New Approaches to Performance and the Practical Application of Techniques from Non-Western and Electro-acoustic Musics in Compositions for Solo Cello since 1950: A Personal Approach and Two Case Studies

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Declaration

I, Rebecca Turner, the undersigned, hereby declare that the work submitted in this thesis is my own and where the contributions of others are made they are clearly acknowledged.

Signed…………………………………………… Date……………………..

Rebecca Turner

For Alexander Ivashkin, 1948-2014

Acknowledgments

Abstract

The role of the cellist has changed rapidly and significantly over the past 60 years. It has moved in tandem with compositional trends which have seen the extension of genres, techniques, and performance practices – changes which have an increasingly demanding palette of extended techniques. Present-day cello pedagogy has not matched these demands; in this paper, I address this deficit.

My main research question examines these extensions. I addressed it through practice-led research, using three primary research methods. First, qualitative methods of data collection and analysis, namely formal and informal interviews, and observations at concerts and various music events. Secondly, via the search for, and analysis of, recent additions to the repertoire. Thirdly, autobiographical research, which was made possible due to the performance-based nature of my research and my unique position and experiences as a performer. The combination of these research methods revealed that a cellist's role has been extended in three main ways: the extension of technique, the extension of participation, and, the extension of knowledge.

In the first chapter, I explore these extensions using a selected sample of works to investigate and highlight specific changes to technique and performance practices since the 1950s, looking specifically at new approaches to performance and the practical application of techniques from non-Western and electro-acoustic musics.

The next two chapters explore these issues in more depth and apply the findings, presenting two case studies on works that demonstrate how combining traditional cello playing with another music tradition can result in extended techniques: first, the cello and non-Western music, and secondly, the cello and electronics. This study concluded that recent compositional trends in cello writing have ultimately reinvented traditional cello playing. These trends push cellists to adapt and change their approach to the instrument and their understanding of their role as a cellist.

Practical Component: Recital Programme

My thesis topic examines contemporary applications and use of the cello, looking at new approaches to performance and the practical application of techniques from non-Western and Electro-acoustic musics in compositions for solo cello since 1950. For my recital I have selected a programme that demonstrates the technical issues most salient to my research, with each piece (all of which feature in my dissertation) highlighting a different way in which the cello repertoire, and consequently the cellist's role, has broadened in recent years.

The two pieces selected for my case studies are central to the recital. These were chosen as a result of my preliminary research into the developments in the repertoire and the major effects these had on the performer's role. I discovered that two ways in which the cello repertoire and the performer's role had changed substantially in recent times had come as a result of (1) the influence of non-Western traditions on the conception of a piece of music, and (2) the combining of the cello with electronics. I wanted to select two works that were relatively unexplored. *Habil Sayagi* (1979) for cello and prepared piano, by Azerbaijani composer Franghiz Ali-Zadeh (1947–), was chosen because it provided an original and successful example of the cello authentically merging and combining with the *mugham* tradition. This combination raised many important questions regarding how an Eastern-inspired piece such as this should be approached, interpreted, and played by the performer. *Hearing Voices* (2011) for cello and live electronics, by London composer Michael Cryne (1981–), raised many other issues of its own, largely due to the electronic component. In this work we see the cello being blended with various electronic presets, vastly extending the timbral palette of the instrument along with the performance demands placed on the cellist. In addition, I was approached by the composer himself and asked to collaborate with him throughout the conception and compositional process, giving me a unique opportunity to gain knowledge into the work.

I will also perform four additional pieces which, although not discussed at equal length in this paper, further point to the growing demands placed on the cellist in recent years. Carl Vine's (1954–) *Inner World* (1994) for amplified cello and tape

has the cellist accompany itself on a prerecorded, multitracked, preprocessed tape. This work not only challenges the cellist to imitate, blend, and stay in time with their electronic ensemble partner, but also provides an example of a piece in the repertoire that contains influences from Australian folk music traditions. 'Prelude no. 10: senza arco, senza pizzicato,' from Sofia Guabidulina's (1931–) *Ten Preludes* (1974) for solo cello presents an example of an acoustic piece written in the spirit of the electronic medium, displaying this influence in both its conception and the sonic realisation. American composer Christopher William Pierce's (1974–) suite for solo cello, *Variations on Wondrous Love* (2006, written for me) is a superb example of multiple styles and music traditions merging into one work, combining an American folk hymn with Eastern traditions set in a contemporary Western classical music aesthetic. And finally, Giovanni Sollima's (1962–) *Alone* (1999) for solo cello demonstrates the merging of multiple music styles.

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Background to Research

One of the greatest surprises to me, as I built my cello-playing career in London—one of the main global centres for new music—was the lack of enthusiasm among cellists for anything outside the standard repertoire. Anecdotal research led me to conclude that the lack of interest is correlated with a deficiency of knowledge, understanding, education, familiarity, and role models. A survey of the related literature revealed that there is almost no instructional or explanatory material on extended techniques. This was startling, especially considering the volume of unprecedented developments in techniques, musical styles, and compositional methods in the cello repertoire that have occurred in music over the last century. The dearth of material provoked me to wonder how the typical instrumentalist could be expected to understand and assimilate these many developments in the cello repertoire and technique if this expansion is not part of musical education and has not yet been assimilated into the playing culture and pedagogical literature.[1]

The wider objective of my research was to challenge and question the long-established traditions of cello playing by exploring contemporary applications and use of the cello; highlighting and evaluating a selection of cello repertoire from the last sixty years. My goal was to stimulate interest amongst cellists in newer repertoire, and make it more accessible to mainstream musicians.

Part of my aim is to fill the gap in the pedagogical literature by making a detailed performance analysis of new extended techniques and approaches to

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[1]Valerie Walden describes the development of a Romantic cello technique in the first half of the nineteenth century, during which cello technique and cello pedagogy as we understand them today were established. The studies that were published in this period build towards the virtuoso cello technique to which modern-day cellists still widely aspire (Valerie Walden, 'Technique, style and performing practice to c.1900', in Robin Stowell [ed.], *The Cambridge Companion to the Cello* [Cambridge: Cambridge University Press, 2000], 178–94; and Valerie Walden, *One Hundred Years of Violoncello: A History of Technique and Performance Practice, 1740–1840* [Cambridge: Cambridge University Press, 1998]). Many of these studies are still in widespread use, notably those by Friedrich Gruzmacher, *Hohe Schule des Violincellospiels* (Leipzig, 1891); David Popper, *Hohe Schule des Violincellospiels, Op. 72*, 2 Vols. (Leipzig, 1901–1905); and Louis Feuillard, *Excercises Journaliers pour Violoncelle* (Paris: Schott, 1919).

performance that have emerged in repertoire displaying influence from non-Western and electro-acoustic music traditions, and how these have challenged the technique and role of the cellist.

