’s song or its gesture and mannerisms. This contrast most definitely recurs here, for performers, listeners and analysts. The melodic progression of the earlier composition draws attention to the musical or even technical placement of the motive, highlighting the broader narrative of the movement rather than the leitmotivic function of the bird itself. Due to this, one may infer a ‘visual’ approach to the bird character in this instance, with the melodic and rhythmic approach promoting the flight rather than the song of the bird. By drawing on harmonic and naturalistic elements, however, the later work points towards a tonal and therefore song-based approach, promoting the bird character over its broader musical placement. Previous explorations highlighted the possibility that Messiaen was not equipped to accurately transcribe birdsong within *Abîme des Oiseaux*, but one cannot deny the possibility that—due to his scrupulously detailed programme notes—the composer was *aiming* for gesture and character above the realism of song. I therefore consider the instincts of performers regarding this possibility, to explore their varying attitudes to both bird gesture and birdsong.

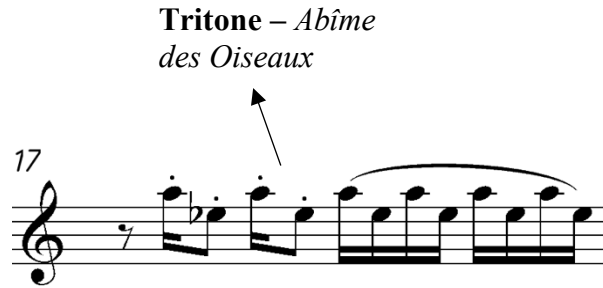


Figure.7.9.a. Uses of the tritone in ‘*Abîme des Oiseaux*’, combined with the added value within gradually quickening rhythmic increments..

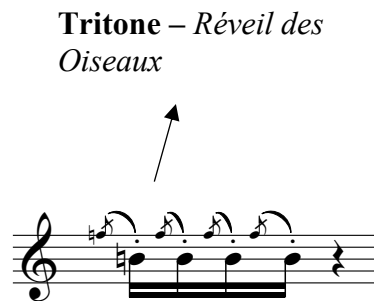


Figure.7.9.b. Uses of the tritone in *Réveil des Oiseaux*, using the brevity of the acciaccatura to highlight the interval. This excerpt is taken from the first cadenza (bar 1) of *Réveil des Oiseaux*.

In the instance of the blackbird and the nightingale, Messiaen’s small reference to the bird species within his programme notes for the composition is highlighted.¹²⁷ There is no evidence within Messiaen’s transcription notebooks that he employed field transcriptions as part of *Abîme des Oiseaux*. Both participant 7 and participant 8, however, suggest more than mere coincidence that Messiaen should reference within programme notes bird species that are motivically recognisable within a number of his later compositions.

Participant 7 is intrigued by the possibility of recognising the blackbird and nightingale through performance, suggesting that if performers were explicitly informed of the comparative connections on their score or by a fellow performer, then they would seek to

¹²⁷ As referenced earlier in this chapter, Messiaen discusses the first movement of this work, *Liturgie de Cristal*, with the following programme note: “the awakening of the birds: a solo blackbird or nightingale improvises, surrounded by sound, by a halo of trills lost high in the trees” (Messiaen, 1941).

research the songs of each bird in order to achieve a replication as close as possible to the natural birdsong. Discussing Messiaen's current programme note acknowledgement of the birds, however, participant 7 suggests that the composer's musings might be more insightful to a listener than to a performer, with explorations of alignment between motivic and narrative content suggesting a possible interpretation of the piece. For performers, participant 7 suggests an increased level of spontaneity, with programme notes limiting the sense of individuality that can be incorporated within a performance. Suggesting that the birdsong elements should be naturally inherent within a performance, participant 7 prioritises a generalised representation of a bird character rather than an imitation of the specific species involved. While one may suggest a 'limitation' on cyclic absolute deterritorialization with this approach, we are reminded of earlier comparisons of 'representation' (a musical character that is recognisable for listeners) and 'imitation' (a direct 'copy' of a real birdsong recording or transcription). Bogue's (2003) concept of 'becoming bird' maintains significance, reinforcing Deleuze's (1980) original theory regarding 'becoming' as a process of 'involution': development between a set of predetermined parameters. Participant 7's generalised bird approach to performance promotes the development of multiple possible bird characters, with interpretation being left open to the experience of each individual listener. Involution is therefore implied here by the maintenance of bird as the overarching 'genus' – the broadest parameter that must be maintained in order to convey the purpose of the piece. While this approach may not promote a territory that represents the exactitude of Messiaen's use of birdsong, the flexibility of approach highlights the 'freedom from mortal time' that Messiaen aims to represent *through* his birds, thus emphasising the philosophical implication of the motive more so than the realism of its place in nature. Of course, this approach is not necessarily suited to Messiaen's later, more explicit accounts of birdsong. In the case of *Abîme des Oiseaux*, however, it is justifiable to suggest that a more 'approximate' performance may increase the power of cyclic absolute deterritorialization within the context of this specific musical account.

Participant 8 contrasts this approach, explaining their prior experiences of the piece. In the past, participant 8 focused on the realism of Messiaen's birdsong passages. Participant 8 admitted that they had not previously considered the programme notes for *Liturgie de Cristal*, with their attention being drawn primarily to *Abîme des Oiseaux* as their solo movement. They had, however, undertaken extensive research around birdsong in general prior to their first performance, with the consideration of birdsong recordings allowing them to understand

the initial territory from which Messiaen's composition was taken. Participant 8 emphasises that listening to birdsong recordings, regardless of the species, was revolutionary for their first performance of the work, with their approach shifting to reflect the freedom of birdsong in nature. This approach alone clearly promotes cyclic absolute deterritorialization, with realism rather than representation being placed at the fore of the performer's attitude. In reference to the specificity of blackbird and nightingale considerations, however, participant 8 believes that performers have two options that are dependent on the circumstances of the performances that they are attempting to create. In the instance of a performance that supports Messiaen's theory that "the birds are the opposite of time" (1941), participant 8 suggests that information regarding the composer's later treatment of birds would be extremely insightful during performance. Having experienced the impact of general birdsong recordings, participant 8 is emphatic that research around specific bird species could only enhance the liberation of performance style that can be created. While acknowledging that this level of specificity may limit the performer's *interpretative* freedom by forging a path from which the performance is taken, participant 8 highlights the enhancement of *communicative* freedom that comes from an understanding of the 'real' territory from which the work has been taken.

As briefly considered earlier in relation to 'nostalgic time', participant 8 proposes a second approach to performance based on the renowned status of Messiaen's work within modern society. Messiaen's *Quatour pour la fin du Temps* is frequently employed nowadays as a work to commemorate those that suffered during the Holocaust, with the composition featuring as part of memorial concerts worldwide (Music and the Holocaust, 2000). Within this context, participant 8 suggests that performers are primarily drawn to the philosophical aesthetic of the piece, with the literality of bird versus music taking a back seat. One may suggest that this approach aligns more closely with that of participant 7, with representation overtaking realism to emphasise the freedom of 'bird character' as a hypothetical rather than literal narrative constituent. Clearly, the specificity of blackbird and nightingale would not influence performance practice in this case, although participant 8 does imply that a knowledge of such information could signpost motivic areas through which Messiaen's philosophical freedom can be communicated most effectively. There are therefore a number of possibilities for performance in relation to the blackbird and the nightingale, with the use of the birds in later works influencing performance approach. The reader may recall, however, that the aim for cyclic absolute deterritorialization is ultimately concerned with a

continuous process; with unlocking a maximum number of interpretative territories that *could* be taken by performers. While the cyclic element of this hypothesis may not always be achieved, discussion of Messiaen's blackbird and nightingale characters provides an increased set of options for performance approach and therefore promotes continual development in interpretation and communication.