Main Research Question

My main research question explores how the cellist's role has changed and been extended in recent years. From the 1950s onwards, technological innovations, and sonic and textual explorations of the instrument have broadly affected the structure and form of the music presented to contemporary performers, in addition to the techniques required to play it, challenging them to explore new ways of interpreting, playing, and performing.

As a research topic these issues remain relatively untouched. For the purposes of my project, I decided to focus my research on two specific areas:

1. Participation: The cellist's greater role in the composition and performance process.
2. The performer's perspective: How the performer should approach, understand, and perform pieces using techniques from non-Western and electro-acoustic music traditions.

The scope of this topic is potentially immense. The first chapter of my thesis investigates how broadening philosophies amongst composers regarding music and performance extended the cellist's role in these areas, focusing on the sonic and textural explorations of the instrument, and how technological advancements and globalisation have contributed to new aesthetics being developed for the cello. The following two chapters narrow down the field, presenting case studies of two specific additions to the repertoire, pieces in which traditional cello playing has been extended through its combination with another medium or musical tradition: the cello and non-Western techniques and traditions, and the cello and electronics.

Throughout this thesis the use of the term 'Western' is used not so much in reference to a geographical locality as to an established set of musical practices. While these include popular idioms, more important is the so-called classical or concert music that largely dominates in the metropolitan centres of Europe, North America, and Westernised areas of South America and the Pacific, such as New Zealand and Australia. In this sense, the music of other ethnic cultures in all of the places mentioned above can be considered non-Western in this paper. I use the term 'electronic' to describe music written for the cello that is also electro-acoustic. Simon Emmerson explains that electro-acoustic music is 'a music heard through loudspeakers or sound made with the help of electronic means…[and] includes amplified acoustic music where the amplification changes, in essence, the experience of the sound and is integral to the performance.'[2] In this thesis, I have extended the definition to include music where a tool or system invented during vast developments in technology in the last century combines with the cello in a composition and/or performance.

Critical Review of Literature

During the course of my research, I searched for documents on finding, preparing, understanding, and performing contemporary cello music. Initially, I wanted to compile an overview of cello repertoire since 1950, using pre-existing repertoire lists and databases of recently-composed scores. This was not a review of the literature, but rather a review of the catalogues and scores at hand.[3]

I found that two developments in the literature of the past fifty years were pertinent to my research. The first concerns handbooks of modern instrumental technique. While these are aimed at an audience of both composers and performers, and are useful in explaining non-traditional notational practices, they tend to be more helpful for the composer than the performer because they typically outline compositional developments, techniques, and notational options from the composer's

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[2]Simon Emmerson, *Living Electronic Music* (Surrey: Ashgate Publishing Limited, 2007), xivo.
[3]Various books and websites provide lists of works recently composed for the cello. Of particular note is Michael Feves and Henk Lambooij's *A Cellist's Companion: A Comprehensive Catalogue of Cello Literature* (Lulu.com, 2007).

perspective. Instruction on how the player should interpret the notation in new music and prepare a score for performance is very sparse.

The second is a new genre of literature exploring the performer's role in the composition and performance process. These works tend to put forth a general standard for all performers, as opposed to delineating the specific role of the cellist. One of the main themes of this literature concerns the challenges a performer faces in deciphering the vast array of new notation in compositions of the past 60 years. More recently, academic dissertations have extended to the philosophical side of understanding this music. On the whole, this literature neglects the performer's perspective.

In this literature review, I have grouped my findings into four categories: extended techniques; the cello and non-Western techniques; the cello and electronics; and the performer's perspective. While the first and last categories consist of literature presenting important issues and considerations for the performer when preparing and performing a new musical work, the two middle categories focus on issues relating to the two developments explored in my research.

Extended Techniques

In my survey of the literature, I determined that there is a small body of documentation of technical developments, in addition to studies and exercise books that support instrumentalists. However, both the literature and playing material tend to focus on 'traditional' and established cello playing techniques.[4] I have outlined some notable exceptions below.

Frances-Marie Uitti maps out the developments in the cello score and cello playing in recent years in 'The Frontiers of Technique'.[5] This chapter summarises the

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[4]Walden provides a list of these texts, citing the first example of a text describing the method of cello playing, which was written in Paris in 1741. See Valerie Walden, 'Technique, style and performing practice to c.1900', in *Cambridge Companion to the Cello*, 178–94, and Walden, *One Hundred Years of Violoncello*.

[5]France-Marie Uitti, 'The Frontiers of Technique', in *Cambridge Companion to the Cello*, 211–23.

wide range of extended techniques that have been developed (including expanded note and dynamic range; two-bow technique; and various modifications of *sul ponticello*, *sul tasto*, and extreme *scordatura*), new performance practices (theatre music, inclusion of various parts of the body as an instrument, voice), and compositional changes (serialism, free form, graphic notation, microtones, complexity school, minimalism) throughout the twentieth century, singling out some new works in the repertoire that present examples of these developments. Though brief and lacking in-depth studies, this survey provides a good summary of recent developments and is a helpful overall account for the cellist studying extended techniques.

The younger generation of cellists has provided some of the most helpful original research on the subject in doctoral dissertations. Ellen Fallowfield, whose dissertation 'Cello Map: A Handbook of Cello Technique for Performers and Composers',[6] approaches cello technique in a scientific manner, producing a manual for cello playing that lists all the possible sound-modifying actions a cellist can make and then goes on to describe the consequent outputs of sound the cello produces.

Brenda van der Mewre's 'New Frontiers in the Art of Violin Performance: The Contemporary Study and Pedagogy of Extended Performance Techniques for the Violin'[7] examines extended techniques as they are found in a few well-known contemporary violin pieces. Van der Mewre identifies and describes many techniques, giving historical background and practical advice. The final chapter includes ten caprices written by the author.

Russell Rolen dedicated part of his doctoral research at Northwestern University to creating an interactive website that defines, explains, and demonstrates how to execute some popular extended cello techniques.[8] On the site, Rolen divides the selected techniques into two categories: left-hand techniques (including harmonics

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[6]Ellen Fallowfield, 'Cello Map: A Handbook of Cello Technique for Performers and Composers' (PhD diss., University of Birmingham, 2009).

[7]Brenda van der Mewre, 'New Frontiers in the Art of Violin Performance: The Contemporary Study and Pedagogy of Extended Performance Techniques for the Violin' (DMA diss., Boston University, 2005).

[8]Russell Rolen,'Modern Cello Techniques', WordPress & Atahualpa, http://www.moderncellotechniques.com/ (accessed June 17, 2012).

and quartertones) and right-hand techniques (such as pressure techniques and *sul tasto* and *sul ponticello*), giving some background to each as well as examples from the repertoire. In addition to this, he provides practical guidance on how to play the techniques, including video clips of Rolen himself demonstrating the techniques on the cello, with suggestions as to how they should be practiced and ultimately sound. This interactive website is a valuable tool for the cellist, as it clearly explains what the particular techniques are, how they should sound, and how one can achieve the desired result.

Though the majority of practical guides available to the cellist focus on traditional cello techniques and cello playing, there are two dedicated to extended techniques that deserve mention. Caroline Bosanquet's book *The Secret Life of Cello Strings*[9] is dedicated to harmonics and combines written explanation with short exercises. Siegfried Palm's collection of extracts to be used as studies for modern cello playing provides another good source for the modern cello player.[10]

These dissertations and studies are all valuable resources for learning about developments in cello playing, and training elements of technique that are otherwise only practiced in the context of a score. Though I have singled out only a select few, the total number of works on the subject is strikingly small given the scale of developments in cello technique over the past sixty years. This situation could be rectified if more contemporary players crossed disciplines and began to write about cello playing and technique.

Section Two: The Cello and Non-Western Techniques

There is very little performance or pedagogical research into non-Western performance practices for Western-trained cellists.

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[9]Caroline Bosanquet, *The Secret Life of Cello Strings: Harmonics for Cellists* (Cambridge: SJ Music, 1996).

[10]Siegfried Palm, ed., *Pro musica nova: Studien zum Spielen neuer Musik: fur Violoncello* [Studies for Playing Contemporary Music: for Cello] (Wiesbaden: Breitkopf und Härtel, 1985).

Elliot Schwartz and Daniel Godfrey's chapter 'Non-Western Musical Influences'[11] represents a common narrative found in books written on the topic, stating that technological developments in communication and world travel have facilitated the global exchange of information (specifically musical information) that has taken place during the second half of the twentieth century. These technological developments have, in turn, seen the emergence of ethnomusicology as an academic discipline, bringing non-Western music and musical instruments into the university and exposing musicians to the music of non-Western cultures, providing an almost limitless supply of new sounds, instruments, and alternative perspectives on the rituals and social contexts of music. The two authors define two categories of composers influenced by exposure to non-Western musics: those who adopt the new sounds and musical philosophies to add breadth and scope to what otherwise remains a Western approach to music making, and others who delve deeply and absorb the theory, philosophy, and performance practice of other traditions, adapting Western thought to Eastern principles.[12] Clearly the music produced by each group is markedly different, demanding new approaches from the performer. Scholars have not yet addressed these.

Again, recent dissertations provided some insight. One, Kirstin Eade's thesis, 'The Influence of Maori Music Traditions in the Flute Compositions of Gillian Whitehead'[13] investigates two works for flute by New Zealand composer Gillian Whitehead. Both works demonstrate a blend between European and Māori music traditions and instruments – a major characteristic of the composer's individual style. Eade's discussions of Whitehead's techniques in imitating traditional Māori instruments and the natural environment were particularly relevant to my research. For example, the application of special techniques on the flute to imitate the Māori flute, and rolling a ping-pong ball across the strings of a prepared piano found resonances in Franghiz Ali-Zadeh's *Habil Sayagi* (1979) for cello and prepared piano. In this work, which I use as my first case study, the instruments must imitate the traditional instruments of a *mugham* trio.

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[11] Elliot Schwartz and Daniel Godfrey, 'Non-Western Musical Influences', in *Music Since 1945: Issues, Materials, and Literature* (New York: Macmillan Publishing Company, 1993), 194-216.
[12] Ibid., 215-216.
[13] Kirstin Eade, 'The Influence of Maori Music Traditions in the Flute Compositions of Gillian Whitehead' (DMA thesis, Rice University, 2003).

Inna Naroditskaya's *Song from the Land of Fire*[14] is particularly pertinent to my case study on Ali-Zadeh's cello piece because it examines the Azerbaijani musical culture, providing tools to assist one in obtaining an overall picture of the *mugham* tradition and culture in both the Soviet and post-Soviet era. The focus of the book is quite general, discussing the musical response to the social, political, and gender dynamics of the Soviet Union, as opposed to discussing techniques and methods of playing the music.

Uzeyir Hajibeyov's book *The Basis of Folk Music in Azerbaijan*, originally published in 1945, remains a very important text about *mugham* that has been translated into several languages, including English, and is also available online.[15] This resource examines the main principles of Azerbaijani folk music (modes, scales, and compositional rules), provides a theoretical analysis of the construction of each mode, and discusses some of the characteristics of Eastern musicology, such as the fourth, fifth, and sixth consequence in the structure of scales and the origin of the increased second.

Online articles, such as Nasib Goyushov's 'The Spiritual and Aesthetic Foundations of Mugham',[16] provided a clear and insightful look into the *mugham* tradition from a theoretical viewpoint in addition to giving some social and spiritual background. Websites – for example, Mugam Radio[17] and Jo's Nexus: Mugam[18] – also provided valuable articles about the foundations and history of *mugham*. *Kamancha*[19] player, Habil Aliyev's personal website[20] contains videos with sound samples of him playing various *mugham* pieces. These multimedia elements enabled me to analyse his playing and familiarise myself with the nuances of *mugham* music

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[14]Inna Naroditskaya, *Song from the Land of Fire* (New York: Routledge, 2002).

[15]Uzeyir Hajibeyov, *Principles of Azerbaijan Folk Music*, trans. G Bairamov (Baku: Yazichi, 1985). Available online, Hajibeyov, 'Principles of azerbaijani folk music,' Musigi Dunyasi, http://musbook.musigi-dunya.az/en/conn_tetrahord.html (accessed April 22, 2011).

[16]Nasib Goyushov, 'The Spiritual and Aesthetic Foundations of Mugham', Visions of Azerbaijan: Discover the Land of Fire, http://www.visions.az/art,312/ (accessed December 3, 2012).

[17]Emil Nasirov, Mugam Radio, http://www.mugamradio.az/instruments/kamancha (accessed September 30, 2011).

[18] 'Jo's Nexus: Mugam', Datacomm, http://www.datacomm.ch/lawless/mugam.htm (accessed December 28, 2011).

[19] The *kamancha* is an ancient stringed musical instrument of Azerbaijan that is played with a bow.

[20]Habil Aliyev's professional web site, Habil Aliyev, http://habilaliyev.az/eng/about/ (accessed November 15, 2010).

as well his personal style. (This was pivotal in my research, as the cello piece I researched for my case study is *Habil Sayagi*, translated as 'In the Style of Habil'.)