Summary

The current chapter has revisited a number of earlier investigations regarding Messiaen's use of birdsong, providing an overview of techniques in relation to *Abîme des Oiseaux* (1941). This case study employs a number of compositional tools that have been developed within later works. The current study thus presents *Abîme des Oiseaux* as a catalyst for the development of birdsong techniques: an early work that can be compared with the evolution of Messiaen's birdsong style across his oeuvre. This earlier work, however, upholds a much stronger philosophical narrative through the composer's use of programme notes, and therefore employs birdsong more 'metaphorically'. Having considered numerous compositional approaches, techniques and interpretations throughout this thesis, the current chapter has provided a summary of the explorations that the study has made. To bring this thesis to a close, investigations will now move to conclude the hypotheses that have been made throughout. In combining physical compositional techniques with the fundamental philosophy of the investigation, I will draw together new frameworks for the performance, interpretation and appreciation of Messiaen's birdsong works that can be applied to any number of compositional platforms for future performers and listeners.

Chapter 8: Discoveries, Implications and Progression for the Future.

Summary of Findings

This research project began with a fairly broad research area: the performance of Olivier Messiaen's birdsong works. While there is a wealth of existing research surrounding music performance, and even some performance guides for Messiaen's work, there is a distinct lack of synthesis between performance and analysis when concerned with the incorporation of natural phenomena (birdsong). The research therefore incorporated the philosophy of Gilles Deleuze in order to form an original approach to the performance of natural phenomena. This project does not intend to provide a finite set of options for the performance of such works, but instead compares score-based analytical findings with the instinctive experiences of performers and listeners to produce a wealth of *possibilities* that can be drawn upon during future performance and study of Messiaen's work. The study initially set out to answer the following questions:

1. In what ways are natural sound sources manipulated when employed in a musical work?
2. To what extent can performers overcome the 'limiting forces' of notation to communicate a 'natural' narrative as well as the technical format of a work?
3. How can new performance approaches unlock greater interpretative flexibility in a work with 'natural' origins (such as birdsong)?

Each of these questions has been addressed in relation to a number of topics, considering both micro and macro aspects of Messiaen's compositional style. Each chapter has included secondary analysis of a specific element of Messiaen's scores, whether that be his 'compositional language', his experience of synaesthesia or the development of his three-note motif. These topics have been considered with relation to the transformation of birdsong into notation, exploring the amount of 'information' that has been lost or changed during the transcription process. It is through this that the investigation gained its philosophical approach. The secondary analysis of scores resulted in hypotheses surrounding the 'territorial' placement of notation, with the compositional process resulting in territories that

sit in opposition with the original territory of the birdsong. Progressing from secondary analysis to primary research methods, this study uncovered possibilities for the creation of territories more closely related to the birdsong itself, formed by the manipulation of notational qualities to instead represent the sonic (or visual in certain cases) qualities of the natural phenomena. Through experimentation with a number of performers and listeners of Messiaen's work, the study has presented a variety of frameworks through which one might approach a performance of these works, suggesting that the cyclicity and continuity of cyclic absolute deterritorialization is in fact possible. As throughout, a full 360° rotation and return to the original birdsong is never implied, instead suggesting possibilities that move beyond the finite notational system to stimulate interpretative flexibility that may increase audience perception of birdsong overall.

Contribution to the Field

The findings of this study have provided new frameworks and possibilities for the performance of Messiaen's birdsong works in relation to a number of musical parameters. While this in itself contributes to the field of performance, this project has adopted a philosophical approach that increases the specificity of the results. Deleuzian theory has pertained throughout the current study, combining with elements of information theory and Kristevan philosophy. There have of course been references to additional philosophers such as Lacan, Spinoza and Goethe, but the investigation has prioritised Deleuze and Kristeva. This project has therefore contributed for the most part to the fields of performance and philosophy, with clear additional ramifications for analytical knowledge of Messiaen's compositional style.

Analysis – Fresh insights into Messiaen's oeuvre

The current study has applied different analytical methodologies, acting as a catalyst for new approaches to performance. The analytical methodologies employed throughout are not innovative to this project, drawing on existing frameworks such as those by Hauer (1919), Forte (1973) and Smith (2021). These existing frameworks, however, do not prevent this study from contributing to the field of analysis. Rather than creating new frameworks, this project has contributed to analytical knowledge of Messiaen's work specifically, building on

existing literature with the potential to expand current understanding of the composer's compositional process, as well as his end products. The analytical content of this thesis therefore contributes most strongly in applications to the fields of philosophy and performance, serving as a catalyst for change in the approaches to Messiaen's work post-analysis, rather than in the analysis itself.

Philosophy – New Frameworks, Syntheses and Applications

The present research project has explored Messiaen's works using a Deleuzian framework. While some theories such as smooth and striated time (Deleuze & Guattari, 1980) accord well with the current project, multiple philosophical theories have been adapted and developed to more closely resonate with the aims of the investigation. Focusing most closely on deterritorialization, a number of new approaches have been unlocked that can be applied more precisely to future music-theoretical research.

The ultimate aim of the project relates to **cyclic absolute deterritorialization** (explored in all chapters), an expansion of the continuous process as defined by Deleuze. The philosopher defines deterritorialization as an object becoming “detached from its native context and rendered artificial” (Bogue, 1999), emphasising that this should be a process that occurs continuously without landing at a finite sense of reterritorialization. With continuity emphasised through the term ‘absolute deterritorialization’, the value and application of this hypothesis has been developed throughout the current study. While Deleuze discusses the process of deterritorialization within the confines of a ‘circle of control’, the flexibility and continuity of his theory indicates that direction is not a component of the process, with deterritorialization being enabled in any form and any direction. This project has therefore contributed to the possibilities of Deleuzian exploration by exploring the ‘circle of control’ in relation to the ‘circle’ that it implies. Deterritorialization is concerned with the formation of interpretative territories, which in relation to Messiaen is concerned with the communication of birdsong through performance. Interpretative territories therefore transport music away from the notated score towards the predetermined ideal of the birdsong inspiration. One may suggest that the use of a ‘closed loop’ would limit the number of territories that could be created and, therefore, reduce the continuity of the process. This investigation has proven, however, that cyclic absolute deterritorialization can be just as continuous as the undefined

process, with infinite possibilities for the creation of territories between the notated score and the birdsong sound source. As a new framework within the Deleuzian field, cyclic absolute deterritorialization plays hand in hand with the performance frameworks summarised below, to unlock new territories related specifically to Messiaen's birdsong works. The framework has the potential to be applied to any music, however, with particular ramifications for programmatic repertoire. Cyclic absolute deterritorialization can be employed to expand the possibilities of any performance framework, providing a predetermined destination that a performer can attempt to emulate for the benefit of audience interpretation.

Additional theories have, throughout this thesis, been developed from their initial format with focus on individual aspects of Messiaen's work. In relation to musical language, the synthesis between Deleuzian (1980) and Kristevan (1984) philosophies was paramount. While maintaining Deleuzian theory was crucial to the principal trajectory of the research, Kristeva added a specifically linguistic tone that resonated between Messiaen's *musical* language and traditional concepts of poetic linguistics. Kristeva's 'genotext' and 'phenotext' depict the structure and communication of a language respectively, but this applies to any language, not just to the processes of music composition and performance. The current study paired these concepts with components of Deleuzian milieus (1980), allowing Kristevan linguistics to be applied to the overarching aim for cyclic absolute deterritorialization. Two frameworks have been developed from this synthesis: **Genotextual Interior Milieu (GIM)** and **Phenotextual Annexed Milieu (PAM)** (chapter 1). Where the GIM constitutes a single act of deterritorialization-reterritorialization in the static structuring of a musical language, it is the progression and development from the GIM to the PAM that contributes to the field of music analysis and performance. The PAM provides the potential to expand a composition from its notational format to the ex-post-facto interpretative territories of performers and listeners. The Deleuzian-Kristevan synthesis is particularly pertinent to the current study due to Messiaen's explicit discussions of his 'musical language'. While the same level of linguistic clarity may not apply to all music, the synthesised framework produced can be related to a more generalised sense of musical construction, allowing for in-depth consideration of performance approaches that are dependent on the formation and subsequent communication of a musical product.