Ethnographic issues, and larger themes of post-colonialism, issues of cultural imperialism, and globalisation are relevant when discussing non-Western influences on the repertoire. Hybridisation constitutes an inherent process in musical creation; hence it would be difficult to understand the dynamics of musical manifestations without taking into account the processes of adoption of musical elements belonging to different stylistic origins.

There is no lack of studies of Western music's long history of borrowing from and evoking non-Western cultures and musics. Commonly, however, the main analytical issue has been the accuracy and authenticity of the appropriated material.[21] Elsewhere, the action of borrowing music has been portrayed as primarily an open-minded and empathic gesture of interest in marginalised musics.[22] Such a perspective holds the danger of treating non-Western cultures as purely a resource for the reinvigoration of Western culture, without taking into account the arguments about exporting 'exotic' elements into music. In recent years, many works have been written that address issues of musical exoticism and Orientalism,[23] the relations

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[21] See Georgina Born and Desmond Hesmondhalgh, 'Introduction: On Difference, Representation, and Appropriation in Music,' in *Western Music and Its Others: Difference, Representation, and Appropriation in Music* (London: University of California Press, 2000), 37-47, for a critical reflection on the implications of the 'accuracy' or otherwise of appropriated material in relation to their sources.
[22] See, for example, Neil Sorrell, *The Gamelan* (London: Faber, 1990), for a discussion of Western composers' (such as Debussy's) borrowings from gamelan music.
[23] See Ralph P. Locke, 'Constructing the Oriental "Other": Saint-Saën's *Samson and Dalila'*, *Cambridge Opera Journal* 3, no. 3 (1991): 261-302; Ralph P. Locke, 'Reflections on Orientalism in Opera and Musical Theatre,' *Opera Quarterly* 10, no. 1 (1993): 49-73; Susan McClary, *Georges Bizet: Carmen* (Cambridge: Cambridge University Press, 1992); Richard Taruskin, '"Entoiling the Falconet": Russian Musical Orientalism in Context,' *Cambridge Oxford Journal* 4 (1992): 253-80; Jonathan Bellman, ed., *The Exotic in Western Music* (Boston: Northeastern University Press, 1998); and Philip Hayward, ed., *Widening the Horizon: Exoticism in Post-War Popular Music* (Bloomington: Indiana University Press, 1999).

between Western musics and non-Western musics,[24] musicology and difference,[25] and world music.[26]

When examining musical borrowings and appropriation it is necessary to consider the relations between culture, power, ethnicity, and class. During the last quarter of the twentieth century, the political importance and complexity of these matters has been argued for in literary and cultural studies. An important subfield that focused on the connections between culture, race, and empire crystallised in the 1980s and 1990s around the theme of post-colonialism. This is of particular interest when discussing the development of a 'New Zealand music,' the social and political environment in which it developed, and the complex power relationships that exist when a dominant (i.e., Western) power colonises a weaker nation. This is a vast and complex topic, in which many moral, ethical, and aesthetic issues are in play, and where many contradicting arguments exist. In *Western Music and Its Others: Difference, Representation, and Appropriation in Music*,[27] Georgina Born and Desmond Hesmondhalgh write that in post-colonial analysis it is 'important to avoid the racist conception of colonizers as civilizing agents and the colonized as beneficiaries; but equally, it means avoiding any anticolonialist reversal of these categories, which would homogenize the colonizing practice and conceive of the colonized as victims.'[28]

Edward Said's *Orientalism*[29] and *Culture and Imperialism*[30] were pivotal in founding the critical-theory of post-colonialism. Said employed the insights of French post-structuralism, in particular those of Michel Foucault, to analyse nineteenth-century European writings on non-European cultures with the aim of illuminating the

[24] See, for example, Gerry Farrell, *Indian Music and the West* (Oxford: Clarendon Press, 1997).
[25] See Ruth Solie, ed., *Musicology and Difference: Gender and Sexuality in Music Scholarship* (Berkeley: University of California Press, 1993); Lawrence Kramer, *Classical Music and Postmodern Knowledge* (Berkeley: University of California Press, 1995); and Richard Dellamora and Daniel Fischlin, eds., *The Work of Opera: Genre, Nationhood, and Sexual Difference* (New York: Columbia University Press, 1997).
[26] See Tony Mitchell, *Popular Music and Local Identity: Rock, Pop and Rap in Europe and Oceania* (London: Leicester University Press, 1996); and Timothy D. Taylor, *Global Pop: World Music, World Markets* (New York: Routledge, 1997).
[27] Georgina Born and Desmond Hesmondhalgh, *Western Music and Its Others: Difference, Representation, and Appropriation in Music* (London: University of California Press, 2000).
[28] Ibid., 5.
[29] Edward Said, *Orientalism*, Second Edition (England: Peregrine Books, 1985).
[30] Edward Said, *Culture and Imperialism* (London: Vintage, 1994).

discursive operations of colonialism.[31] *Orientalism* is of particular interest, as although it concerns Middle Eastern and East Asian cultures, and Said's discourse is focusing on a general patronising Western attitude towards these particular societies, parallels can be drawn between Orientalism and the attitudes of the early British immigrants towards the indigenous Māori people, and Russia's treatment of the Azerbaijani people. Equally, his later *Culture and Imperialism* offers much insight, with the author proposing that colonists and imperialists employed culture to control distant land and peoples, and that although most colonies gained independence when the Second World War ended, imperialism continues to exert considerable cultural influence in the present.

Born and Hesmondhalgh's *Western Music and Its Others: Difference, Representation, and Appropriation in Music* presents a collection of essays that point to ways in which postcolonial analysis provides a starting point for the consideration of musical appropriation. The authors' 'Introduction: On Difference, Representation, and Appropriation in Music'[32] provides a thorough overview of the ways in which music can be thought of as belonging to various places or groups, and what happens when that belonging is upset in some way. A common issue addressed in the literature has been the theorisation of music and identity.[33] Born and Hesmondhalgh broach some of these issues. They believe that there is a need to acknowledge that music can both construct new identities and reflect existing ones, and that it is 'precisely music's extraordinary powers of imaginary evocation of identity and of cross-cultural and intersubjective empathy that render it a primary means of both marking and transforming individual and collective identities.'[34] In his later chapter 'East, West, and Arabesk,'[35] Martin Stokes takes a less sympathetic stance, arguing that music is

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[31] Born and Hesmondhalgh, *Western Music and Its Others: Difference, Representation, and Appropriation in Music*, 4.
[32] Born and Hesmondhalgh, 'Introduction: On Difference, Representation, and Appropriation in Music', *Western Music and Its Others: Difference, Representation, and Appropriation in Music* (London: University of California Press, 2000), 1-58.
[33] See Will Straw, 'Systems of Articulation, Logics of Change: Communities and Scenes in Popular Music,' *Cultural Studies* 5, no. 3 (1991): 368-88; Martin Stokes, ed., *Ethnicity, Identity and Music* (Oxford: Berg, 1994); Simon Frith, 'Music and Identity,' in *Questions of Cultural Identity*, ed. Stuart Hall and Paul du Gay (London: Sage, 1996); and Simon Frith, *Performing Rites: On the Value of Popular Music* (Cambridge, Mass.: Harvard University Press, 1996).
[34] Born and Hesmondhalgh, *Western Music and Its Others: Difference, Representation, and Appropriation in Music*, 32.
[35] Martin Stokes, 'East, West, and Arabesk,' *Western Music and Its Others: Difference, Representation, and Appropriation in Music* (London: University of California Press, 2000), 213-233.

intensely involved in the propagation of dominant classifications of ethnicity, class, and gender, and notably, too, in the cultural articulation of nationalism.

In the literature, some authors highlight distinct differences between 'cultural imperialism', 'hybridisation', and 'globalisation'. In 'Cultural imperialism: A media effects approach',[36] Michael Salwen explains that cultural imperialism means that local and regional cultures are dispelled by the dominant culture, and the theory refers to the imposition upon other countries of a particular nation's beliefs, values, knowledge, behavioural norms, and style of life. According to Salwen: 'There are two principal theories in this category: (1) cultural/media imperialism, in which one culture dominates or is imposed on others and (2) hybridization, in which new versions of culture emerge when different cultures come in contact with one another.'[37] Hybridisation, on the other hand, is described by Tony Mitchell, in *Popular Music and Local Identity*,[38] as an exchange between cultures, rather than a single culture erasing another culture. Similarly, in *Globalization and Culture: Global Mélange* Nederveen Pieterse defines the hybridisation of national cultures as 'the ways in which forms become separated from existing practices and recombine with new forms in new practices.'[39] Pieterse states that cultural hybridisation as a theory argues that cultural globalisation is accompanied by a desirable outcome.

In *Cultural Imperialism: A Critical Introduction*[40] John Tomlinson argues that the term cultural imperialism must be replaced by the term globalisation. While cultural imperialism implies relations of dominance, subordination, and dependency, globalisation describes a more open and interdependent model of global interconnection. Tomlinson sees interaction and influence between different cultures as a mutual exchange, rather than a one-way process, stating that different cultures are always influenced through foreign influences. He states that the conventional theory of cultural imperialism does not take these multiple forces into account.

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[36] Salwen, Michael, 'Cultural imperialism: A media effects approach' in *Critical Studies in Mass Communication* 8, no. 1 (1991): 29-38.
[37] Ibid.
[38] Mitchell, Tony, *Popular Music and Local Identity* (London and New York: Leicester University Press, 1996), 50.
[39] Nederveen Pieterse, *Globalization and Culture: Global Mélange* (Lanham, MD, Rowman and Littlefield: 2004), 64.
[40] John Tomlinson, *Cultural Imperialism: A Critical Introduction* (London: Pinter, 1991).

While these authors highlight the positive aspects of hybridisation and globalisation, the phenomena have been positioned in multiple different ways, and there are many counter-arguments arguing that globalisation is always an exchange that works in favour of the powerful partner. For example, in *Hybridity, or the Cultural Logic of Globalization*,[41] Marwan Kraidy asserts that the thoroughly demonised cultural imperialism thesis is giving way to a benign vision of global cultural diversity, local cultural resistance, and cross-cultural fusion, and that 'this cultural pluralism is an inadequate vision for international communication and culture as it ignores power.' [42]

Kraidy believes that 'Hybridity is a risky notion.'[43] He argues that rather than a single idea or a unitary concept, hybridity is an association of ideas, concepts, and themes that at once reinforce and contradict each other: 'The varied and sometimes contradictory nature of its use points to the emptiness of employing hybridity as a universal description of culture. We learn little from saying every culture is a hybrid; it is imperative to situate every analysis of hybridity in a specific context where the conditions that shape hybridities are addressed.'[44] Kraidy proposes that hybridity is the cultural logic of globalisation, whose comprehension requires 'a relational, processual, and contextual approach to hybridity from a critical perspective.'[45] He suggests that we ought to be looking at each hybridity as a particular, localised practice, as opposed to positing a singular hybridity conceived as an all-inclusive socio-cultural order.[46]

Throughout his book, Kraidy demonstrates how power relationships have been articulated in complex ways in various types of cultural hybrid. It's not always an exchange. In the context of this research, power relationships could be pointed to in the development of a New Zealand music: for instance, if Chamber Music New Zealand is accused of not being culturally diverse enough, or not adequately

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[41] Marwan Kraidy, *Hybridity, or the Cultural Logic of Globalization* (Philadelphia: Temple University Press, 2005)
[42] Ibid., viii.
[43] Ibid., vi.
[44] Ibid.
[45] Ibid., xii.
[46] Ibid.

representing Māori culture, and so commission a project for New Zealand composers to write a piece of music with a New Zealand 'flavour', we see an example of hybridity in which difference is acknowledged and notionally catered for, but money and power remains concentrated where it has always has been (i.e. the Arts Council). A similar situation is seen with Bridgid Bisley's *Waiata* (discussed in Chapter One), which was commissioned by Alexander Ivashkin. In this instance, Ivashkin was looking to produce a CD of 'uniquely' New Zealand music in order to create something new and different.[47] Here, the Western musician is placed in the position of power, drawing on Māori music traditions and sounds as a means of creating 'difference' in a Western context.

When considering non-Western influence on contemporary cello repertoire many ethnographic issues, and larger themes of post-colonialism, issues of cultural imperialism, postmodernism, globalisation, and hybridisation arise. While this is a vast topic, and in some respects beyond the scope of this practice-led research, the historical, social, political, and cultural environment in which the new cello repertoire discussed throughout this thesis was composed is of importance and relevance to the contemporary player, and hence should be, and is, broached throughout this document.

Section Three: The Cello and Electronics

When surveying the topical literature for my second case study I discovered that there is only a small amount of research on playing the cello with electronics. Some information can be found on vocal sounds for instrumentalists, theatrical movements, amplification, and electronics;[48] however, these offer little information other than notational possibilities, and occasionally some practical advice in regards

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[47] I discussed these issues with Alexander Ivashkin throughout my research. *Waiata*, along with Gillian Whitehead's *Journey of Matuku Moana* (1992) for solo cello, are amongst several new compositions featured on Alexander Ivashkin's, *Under the Southern Cross: New music for solo cello from Australia and New Zealand* (BMG, 1999).