Deleuzian theory is vast, and while deterritorialization pertains throughout, there are a number of the philosopher's theories that have resonated with more detailed elements of the

current research. *Difference and Repetition* (Deleuze, 1968) pre-dates theories of deterritorialization, but nevertheless supplements the concept when applied throughout this thesis. Once again, however, the theory has been developed beyond its Deleuzian roots to establish frameworks that relate more closely to the current Messiaenic research: frameworks that could resonate with future musicological research. This project has firstly adjusted the terminology surrounding difference and repetition to suit the musicological context, proposing the concepts of **differential potential** and **differential repetition** (chapter 2). Both of these align directly with the initial Deleuzian theory, but provide a distinct clarity that can be applied to the field for future research. Differential potential aligns closely with the fundamental theory of difference, implying a level of virtual potential for variation between two comparable products. While one might question why we should alter the term without altering its meaning, the developed terminology allows for distinction between difference that has already occurred (variation between notation systems for example), and the *potential* for difference to be formed during performance. Differential repetition similarly depicts a wholistic view of the Deleuzian theory, combining difference with repetition to indicate a single act of interpretation. The amalgamated term demonstrates maintained internal similarity (repetition), while allowing for the individualised differential potential of performance. The alteration of this term provides a framework through which Deleuze's earlier theories can be linked to cyclic absolute deterritorialization, combining the acts of composition and performance into a single continuous process.

While the current project has employed *Difference and Repetition* in its own right, the investigation has also provided yet another synthesis to increase the efficiency of multiple theoretical frameworks. Information theory (Shannon, 1949) has been employed as a second major component of this study's philosophical approach, with entropy depicting the level of 'noise' that is added to Messiaen's original birdsong inspiration during its conversion to musical notation. When synthesised with Deleuzian theory, this project proposed the concept of **differential entropy** (chapter 2-3). Entropy in its original form implies undefined 'noise', which may denote a change of information related to loss or addition or both. There is somewhat of a negative connotation with the 'disorder' that is caused by entropy, however, with any change constituting loss from the original information source. Differential entropy therefore attempts to reduce the negative connotation of the term, providing an interpretation that promotes information *change* as opposed to loss. The reader will by now recognise that difference refers to the potential for variation in an object that maintains similarities with a

comparable source. Differential entropy therefore implies ‘disorder’ in a defined direction, with the entropic process constituting the controlled manipulation of the original information source. This is yet another framework that gains potential significance for future musicological research, adding once again to the ‘closed loop’ of cyclic absolute deterritorialization on a more individualised basis.

This project formed a final synthesis between philosophers, remaining with the crossover between Deleuze and Shannon’s information theory (1949). While the above differential entropy aids the deterritorialization process on an individual or internal level, the two philosophies have been synthesised more directly for exploration on a macro level. **Entropic deterritorialization** (chapter 3) has been proposed as an undesirable process (undesirable to this project but with intriguing ramifications for future research) that reduces the cyclicity of the fundamental aim. Entropic deterritorialization constitutes a state of deterritorialization that moves in a direction away from the original sound source, thus implying an undesirable loss of birdsong qualities in the current investigation. While undesirable here, the framework could be employed in future research to emphasise a desire for loss. While this may appear immediately negative, the framework resonates with explorations of improvised music, for example, or of modernist music that is not confined to the limits of notation systems. This could be purely aural electronic music with no score, or a score that has been left open to the interpretation of the performer. In these circumstances one might aim for the loss of notational confines, with the performer being granted the freedom of infinite deterritorializing directions that can be promoted through considerations of entropic deterritorialization.

These are not the only philosophies to have been employed throughout this thesis. Those explored here, however, contribute most strongly to the field of musicological research. Spanning beyond combined approaches to performance and analysis, the frameworks created expand the scope of music-theoretical research when considering the conception, communication or consumption of a musical work. With the potential for contributions across a number of research fields, these philosophical approaches have acted as catalysts for the performance research that has been the ultimate goal of the current project.

Performance – Unlocking new approaches and new possibilities for consumption

The present investigation has explored Messiaen's birdsong works using both micro and macro approaches in order to unlock as many new possibilities for performance. All of these approaches contribute to the field of performance in providing new considerations for performers: new methods through which they can communicate Messiaen's work to their audiences. It is important to maintain, however, that these are new *possibilities*. This thesis does not inform performers as to how they should conduct themselves during a performance of Messiaen's work, but rather establishes new frameworks through which they might interpret Messiaen's scores. Through this performers are able to add nuanced inflections to a performance that encourage increased stylistic, narrative and emotional potential related to the ultimate cyclic absolute deterritorialization of birdsong.

Rhythm is primarily a fixed theoretical component when notated, in the sense that a notated semiquaver is half the length of a quaver, and so on. This thesis has explored the conception of rhythm rather than its end product, considering the narrative meaning and interpretative flexibility behind Messiaen's rhythmic techniques and therefore altering their use in performance. This research has contributed a proposal regarding the purpose of rhythm with relation to **unmetricity** and **demetricalisation** (chapter 1). With the former indicating a rhythm taken directly from birdsong that naturally lacks traditional metricity, the latter demonstrates a rhythm that has been deliberately manipulated during composition to suit the technical context of the piece. Neither of these considerations would impact the technical construction of a notated rhythm, nor would the overall length of notes change during performance. These considerations do, however, change the overall approach of the performer regarding the accentuation, phrasing, tempo and overall communication of a rhythm. Where a demetricalised rhythm may be approached in a 'technical' way to fully match its notated format, interpretations of unmetrical rhythms present the performer with 'creative freedom' to satisfy Messiaen's score but ultimately follow their stylistic instincts based on the overarching birdsong narrative. Of course, these approaches are applicable to any musical work, with rhythmic notation being interpreted in a variety of ways depending on the original method of its conception.

Rhythm has been at the heart of a number of explorations throughout this project, and its flexibility has resonated strongly with the formation of innovative performance approaches.

When considering Deleuze's **smooth and striated time** (1980), rhythm was considered a catalyst for flexibility: the 'diagonal' that cuts across the 'fixed weave' of notation systems (chapter 6). While smooth and striated time was a philosophical rather than a performance based parameter for the current research, it particularly resonated with spatial-temporal considerations. Many of Messiaen's birdsong works were composed in a specific setting or period of time, and the same will hold true for future research of a wide expanse of repertoire. Various applications have been explored in relation to 'realistic space-time', but my explorations of **Hindu deçitalas** provide a particularly in-depth contribution to performance research. As a rhythmic technique, Hindu deçitalas uphold the interpretative flexibility of smooth time in contrast to the fixed notated state of the corresponding harmony and melody. Where performance approaches to the deçitalas differ from other rhythmic techniques, however, is in the Hindu rhythms' pre-existing cultural status within a broad range of music. Deleuze suggests that Hindu deçitalas possess a cultural territory and that it is through this territory that they become deterritorialized through performance. In Messiaen's case, however, his use of Hindu deçitalas is tied to a portrayal of realistic space-time, therefore contradicting the pre-existing territory from which the rhythms were taken. A flexibility of rhythm during performance therefore takes attention away from the cultural territory of the deçitalas, allowing them to be continually deterritorialized in relation to their specific narrative placement. Considerations of rhythm with relation to smooth and striated time create potential for performers to expand their approaches beyond cultural or notated tropes, to instead explore the flexibility of the technique in relation to the communication of a narrative ideal. As with all of the proposed contributions to the performance field, there is not a set 'path' through which rhythm can be interpreted, instead unlocking infinite possibilities through which one can combine performance with the deterritorializing philosophical approaches outlined earlier.

As one of many components that are involved in performance, rhythm is considered a micro exploration in the current study. This project has contributed additional possibilities with relation to micro compositional elements, particularly considering the **leitmotif** (chapter 2). The leitmotif is a well established compositional technique that impacts a number of musical genres and settings. The current research, however, has explored performance approaches related to the leitmotif when spread across multiple musical works that will not necessarily be performed in conjunction with each other. Explorations of motivic development have established frameworks for performing these leitmotivic consistencies, promoting

recognisability in the melodic line even for listeners who are unfamiliar with the entirety of Messiaen's oeuvre. Throughout the current project, the leitmotif has been explored with relation to Sander van Maas' (2013) study of 'denatured nature', primarily investigating instances of 'alter-nature' (manipulation of nature for ease of human consumption), 'hyper-nature' (exaggeration of nature for musical emphasis) and 'subnature' (negation of nature to suit a narrative). Each of these processes promote the development of a leitmotif, and thus when highlighted during performance, can emphasise the leitmotif across Messiaen's oeuvre. This can in turn promote recognition for those listeners familiar with Messiaen's work, while also highlighting the overall importance of the motive for unfamiliar listeners. Again this is a possibility for performance, not a fixed approach. While performers might choose to emphasise all leitmotivic elements of the 'denatured nature' in the same way to maintain consistency, others could provide individual approaches to the alter-natural, hyper-natural and subnatural iterations of the motive, highlighting the way in which they have been manipulated rather than emphasising their original natural state. This approach is admittedly not as broad in its impact on musicological research, with implications mainly affecting compositions with a natural sound source or basis to their narrative (clear examples may be Prokofiev's *Peter and the Wolf* (1936), or Grieg's *Peer Gynt Suite* (1875)). There could, however, be ramifications for larger-scale works, in which a single theme develops leitmotivically across a number of movements or across a suite of works.

Considering a performer's interpretation of notation specifically, the current study has contributed a number of performance possibilities relating to notation as a **totality**. Messiaen prefers a 'total' approach to many compositional areas, with this research having covered interpretations of 'total serialism' (chapter 1) and of the 'total' harmonic approach of spectral technique (chapter 5). Whether combining all musical parameters (pitch, rhythm, intensity and attack) or expanding the 'sonic spectrum' of one component (harmony), the concept of a totality allows performers to think more broadly about their approach to the repertoire. When exploring total serialism, this project focused on 'unification', considering pitch and rhythm-based tone rows, their combination with a birdsong-based flute part, and their relation to earlier aspects of the musical work. Considerations such as these may appear purely analytical, but have strong post-analysis impacts on performance practice. Where the tone rows of total serialism appear to create a cacophony of sound, their meticulous organisation increases the flexibility of performance approaches by providing a number of different focal points for the performer. The harmonic totality of spectralism similarly expands performance

possibilities by providing a new way to consider harmonic writing. Where one may instinctively read a chord on a score and attempt to find a tonic emphasis, exploration of the harmonic series provides a number of different ways from which a set of pitches can be emphasised. Whether that be highlighting the overtones that are most closely related to the fundamental pitch, or accentuating the interval relation between each of the given overtones, the use of a spectral totality once again expands the possibilities through which a piece could be interpreted during performance. Of course, both of these aspects of a totality are applicable to any music that is composed in this way. While perhaps not as applicable to all repertoire as some of the other frameworks discussed, the concept of a totality nevertheless contributes to the overall field of performance by expanding possible points of emphasis within a performance approach.

Possibly the most innovative performance approach to have been developed through this study relates to synaesthetic experience and the possibility of its communication to any audience (chapter 4). The current project has formulated five perceptions of synaesthesia that consider the experiences of composer, performer and listener, establishing frameworks for interpretation by both synaesthetes and non-synaesthetes. These frameworks have been labelled: (1) **composer's chromesthesia** (explicit coloured hearing by composer), (2) **full chromesthesia** (explicit coloured hearing by performer/listener), (3) **inspired chromesthesia** (interpretations of composer's chromesthesia taken by non-synaesthetic performers), (4) **manufactured synaesthesia** (coloured experiences in non-synaesthetic listeners caused by inspired chromesthesia), (5) **projected chromesthesia** ('forced' coloured hearing: a performance with light show or other explicit light form). None of these possibilities are directly linked to the musical content of a score, and so could be applied to the performance of any musical work, or indeed any synaesthetic experience combining two or more senses. In relation to Messiaen, as an explicitly synaesthetic composer, each of these parameters require a preliminary score-based analysis in order to uncover the composer's own proposed incorporation of colour to his works. This thesis has provided this preliminary score analysis with relation to a number of works, and provides the means for this to be conducted in relation to Messiaen's remaining oeuvre as part of future research. With the exception of projected chromesthesia, which provides a slightly more explicit visualisation of the theory, all of these new possibilities are hypothetical, and can be applied in an infinite number of ways as determined by individual performers or listeners. The frameworks therefore provide parameters to both perceive and apply synaesthetic visions, transforming an experience that

traditionally only affects four percent of the global population, into an experience that can resonate with everybody, whether explicitly or in their overall interpretation of a musical experience.

Limitations

As is the nature of any time-limited research project, there were certain aspects of the research that were impacted by circumstances beyond my control. Of course, the specific time period in which this project has taken place (September 2019-December 2022) must also be taken into account. All limitations of the current study, however, could easily be overcome or avoided in future investigations.

Covid-19

The timeframe of this study was not ideal, with the world shutting down six months into the project and not reopening fully until the third year. As a result of this, there were clear implications on the methodology used for most primary research, which could in turn leave room for further study in the future. I consider myself lucky that two of the major components of my data collections were conducted at either end of the pandemic. I was able to visit Messiaen's transcription archives at the Bibliothèque Nationale de France in February 2020, and following two years of secondary research and planning, was able to host a synaesthesia-based concert in April 2022. All primary research involving performers, however, was conducted from October 2020 to March 2021, meaning that in-person data collection was not possible.

As is the introduction to this thesis, all of the qualitative methodology throughout this thesis took place on zoom, using a semi-structured interview technique to discuss various aspects of Messiaen's compositions with a set of 10 performers. Had in-person experimentation been possible, I would have experimented with performers, working across a day in workshop sessions to perform aspects of Messiaen's work using a variety of performance approaches. This would have provided sound files and detailed explanations of exactly how each of the proposed performance possibilities could be conducted on a variety of instruments, within the context of a number of Messiaen's compositions. This workshop-based experimentation is

therefore a possibility for future research, producing less hypothetical conclusions that are backed by sound recordings and rely less on verbal description and interpretation.

I am grateful that the research project was able to continue under the initial timeframe throughout the pandemic, but there have been limitations nonetheless that have impacted the type of data that was collected.

Transcription Notebook Availability

I was lucky enough to travel to Paris and visit the archives of Messiaen's transcription notebooks in February 2020. This greatly expanded my understanding of Messiaen's incorporation of birdsong, and led me to draw my own conclusions concerning the composer's experience of birds that stretched beyond the hypotheses of existing literature. The availability of these notebooks, however, somewhat limited the ways in which they could be discussed throughout the research project.