[48] Texts of note include: Ruth Inglefield and Lou Anne Neill, *Writing for the Pedal Harp: A Standardised Manual for Composers and Performers* (Berkeley: University of California Press, 1985); and Bertram Turetzky, *The Contemporary Contrabass*, 2nd ed. (Berkeley: University of California Press, 1982).

to playing with electronics, such as techniques of amplification. When playing with electronics, the performer's main source of instruction and guidance tends to be the composer's performance notes that accompany a score.

Though there are several texts that provide guidance on how to play extended techniques (including, though not limited to, those mentioned above, such as Fallowfield, van der Mewre, Rolen, Bosanquet, and Palm), there is no substantive research on how to approach, alter, and extend techniques when electronic effects are added. There are, however, several that broach issues relating to how the player is to physically control the electronic components, and question the role the technology should play in a performance.

Jamie Bullock, Lamberto Coccioli, James Dooley, and Tychonas Michailidis' recent article, 'Live Electronics in Practice: Approaches to training professional performers'[49] stands out in the literature, exploring issues specific to the performer when playing music with electronics, such as learning to play *together with* the electronics rather than simply alongside them. A pressing issue for a performer wanting to play music in the electronic medium is the lack of guidance and help at hand, and early on in the article the four authors discuss this point, stating that while most music education institutions provide opportunities for a composer to explore computer-based techniques for live audio processing, it is rare for a performer to receive any formal training in live electronic music as part of their study. The main focus of this article is to present the results of Birmingham Conservatoire's trial of a practical training course for professional performers and undergraduates in playing with electronics. Results noted the speed with which tacit knowledge for playing in the medium and controlling various electronic devices was picked up. The presenters hoped that this would stimulate musicians to initiate further programmes of this kind.

A major theme in this particular section of the literature is the performance issues that arise when playing with live electronics and the challenges that the

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[49] Jamie Bullock, Lamberto Coccioli, James Dooley, Tychonas Michailidis, 'Live Electronics in Practice: Approaches to training professional performers', *Organised Sound* 18 no. 2 (August 2012): 170-177.

performer may face when attempting to co-ordinate with electronic devices during a performance.

Musical fluidity, ensemble playing, and the blending and co-ordination between the acoustic and electronic instruments present challenges for both performer and composer. In 'The Electronic Revolution 1: Tape Composition and Early Synthesizers',[50] Elliot Schwartz and Daniel Godfrey study these issues in depth. A fundamental task for the composer in this medium is to provide the cellist with a score that contains clear directions as to how and when (s)he is to play with the electronics. The various approaches that have been tried by composers are discussed in this chapter: from having the instrumental and tape sections take turns, to writing out both parts on a traditional score, to having an electronic engineer controlling the tape part while the instrumentalist plays, or simply having no relationship between the parts. The authors hail Stockhausen as a pioneer in this domain for developing an electronic score consisting of graphic symbols (dots, lines and other shapes) above the acoustic line. This kind of score gives the performer a visual semblance of what the tape part sounds like and where (s)he fits into the ensemble. These types of graphic cues are still used in many live electronic cello scores today.

In 'Creative process and performance practice of interactive computer music: a performer's tale',[51] violinist Mari Kimura writes about basic mechanical issues that arise when playing with computers, foot pedals, and technical assistants on stage. Kimura describes her efforts to avoid too much interaction with external electronic elements in a performance, as she wants the music to be the focal point, not the process behind it. For example, she avoids using foot pedals in a concert, as she believes that the action of pressing the pedal with your foot produces an unnecessary distraction for the audience, in addition to altering the bow arm and left hand position, which may affect sound production. Kimura raises some other points the traditional performer may not usually consider: the advantages and disadvantages of technical assistance in a performance. (Kimura offers the alternative solution of creating a 'Flexible Timewindow' and using a note on the violin to trigger each section.) She

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[50] Elliot Schwartz and Daniel Godfrey, 'The Electronic Revolution 1: Tape Composition and Early Synthesizers', in *Music Since 1945: Issues, Materials, and Literature*, 107-135.
[51] Mari Kimura, 'Creative process and performance practice of interactive computer music: a performer's tale', *Organised Sound* 8, no. 3 (December 2003): 289-296.

discusses suitable performance venues, pointing out that some spaces are not suited acoustically for electronic and interactive computer music. She also addresses the intonation issues that arise when playing with electronically generated sounds (we must, she advises, treat these as the objective source of intonation and adjust pitch accordingly), and how the performer can blend the sound palette of a traditional acoustic instrument with that of the computer music.

There are also several texts of note that discuss more general performance issues that are topical when playing with live electronics, such as aesthetics, expressive resources, and the performer's role.

Schwartz and Godfrey's chapter, 'Multimedia and Total Theatre'[52] lists the ways in which the composer has looked to extend the expressive resources of the performer in the electronic medium during the past half century. These are summed up into two basic approaches: (1) by broadening the range of activities – movement, gesture, vocal utterance – required as a part of performance, and (2) by augmenting the range of sounds that may be produced by an instrument or voice. This has in turn required performers to widen their activities, both acoustic and physical, into theatrical realms. In terms of playing with live electronics, the 'human versus machine'[53] scenario is discussed, also focusing on theatrical elements that arise as the performer co-ordinates with (or at times, is pitted against), and controls the electronic devices. Schwartz and Godfrey suggest that performers have been 'Electronically Empowered,'[54] as using technology can boost a performer's capabilities, both in the studio where editing and manipulation of notes is possible, and on stage where amplification can enhance sound production. Though I agree with this on some levels, for example, when recording in the studio you are able play a section of music many times and then edit it to produce an exact performance, when performing live on stage I disagree, as the added complexities of controlling the pedals, and blending and playing with the electronic components, in addition to playing complex scores (in some instances), can present very challenging performance scenarios.

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[52] Elliot Schwartz and Daniel Godfrey, 'Multimedia and Total Theatre', in *Music Since 1945: Issues, Materials, and Literature*, 136-163.
[53] Ibid., 143.
[54] Ibid., 143-144.