Messiaen's transcription notebooks are currently only available by appointment at the Bibliothèque Nationale de France, where they can be viewed either on the department computers (only certain notebooks have been digitised), or using a microfilm projector. Comments and written notes can be made regarding the notebooks, but no imagery or copies can be taken. Copyright laws are not likely to change in the near future, and this is not necessarily a limitation that could be overcome. While written descriptions of the notebooks have not necessarily reduced the quality of the current project, there are certain elements concerning the larger orchestral works (*Réveil des Oiseaux* (1958) and *Des Canyons aux Étoiles* (1974)) that may have developed increased clarity through the incorporation of notebook imagery.

Again, the quality of research has not necessarily been reduced by these copyrighted archives, but their availability may have limited the flexibility of the overall portrayal of points within certain areas of the thesis. As stated, this is not necessarily something that can be overcome directly, but is worth considering in relation to the research approach of future projects.

Implications for Future Performances

The present research has ultimately concluded that in relation to Messiaen's birdsong works, cyclic absolute deterritorialization is possible. I could never hope (nor want) to achieve a full 360° rotation that returns to the original birdsong territory. This study, however, has developed methods through which both performers and listeners can deterritorialize beyond Messiaen's notation to recognise the natural inspiration behind the work.

The developed frameworks have the potential to impact the field of music performance, with performers being provided with new approaches for the preparation and final communication of a performance. Each chapter has focused on a single aspect of Messiaen's birdsong writing and has attempted to alter the way in which performers might consider the notation that they are presented with. The project has not aimed to change the 'rules' for performers, nor has it suggested that there is only one 'correct' performance method related to a birdsong work. It has instead provided performers with new information regarding the repertoire in order to give them 'food for thought' in their overall approaches. Even before the conclusion of this project, I have already experienced the implications that the research has had on performers. When hosting my synaesthetic concert in April 2022, I collaborated with two performers. At the event, I provided the audience with a verbal introduction to each piece, discussing how the bird character has been used in the piece and why it was relevant to the overall purpose of the composition. Both performers thanked me post-concert, for 'teaching them something new about the piece they were playing'. They both were slightly shocked at the immediate impact that my verbal introductions had on their interpretation of the piece, and commented on the level of thought that they were going to put into their preparations upon next performing the repertoire.

Six topics have been explored throughout the investigation: (1) **musical language**, (2) **the leitmotif**, (3) **human influence on the 'machine'**, (4) **synaesthesia**, (5) **spectralism** and (6) **realistic space-time**. Each of these has implications for future performances, with varying degrees of relevance to repertoire outside of those explored in the current project.

In considering Messiaen's compositional style as a 'musical language', performers can alter considerations of phrasing, rhythm or pitch structure and the overall projection of the

instrument. By aligning the given notation with the construction of a written sentence, performers may for example consider pitch not as pitch at all, but instead as the natural fluctuations of a spoken sentence. The leitmotif similarly provides new possibilities from which to approach smaller aspects of a musical phrase. Where Messiaen's three-note motif may instinctively appear to be a simple set of three notes, an acknowledgement of its use throughout the composer's oeuvre will undoubtedly alter the emphasis that is given to the phrase in performance. Given that Messiaen's use of the motif spreads across works with varying combinations of instruments, it is likely that performers will not be aware of its presence in works that they would not perform themselves. While the implications of synaesthesia and spectralism have been discussed in depth above, the concept of realistic space-time resonates in a similar way to the concepts of language and the leitmotif. Despite Messiaen's detailed programme notes in a number of cases, it is unlikely that performers will take the time to be aware of the 'realistic' setting of a piece prior to performance. The frameworks discussed here therefore provide them with these possibilities, allowing a sense of consistency across multiple motivic areas and promoting considerations of phrasing and 'sentence structure' in relation to a proposed 'image'.

Given the continuous nature of cyclic absolute deterritorialization, the precise implications of the current research cannot necessarily be determined. There are a multitude of possible implications to be taken from this project, however, with performers being given the means to expand the flexibility of their understanding not only of Messiaen, but of all approaches to performance practice.

Areas for Future Research

This research project has taken a three-fold approach, analysing musical scores and applying this analysis through a philosophical lens to consider its impact on performance practice. Of course, given the three-fold approach and the time-limited status of the current project, each of these parameters could be developed through future research. This project has also focused on a small number of Messiaen's compositions, in order to develop contributions to each of the fields outlined when related specifically to birdsong. There are therefore a number of parameters that could be developed in future projects, to strengthen the impact of the research on an even wider range of fields.

Messiaen

The current research has included analyses of five of Messiaen's works, spanning the era from 1941 to 1974. While this in itself incorporates a significant portion of Messiaen's career, his compositional oeuvre is much more vast than that explored here, both related to birdsong and other compositional styles.

Future research might firstly expand directly on the models explored in the current research, to cover a wider range of birdsong works. With the exception of *Le Merle Noir* (1952) and *Réveil des Oiseaux* (1958), this project has employed case studies that are single movements of much larger works. It would therefore be influential to apply the theories developed here to the remainder of these larger scale works: *Quatour pour la fin du temps* (1941), *Catalogue d'Oiseaux* (1953) and *Des Canyons aux Étoiles* (1974).

Each of these works warrant their own research projects, with multiple directions in which the present theories could be developed to suit the scale of these works. Chapter 4 explored the synaesthetic applications of *Les Orioles* (1974). The synaesthetic theory that was explored is innovative and wide-ranging, and would warrant analysis in relation to the remainder of *Des Canyons aux Étoiles* (1974). While the second movement explored here draws most closely on birdsong, the idea of coloured hearing would be just as relevant (if not more so), to some of Messiaen's other movements. Given Messiaen's work in Utah in preparation for this composition, the landscapes of Bryce Canyon and its surrounding area are of utmost importance to the musical narrative. The natural colouring of these landscapes could therefore promote further development of synaesthetic theory, with investigations around the impact of synaesthesia on performance when concerned with alternative natural landscapes (other than bird).

Throughout chapter 6, *Le Merle Bleu* (1953) played an important role in the investigation of 'realistic space-time' thanks to the in-depth programme notes provided by Messiaen. Each movement of *Catalogue d'Oiseaux* (1953) has a similar focus on place, with the bird character being employed to portray the landscape or 'territory' in which the species are most commonly found. Chapter 6 uncovered the efficient methods through which Messiaen has conveyed this territory, with explicitly labelled motives developing in a leitmotivic style to

depict each component of the landscape. Further research is needed to consider these applications in the remaining movements, considering the efficiency with which ‘realistic space’ is communicated throughout the rest of the work.

Beyond the works that have been employed in the current project, Messiaen has of course incorporated birdsong into a number of other works such as *Oiseaux Exotiques* (1956), *Chronochromie* (1960) and *Sept Haïkai* (1966). Future research could apply the theories of this project directly to this expanded repertoire, with frameworks beginning to develop based on the less explicit incorporation of birdsong into some of the later works. This then of course unlocks the possibility to explore the same theories in relation to Messiaen’s non-birdsong works, particularly those of a spiritual nature (*L’Ascension* (1935), *Visions de l’Amen* (1943) for example). One could approach these works with a completely open mind, without an idea as to how the discovered theories could apply to a different musical setting. One would imagine that theories related to space and time (chapter 6), and spectralism (chapter 5) may be particularly applicable, but research of this type could offer countless opportunities for development of the current project.

Philosophy and Performance

The above possibilities for future research are concerned with development in relation to Messiaen’s oeuvre, and this stems most strongly from the analytical insights of the current project. One must not overlook opportunities that arise from the philosophical and performance aspects of this research. The present study has contributed a lot to the fields of philosophy and performance, but there is ongoing room for expansion of these theories.

While a number of philosophers have been referenced and examined throughout the current research, all proposed frameworks ultimately lead back to Deleuze. Deleuze’s work is not primarily centred around music, but this thesis has developed the frameworks for the philosophy to be applied in such a way. The new philosophical applications that have been identified therefore warrant exploration not only in relation to other musical works, but also in relation to other fields entirely. These fields could be chosen based on Deleuze’s original reading of deterritorialization (which incorporates a number of analogies), but the aim of the current study has ultimately been to develop frameworks that can be applied to anything that involves deterritorializing processes such as addition, loss, change or manipulation.

Considering first the ultimate aim of this thesis (cyclic absolute deterritorialization), one could propose future research relating to ‘evolution’, ‘becoming’ or ‘return’: projects that explore the possibility to hold on to the cultural, sociological, political or territorial origins of a specific object. Just as birdsong has been the ‘object’ of the current study, cyclic absolute deterritorialization could apply to the evolution of a musical instrument across centuries; the evolution of a species; or the return to a bygone political system. Cyclic absolute deterritorialization invites research into anything that has been changed or manipulated, and that one could strive to return to through the development of a new system. Musically, the theory may apply to any work. Of course, the cyclicity involved could resonate more strongly with works of a programmatic basis, with a narrative drawing the performer towards the deterritorializing process in the same way as the current study. One could, however, also apply the hypothesis to explorations of historic performance practice, considering the ways in which a modern or edited score can be interpreted by a performer to more closely resemble the circumstances in which it was originally composed.

Additional possibilities arise from each of the theories outlined relating to both philosophy and performance. One set of theories, however, unlocks the most inspiration for future research: the theory of synaesthetic experiences. The expansion of synaesthetic theory to the remaining movements of *Des Canyons aux Étoiles* (1974) was referenced above, but how could these ideas resonate with other musical repertoire? Primarily, there are a number of composers—such as Scriabin and Ligeti—and artists such as Pharrell Williams and Tori Amos, who have experienced full synaesthesia (not necessarily chromesthesia). Explorations could therefore be taken into a number of classical and popular works in relation to synaesthetic experience. Research into projected chromesthesia may have been conducted in some aspects already, with light shows becoming a more prominent feature of select classical concerts. The relation between composer’s chromesthesia, inspired chromesthesia and manufactured synaesthesia, however, is innovative to the current project, and so would warrant detailed further research. Projects might include considerations around the strength of composer’s chromesthesia depending on the composer or artist’s own experience, or may investigate how these experiences can be communicated by a performer through a variety of musical settings.

As explored, there are a number of directions that the current research could be taken in the future, expanding on the analytical, philosophical and performance-based findings of the

current study. There are a number of different topics and theories that have been developed in the present research, with this being their first exploration in academic literature. Each of these theories will therefore require further research in order to ‘solidify’ their place in philosophical and musicological theory.

A Final Overview

This research project has taken a three-fold approach to musicological research, combining philosophical, analytical and performance-based methodologies. Where the analytical content has expanded on existing knowledge of Messiaen himself, the applications of this to philosophical frameworks has created an innovative approach to performance practice. With the help of Deleuze, the development of cyclic absolute deterritorialization has emphasised the importance of continuity, of breaking away from the limitations of a notation system to unlock new possibilities. The incorporation of birdsong into many of Messiaen’s works is a catalyst for this continuity, allowing performers to draw on the original inspiration for the work, more so than the technical parameters of written notation. Through the frameworks identified throughout this study, performers can ‘satisfy’ Messiaen’s notation, maintaining the musical content of the work while adding unlimited stylistic context. The alterations to a single performance may appear small, but the impact on the audience is revolutionary in their overall perception. While there is still a long way to go in developing this project into future research, we can conclude that cyclic absolute deterritorialization is possible, and that birdsong can be successfully communicated through the means of a human performer.

Bibliography

- Adkins, B., 2015. 1440: The Smooth and the Striated. In: *Deleuze and Guattari's A Thousand Plateaus: A Critical Introduction and Guide*. Edinburgh: Edinburgh University Press.
- Anderson, J., 2000. A provisional history of spectral music. *Contemporary Music Review*, 19(2), pp. 7-22.
- Barthes, R., 1967. The Death of the Author. *Image, Music, Text*, Fontana Press.
- Berger, A., 2002. The Octatonic Scale. In: *Reflections of an American Composer*. California: University of California Press.
- Bernard, J., 1986. Messiaen's Synaesthesia: The Correspondence between Colour and Sound Structure in his Music. *Music Perception*, 4(1).
- Berry, W., 1989. *Musical Structure and Performance*. New Haven: Yale University.
- Bogue, R., 2003. Minority, Territory and Music. In: J. Khalfa: *An Introduction to the Philosophy of Gilles Deleuze*. London: Continuum.
- Bribitzer-Stull, M., 2006. The Cadenza as Parenthesis: An Analytic Approach. *Journal of Music Theory*, 50(2).
- Bribitzer-Stull, M., 2015. The Leitmotif Problem. In: *Understanding the Leitmotif: From Wagner to Hollywood Film Music*. Cambridge: Cambridge University Press.
- Bruhn, S., 2007. *Messiaen's Contemplations of Covenant and Incarnation*. Hillsdale: Pendragon Press.
- Chadwick, R. & Hill, P., 2017. Chapter 5: The Second Wave of Composition. In: *Olivier Messiaen's Catalogue d'Oiseaux: From Conception to Performance*. Cambridge: Cambridge University Press.
- Chadwick, R. & Hill, P., 2018. Le Merle Bleu. In: *Olivier Messiaen's Catalogue d'Oiseaux: From Conception to Performance*. Cambridge: Cambridge University Press.
- Chiat, L. F., 2005. *Olivier Messiaen's Catalogue d'Oiseaux: A Performer's Perspective*, Sheffield: University of Sheffield.
- Chomsky, N., 2016. What is Language?. In: *What Kind of Creatures are we?*. New York: Columbia University Press, pp. 1-26.
- Clarke, E., 2002. Understanding the Psychology of Performance, *Musical Performance: A Guide to Understanding*, Cambridge: Cambridge University Press.
- Cohen, J., 1962. Information Theory and Music. *Behavioural Science*, 7(2).

- Collins Dictionary, 2020. *Definition of 'xylorimba'*. [Online]
Available at: <https://www.collinsdictionary.com/dictionary/english/xylorimba>
[Accessed 20 February 2020].
- Cone, E.T., 1968. *Musical Form and Musical Performance*, New York: Norton.
- Cook, N., 1999. *Analysing Performance and Performing Analysis*. In: *Rethinking Music*.
Oxford: Oxford University Press.
- Cook, N., 2013. *Beyond the Score: Music as Performance*, Oxford: Oxford University Press.
- Costa, M., Bitti, P. E. R. & Bonfiglioli, L., 2000. Psychological Connotations of Harmonic Musical Intervals. *Psychology of Music*, Volume 28.
- Crain, C., 2013. *What is a Territory?*. [Online]
Available at: <https://www.themantle.com/philosophy/what-territory>
[Accessed 17 January 2022].
- Curwen, C., 2018. Music-Colour Synaesthesia: Concept, Context and Qualia. *Consciousness and Cognition*, Volume 61, Sheffield: University of Sheffield.
- Deleuze, G., 1968. *Difference and Repetition*. Paris: Presses Universitaires de France.
- Deleuze, G., 1968. *Difference in Itself*. In: *Difference and Repetition*. Paris: Presses Universitaires de France.
- Deleuze, G., 1970. Chapter Two: on the Difference between the Ethics and a Morality. In: *Spinoza, Practical Philosophy*. France: Presses Universitaires de France, pp. 17-29.
- Deleuze, G. & Guattari, F., 1980. Chapter 14: The Smooth and the Striated. In: *A Thousand Plateaus*. Paris: Les Éditions de Minuit.
- Deleuze, G. & Guattari, F., 1980. Chapter 11: Of the Refrain. In: *A Thousand Plateaus*. Paris: Les Editions de Minuit.
- Deleuze, G. & Guattari, F., 1987. Notes on the Translation and Acknowledgements. In: B. Massumi, ed. *A Thousand Plateaus*. Minneapolis: University of Minnesota Press.
- Demuth, N., 1960. Messiaen's Early Birds. *The Musical Times*, 101(1412).
- Doolittle, E., Gingras, B., Endres, D. & Fitch, W. T., 2014. Overtone-based pitch selection in Hermit Thrush Songs: Unexpected Convergence with scale construction in human music. *Proceedings of the National Academy of Sciences of the USA*, 111(46).
- Eagleman, D., 2015. *The Brain: The Story of You*. New York: Canongate Books.
- Eftestøl, T., 2018. *Goethe and Music*, Oslo: Norwegian Academy of Music.
- Fallon, R., 2009. Birds, Beasts and Bombs in Messiaen's Cold War Mass. *The Journal of Musicology*, 26(2).