Human activity in electro-acoustic music, along with the relationship of the performer to the other sound sources and agencies, are key themes in Simon Emmerson's book *Living Electronic Music*,[55] where he discusses relevant issues such as the increased interest in the role of the performer in electronic music, the relationship between the electronics and the performer, and the extension of their role into theatrical realms. Emmerson proposes that electronics have changed the nature of performance, highlighting some important questions that have arisen as the medium has developed: what is the meaning of 'live' performance now, how can the audience tell which sounds are coming from the performer and which are coming from the machine, and conversely, how can the performer differentiate between the sounds (s)he is making her/himself and the electronic sounds when both are coming out of the same loudspeakers. Emmerson suggests that this kind of blurred boundary between 'live' and 'studio-created' sounds is something that is increasingly prevalent in contemporary practice.[56]

In his earlier article, 'Acoustic/electro-acoustic: The relationship with instruments',[57] Emmerson raises issues relating to the new and broadening concepts of space in a performance between live electronics and acoustic instruments. Of particular relevance is a discussion regarding the complex relationship between the performed instrument and the electro-acoustic sound, as in a concert with visual cues there may be a contradiction between the perceptions of physical movement and the aural result. Though Emmerson discusses this in the context of how it may impact an audience's listening experience, it also presents new challenges for the performer who, accustomed to hearing an instant sonic result of the action (s)he has just executed, must learn to expect a delay between the physical action and sound produced. In addition, he offers a method for the performer attempting to understand a piece in this medium, stressing the importance of understanding the dialogue between the two partners. Emmerson explains that composers often move seamlessly between the clarity of original sound and effected sound. In this transition, the live instrument moves between being the leader playing grand gestures, into sublimation within textures, which can create distorted perspectives. For solo and tape performances, he

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[55] Simon Emmerson, *Living Electronic Music*, xvii.
[56] Ibid., xvi.
[57] Simon Emmerson, 'Acoustic/electroacoustic: The relationship with instruments', *Journal of New Music Research* 27, no 1-2 (1998): 146-164.

suggests that performers should differentiate between 'tape-led' and 'solo-led' formations,[58] analyse the interaction and gestures that take place between the two, and highlight the difference between the 'floating', 'ambiguous', and 'grounding' textures being created.

Curtis Bahn, Tomie Hahn, and Dan Trueman explore physicality and gesture within a technological context in 'Physicality and Feedback: A Focus on the Body in the Performance of Electronic Music'.[59] At times, they suggest, the electronic nature of the medium results in a lack of corporeal presence in performance, and methods such as exaggerated gestures and over amplification to create exciting gestures between the performer and sound production are employed, which often leads to larger planes of separation between the two. The article discusses ways in which the body can be re-integrated into the performance process, emphasising that the physical gesture from the performer needs to be aligned with the sonic feedback. Not only does this present additional challenges for the performer if the sound is delayed, it alters the nature of performance, emphasising the theatrical elements of performance, rather than it being an opportunity to experience an original interpretation and delivery of a piece of music.

Lukas Foss approaches some of the philosophical and relational issues that arise when playing with electronics in his paper 'The Changing Composer-Performer Relationship: A Monologue and a Dialogue'.[60] In this chapter, Foss discusses the closure of the divide between the composer and performer, specifically in the context of electronic music, calling upon the performer to take a larger role in the creation process and upon the composer to involve him/herself in the performing process. David Neubert has also contributed an article to the subject, 'Electronic Bowed String Works: Some Observations on Trends and Developments in the Instrumental/Electronic Medium',[61] which takes an in-depth look at how the

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[58] Ibid., 151.
[59] Curtis Bahn, Tomie Hahn, Dan Trueman, 'Physicality and Feedback: A Focus on the Body in the Performance of Electronic Music', MPublishing, University of Michigan Library (2001), http://quod.lib.umich.edu/cgi/p/pod/dod-idx/physicality-and-feedback-a-focus-on-the-body.pdf?c=icmc;idno=bbp2372.2001.058 (accessed July 13, 2013).
[60] Lukas Foss, 'The Changing Composer-Performer Relationship: A Monologue and a Dialogue', in *Perspectives on Notation and Performance: Comments and Observations by Contemporary Composers and Performers*, ed. Benjamin Boretz and Edward T. Cone (New York: W.W. Norton, 1976), 32–40.
[61] David Neubert, 'Electronic Bowed String Works: Some Observations on Trends and Developments

development of the electronic medium affected the cello's (and other instruments') repertoire, mapping out how these developments evolved and describing some trends in the style of writing.

All of these issues discussed in the literature become relevant for the cellist attempting to perform in the electro-acoustic medium. In Chapters One and Three, I take a more in-depth look into each area, exploring these new topics of consideration and how the performer should react and respond to these new performance and playing scenarios.

Section Four: Performance Issues

As a performer, carrying out practice-led research, an important aspect of my study was to form an overview of the literature available that specifically helps and instructs cellists and other performers in mastering an instrument, preparing a piece using extended techniques, and, ultimately, presenting it to an audience. I found very little information on these subjects.

Musicologists and philosophers such as Richard Taruskin,[62] Jonathan Dunsby,[63] Peter Kivy,[64] Lydia Goehr,[65] Stan Godlovich,[66] Nicholas Cook,[67] and Erling Guldbrandsen[68] have explored the changing perspectives and approaches to scores and performance. Some view the score as the pure object, and others see the performance and the performer as independent of the score. Such ideas are not new;

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in the Instrumental/Electronic Medium', *Perspectives of New Music* 21, no. 1/2 (1982–1983), http://www.jstor.org/stable/832892 (accessed May 4, 2012).

[62] Richard Taruskin, *Text and Act: Essays on Music and Performance* (Oxford, New York: Oxford University Press, 1995).

[63] Jonathan Dunsby, *Performing Music: Shared Concerns*, (Oxford: Oxford University Press, 1995).

[64] Peter Kivy, *Authenticities: Philosophical Reflections on Musical Performance* (New York: Cornell University Press, 1995).

[65] Linda Goehr, *The Imaginary Museum of Musical Works: An Essay in the Philosophy of Music* (Oxford: Oxford University Press, 1992), and 'Conflicting Ideals of Performance in an Imperfect Practice' in *The Quest for Voice. On Music, Politics, and the Limits of Philosophy* (Oxford: Oxford University Press, 1998): 132-173.

[66] Stan Godlovich, *Musical Performance. A Philosophical Study* (London: Routledge, 1998).

[67] Nicholas Cook, 'Music as Performance' in M. Clayton, T. Herbert & R. Middleton (Eds.), *The Cultural Study of Music: A Critical Introduction* (London: Routledge, 2003): 204-214.

[68] Erling Guldbrandsen, 'Modernist Composer and Mahler Conductor: Changing Conceptions of Performativity in Boulez', *Studia Musicological Norvegica*, 32, (2006): 140-168.

the distinctions between the work and its performance, and between the composer and the performer emerged when notation began. On one end of the scale are those who believe the performer should show absolute loyalty to the original text. The concept of the work is central and the performance secondary. There is no need for individual interpretation, just adherence to the text: 'The secret of perfection lies above all in (the performer's) consciousness of the law imposed on him by the work he is performing.'[69]At the other end of the spectrum we see performers who use the text as a means of showing off their skill and virtuosity.

Roger Heaton evaluates modern performance from a performer's perspective in 'The Performer's Point on View'.[70] Heaton's discussion is interesting in itself – he looks at a number of issues, including deciphering and interpreting new notations, various aspects of performing and listening to New Complexity music and postmodern music, some reasons for the development of these styles of music, and the performer's role and composer's intention within the genres. Heaton is one of the few scholars to have drawn attention to the performer's perspective in music using extended techniques.