- Fantasia*. 1940. [Film] Directed by James Algar, Samuel Armstrong, Forrd Beebe Jr. USA: Walt Disney Animation Studios.
- Floyd, M., 2010. *Birdsong*. Swindon:National Trust Books.
- Forte, A., 1973. Pitch-Class sets and Relations. In: *The Structure of Atonal Music*. Yale: Yale University Press.
- Forte, A., 2002. Olivier Messiaen as Serialist. *Music Analysis*, 21(1).
- Goethe, J. W. v., 1810. *Theory of Colours*. London:John Murray.
- Griffiths, P., 1985. Birdsong. In: *Olivier Messiaen and the Music of Time*. London: Faber and Faber.
- Grisé, T., 2012. *The Illusion of Chaos: The Compositional Structure of Olivier Messiaen's Le Merle Noir*, Harrisonburg, Virginia: James Madison University.
- Grisey, G., 1987. Tempus ex Machina: A Composer's Reflection on Musical Time. *Contemporary Music Review*, Volume 2.
- Grosz, E., 2003. Deleuze, Theory and Space. *Log*, Volume 1.
- Guerrieri, M., 2016. *Messiaen: Finding Salvation in Birdsong*. [Online] Available at: <https://daily.redbullmusicacademy.com/2016/03/messiaen-finding-salvation-in-birdsong> [Accessed 25 January 2022].
- Harris, J. E., 2004. *Musique Colorée: Synaesthetic Correspondence in the works of Olivier Messiaen*, Iowa City: University of Iowa.
- Healey, G., 2004. Messiaen and the Concept of Personnages. *Tempo*, 58(230).
- Healy, K. et al. 2013. Metabolic rate and body size are linked with perception of temporal information, *Animal Behaviour*, 86, 685-696.
- Hellmer, J. & Lawn, R., 1993. *Jazz theory and practice*. California:Alfred Music.
- Hill, P., 1994. For The Birds. *Musical Times*, 135(1819), pp. 552-555.
- Hill, P. & Simeone, N., 2005. *Messiaen*. Connecticut:Yale University Press.
- Hold, T., 1971. Messiaen's Birds. *Music and Letters*, 52(2).
- Hurst, E., 2015. *Adventures in Time and Sound: Leitmotif and Repetition*, Ottawa, Ontario: Carleton University.
- Hutchinson, R., n.d.. *The Fully Diminished Seventh as Pivot Chord*. [Online] Available at: <http://musictheory.pugetsound.edu/mt21c/TheFullyDiminishedSeventhAsPivotChord.html> [Accessed 30 November 2020].

- Kalinak, K., 2010. *Film Music: A Very Short Introduction*. New York: Oxford University Press.
- Kim, P. S. I., 1989. *Olivier Messiaen's Catalogue d'Oiseaux for solo piano: A Phenomenological Analysis and Performance Guide*, New York: New York University.
- Klee, P., 1922. *Twittering Machine*. [Art].
- Klerk, D. d., 1979. Equal Temperament. *Acta Musicologica*, Volume 51.
- Knussen, O., 1976. Messiaen's 'Des Canyons Aux Etoiles'. *Tempo*, Volume 116.
- Kraft, D., 2000. *Birdsong in the music of Olivier Messiaen*, Middlesex: University of Middlesex.
- Kreinik, J. & Zucker, S., 2011. *Klee, Twittering Machine*, New York: SmartHistory.
- Kristeva, J., 1984. Chapter 12: Genotext & Phenotext. In: *Revolution in Poetic Language*. Cambridge: Cambridge University Press.
- Lacan, J., 1977. *The Four Fundamental Concepts of Psycho-Analysis*. New York: Norton.
- Lavignac, A. & Laurencie, L. d. l., 1913-1931. *Encyclopédie de la Musique et Dictionnaire du Conservatoire*. 1 ed. Paris: Delagrave.
- Lee, C. K., 2004. *The Evolution of Messiaen's Birdsong Writings: The Case of the Blackbird*, Hong Kong: The Chinese University of Hong Kong.
- Lester, J., 1995. Performance and Analysis: Interaction and Interpretation, *The Practice of Performance: Studies in Musical Interpretation*, Cambridge: Cambridge University Press.
- Lowe, W., 1944. The Song of the Thrush. *Letters to the Editor*.
- Maas, S. v., 2013. Messiaen, Deleuze and the Birds of Proclamation. In: *Speaking of Music: Addressing the Sonorous*. New York: Fordham University Press.
- McGarry, R., 1984. Equal Temperament, Overtones and the Ear. *Music Educators Journal*, 70(7).
- McQuinn, A., 2016. *Acoustic Creatures: Human and Animal Entanglements in Performance*, London: University of Roehampton.
- Messiaen, O., 1941. *Quatour pour la Fin du Temps*. Éditions Musicales ed. Paris: Éditions Durand.
- Messiaen, O., 1944. Chapter XVI: The Modes of Limited Transpositions. In: *The Technique of my Musical Language*. English Translation 1966 ed. Paris: Alphonse Leduc.
- Messiaen, O., 1944. *Technique de mon Langage Musicale*. Paris: Alphonse Leduc.
- Messiaen, O., 1949-1992. *Traité de rythme, de couleur et d'ornithologie: Tome V*. Paris: Alphonse Leduc Éditions Musicales.

- Messiaen, O., 1949-1992. *Traité de Rythme, de Couleur et d'Ornithologie: Tome VII*. Paris: Alphonse Léduc Editions Musicales.
- Messiaen, O., 1951. *Fonds Olivier Messiaen et Yvonne Loriod. Œuvres musicales d'Olivier Messiaen. Travaux préparatoires. Carnets de notation de chants d'oiseaux. 1951-1955. Oiseaux, notes de travail, 1951*. Paris: Bibliothèque Nationale de France, Département de Musique.
- Messiaen, O., 1952. *Fonds Olivier Messiaen et Yvonne Loriod. Œuvres musicales d'Olivier Messiaen. Travaux préparatoires. Carnets de notation de chants d'oiseaux. 1951-1955. Gardeépée, Charente, 1952*. Paris: Bibliothèque Nationale de France, Département de Musique.
- Messiaen, O., 1953. *Fonds Olivier Messiaen et Yvonne Loriod. Œuvres musicales d'Olivier Messiaen. Travaux préparatoires. Carnets de notation de chants d'oiseaux. 1951-1955. St-Germain-en-Laye, 1953*. Paris: Bibliothèque Nationale de France, Département de Musique.
- Messiaen, O., 1972. *Fonds Olivier Messiaen et Yvonne Loriod. Œuvres musicales d'Olivier Messiaen. Travaux préparatoires. Carnets de notation de chants d'oiseaux. 1970-1974. Utah (Bryce Canyon), April-May 1972*. Paris: Bibliothèque Nationale de France, Département de Musique.
- Messiaen, O., 1952. *Le Merle Noir*. [Art].
- Messiaen, O., 1953. *Réveil des Oiseaux*. [Art].
- Messiaen, O., 1958. *Le Merle Bleu (Programme Notes)*, s.l.: s.n.
- Messiaen, O., 1974. *Des Canyons aux Étoiles*. [Art].
- Messiaen, O. & Samuel, C., 1994. *Music and Colour: Conversations with Claude Samue*. Portland: Amadeus Press.
- Montagu, J., 2002. *Timpani and Percussion*. New York: Yale University Press.
- Morgan, R., 1980. Musical Time/Musical Space. *Critical Inquiry*, 6(3).
- Morris, D., 1989. A Semiotic Investigation of Messiaen's 'Abîme des Oiseaux'. *Music Analysis*, 8(1/2).
- Moscovich, V., 1997. French Spectral Music: An Introduction. *Tempo*, Volume 200.
- Music and the Holocaust, 2000. *Quatuor pour la fin du Temps*. [Online]
Available at: <https://holocaustmusic.ort.org/places/camps/western-europe/messiaenolivier/quatuor-pour-la-fin-du-temp/>
[Accessed 23 February 2021].

- Narmour, E., 1988. 'On the relationship of analytical theory to performance and interpretation', in E. Narmour and R. A. Solie, eds., *Explorations in Music, the Arts, and Ideas*, Stuyvesant, New York: Pendragon.
- Newton, I., 1704. *Opticks: A Treatise of the Reflexions, Refractions, Inflexions and Colours of Light*. London: Dover Publishing (1952).
- Nichols, R., 1975. *Messiaen*. Oxford: Oxford University Press.
- Nonken, M., 2014. Protospectralists at the Piano. In: *The Spectral Piano*. Cambridge: Cambridge University Press.
- Oliva, S., 2019. Music and Language? Deleuze, Guattari and Berio on Visage. *Online Journal of Philosophy*, Volume 10.
- Olsman, N. & Goentoro, L., 2016. Allosteric Proteins as Logarithmic Sensors. *Proceedings of the National Academy of Sciences of the United States of America*, 113(30).
- Peacock, K., 1985. Synaesthetic Perception: Alexander Scriabin's Colour Hearing. *Music Perception: An Interdisciplinary Journal*, 2(4), pp. 483-505.
- Picard, R., 1969. *New Criticism or New Fraud*. Washington: Washington University Press.
- Pople, A., 1998. Chapter 3: Abîme des Oiseaux. In: *Messiaen: Quatour pour la Fin du Temps*. Cambridge: Cambridge University Press.
- Price, J., Friedman, N. & Omland, K., 2007. Song and Plumage Evolution in the New World Orioles show similar Lability and Convergence in Patterns. *Evolution*, 61(4), pp. 850-863.
- Priore, I., 2001. The Compositional Techniques of Messiaen's Le Merle Noir. *Flute Talk Magazine*.
- Riley, P., 1961. Serialism. *Ambit Magazine*, Volume 9.
- Rink, J., 1990. Review: Wallace Berry's Musical Structure and Performance, *Musical Analysis*, 9:3.
- Rink, J., 2002. Analysis and (or?) Performance, *Musical Performance: A Guide to Understanding*, Cambridge: Cambridge University Press.
- Risset, J.-C., 1977. Musique, Calcul Secret?. *Critique*, Volume 359.
- Samuels, S., 2013. *The Story Behind Opticks by Sir Isaac Newton*. [Online] Available at: <https://www.baumanrarebooks.com/blog/the-story-behind-opticks-by-sir-isaac-newton/>
[Accessed 14 September 2020].
- Santa, M., 2020. Metrical Consonance and Dissonance . In: *Hearing Rhythm and Meter*. New York: Routledge.

- Saus, W., 2020. *The Harmonic Series*. [Online]
Available at: https://www.oberton.org/en/overtone-singing/harmonic-series/#harmonic_series_8211_intervals
[Accessed 15 December 2020].
- Schmalfeldt, J., 1985: 'On the relation of analysis to performance: Beethoven's Bagatelles Op. 126, *Journal of Music Theory* 29/1: 1-31.
- Seymour, L., 2018. *An Analysis of Roland Barthes' The Death of the Author*, Macat International Limited.
- Shannon, C., 1949. *A Mathematical Theory of Communication*. Champaign, Illinois: University of Illinois Press.
- Shenton, A., 2016. *Messiaen the Theologian*. New York: Routledge Taylor and Francis Group.
- Sherlaw-Johnson, R., 1975. Chapter 11: Birdsong. In: *Messiaen*. New York: Schirmer Books.
- Sherlaw-Johnson, R., 1975. Chapter 4: Rhythm. In: *Messiaen*. New York: Schirmer Books.
- Sherlaw-Johnson, R., 1975. Chapter 11: Birdsong. In: *Messiaen*. New York: Schirmer Books.
- Smith, K., 2021. The Enigma of Entropy in Extended Tonality. *Music Theory Spectrum*, 43(1).
- Somers-Hall, H., 2013. Chapter 1: Difference in Itself. In: *Deleuze's Difference and Repetition: An Edinburgh Philosophical Guide*. Edinburgh: Edinburgh University Press.
- Spinoza, B., 1663. *Parts 1 and 2 of Descartes' Principles of Philosophy*. Amsterdam: Johannes Riewerts.
- Sprout, L., 2004. Messiaen, Jolivet and the Soldier - Composers of Wartime France. *The Musical Quarterly*, 87(2).
- Street, D., 1976. The Modes of Limited Transposition. *Musical Times*, 117(1604).
- Szczegielniak, A., n.d. *What is Language?*. Massachusetts : Harvard University .
- Taylor, H., 2014. Whose Bird is it? Messiaen's transcriptions of Australian Songbirds. *Twentieth-Century Music*, 11(1).
- The Cornell Laboratory, 2019. *Baltimore Oriole Overview*. [Online]
Available at: https://www.allaboutbirds.org/guide/Baltimore_Oriole/overview
[Accessed 11 February 2020].
- The Cornell Laboratory, 2019. *Bullock's Oriole Overview*. [Online]
Available at: https://www.allaboutbirds.org/guide/Bullocks_Oriole/overview
[Accessed 22 February 2020].

- The Cornell Laboratory, 2019. *Hooded Oriole*. [Online]
Available at: https://www.allaboutbirds.org/guide/Hooded_Oriole/overview
[Accessed 22 February 2020].
- The Cornell Laboratory, 2019. *Scott's Oriole*. [Online]
Available at: https://www.allaboutbirds.org/guide/Scotts_Oriole/overview
[Accessed 21 February 2020].
- Toorn, P. V. D., 2012. The Octatonic Scale. In: *Stavinsky and the Russian Period*.
Cambridge: Cambridge University Press.
- Watts, H., 1979. Canyons, Colours and Birds: An Interview with Olivier Messiaen. *Tempo*,
Volume 128.
- Weiss, M. et al., 2014. The use of network analysis to study complex animal communication
systems: a study on nightingale song. *Proceedings: Biological Sciences*, 281(1785).
- Willems, E., 1977. *L'oreille Musicale*. 2nd Edition ed. Biemre: Pro Musica.
- Williams, J., 2012. Chapter 2, Difference and Repetition. In: D. Smith & H. Somers-Hall,
eds. *The Cambridge Companion to Deleuze*. Cambridge: Cambridge University Press.
- Wood, G. P., 1927. The Song of the Blackbird. *Music and Letters*, 8(3).
- Young, A., 1951. Of the Nightingale's Song. *The Classical Journal*, 46(4).