Leonard Stein takes a similar viewpoint in his article with the same title, 'The Performer's Point of View',[71] offering some insight into how the development of modern music has affected the performer's role. Though written in 1963, some of the issues are still relevant. Amongst other things, Stein discusses the new challenges that face the performer in reading and interpreting new notations, and asserts that the pressures put on the performer by these detailed, complex scores allow little opportunity for flexibility or interpretation. Stein also suggests that emerging experimental techniques have fostered misunderstandings of contemporary music, especially between the composer and the performer.

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[69] Igor Stravinsky, *Poetics of Music in the Form of Six Lessons* (Cambridge, MA: Harvard, 1970), 127.
[70]Roger Heaton, 'The Performer's Point of View', *Contact* (1987): 30–33.
[71]Leonard Stein, 'The Performer's Point of View', *Perspectives of New Music* 1, no. 2 (Spring 1963): 62–71.

Finally, *Musical Excellence: Strategies and Techniques to Enhance Performance*,[72] edited by Aaron Williamon, discusses the physical demands of performance and the involvement of the body. The contributors provide a collection of essays that discuss new perspectives and practical guidance for enhancing performance (in the form of practice techniques) as well as managing the physical and emotional stress that typically accompanies performance situations. Of particular interest is Williamon's contribution, 'A Guide to Enhancing Musical Excellence',[73] in which he points out an interesting distinction between classical and non-classical traditions: that within the Western classical tradition musicians will spend years working privately with a teacher who, with expert knowledge, will assist them in reflecting on how best to improve their skills, but in non-classical traditions (or when playing non-classical repertoire) this is not usual. As a result, in non-classical traditions, the ability to evaluate oneself and to make astute decisions becomes more important. (Williamon admits in his conclusion that, for the most part, the research conducted up until now has been within the confines of traditional Western classical music, and further research is needed across music throughout the world.) Williamon also speaks of the necessity of an individual's open-mindedness toward a particular strategy or technique for optimum results, and though he is referring more to how this openness benefits practice and performance within a Western classical tradition, I think it is equally imperative for the performer to employ such an attitude when approaching new and unusual repertoire.

Methodology

The methodology for this research is best described as practice-led research: research seeking knowledge through practice.[74] With this in mind, I combined mixed-

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[72]Aaron Williamon, ed., *Musical Excellence: Strategies and Techniques to Enhance Performance* (New York: Oxford University Press, 2004).

[73]Aaron Williamon, 'A Guide to Enhancing Musical Excellence', in *Musical Excellence*, 3–18.

[74] Practice-led research is a form of academic research which incorporates an element of practice in the methodology. Within arts and humanities departments there has been a growing recognition of arts practice as research. In 1993, Sir Christopher Frayling adapted Herbert Read's model of education through art to describe different ways of thinking about research, noting that research could be for practice, where research aims are subservient to practice aims, through practice, where the practice serves a research purpose, or into practice, such as observing the work processes of others. Christopher Frayling, 'Research in art and design,' in *Royal College of Art: Research Papers,* 1, no. 1 (1993),

method testing with autobiographical research.[75] Three primary research methods were employed: firstly, qualitative methods of data collection and analysis, namely formal and informal interviews, and observations at concerts and various music events; secondly, via the search for, and analysis of, recent additions to the repertoire; and, finally, through my experiences in performance-based research.[76]

A self-reflexive approach is taken throughout the dissertation, and although this introduction to my methods is brief, a broader discussion of each step can be found embedded in the chapters in which such methods are in action (see, for example, the opening section of Chapter One: The personal dimension).

Key Steps in My Methodology

My procedure roughly followed the following series of steps: (1) I carried out my historical and theoretical research through the interpretation of current writings, documents, scores, internet sites, and periodicals, (2) I compiled a repertoire timeline, focusing on works from the past sixty years, (3) I collected relevant scores and created tables to assist in discussing the development and use of extended techniques, (4) I attended and critiqued relevant concerts, (5) I conducted informal interviews with cellists and composers in London, and finally (6) I analysed my collected data and assessed how these developments affected the role of the cellist.

The key steps in my methodology for the case studies included the selection of two relevant pieces in the repertoire using the knowledge obtained during the research for Chapter One. I carried out further background research into each composer's

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http://www.transart.org/wp-content/uploads/group-documents/79/1372332724-Frayling_Research-in-Art-and-Design.pdf

[75] A variety of particular approaches come under the heading of auto/biographical research. Norman Denzin gives an indication of how wide the field is when he notes that it encompasses 'life, self, experience, epiphany, case, autobiography, ethnography, auto-ethnography, biography, ethnography story, discourse, narrative, narrator, fiction, history, personal history, oral history, case history, case study, writing presence, difference, life history, life story, and personal experience story' (Norman Denzin, *Interpretive Biography* [London: Sage, 1989], 27).

[76] This concept was, in part, borrowed from cellist and historian Elisabeth Le Guin, whose writings take a dual perspective between theory and practice. See Elisabeth Le Guin, *Boccherini's Body: An Essay in Carnal Musicology* (Berkeley: University of California Press, 2006).

development, the historical and cultural context, the style/genre of music, and traditional methods and performance practices, followed by carefully studying each piece of music. I recorded the lessons with my performance supervisor, and the rehearsals for each of these pieces, making observations and notes while practising and preparing the works.

I analysed each piece from my (the performer's) perspective, and investigated the technical, physical, and emotional demands placed on the performer, in addition to the knowledge needed in order to play these works. This section of the research was autobiographical, as the data came from my own observations and experiences. It was also practice-led, as my investigation was in both studying and engaging in performance. Throughout this process, I moved between practice and theory, reviewing relevant texts and documentation, not least to help bear in mind my personal stance in this research.

With each case study, I was able to carry out an interview with the composer (personal interviews with Franghiz Ali-Zadeh and Michael Cryne are included in the Appendix). For the case study on *Hearing Voices* (2011), for solo cello and electronics, I worked with the composer in a rehearsal setting on several occasions. This enabled me to ask many questions about the conception of the work, how and why the electronics were combined with the cello, how I was to manage the electronics, and the sounds and effects the composer had envisioned, including necessary alterations to achieve these desired results.

Outline of Overall Structure

Chapter One of the thesis begins with the establishment of the personal dimension of this study, and the context in which I carried out this practice-led, autobiographical research. Then, using a representative sample of works in the repertoire that my research revealed to be of particular note (most of which feature in my final recital – the practical component of this research project), I explore and discuss how developments in technology and explorations of the sonic capabilities of the cello have affected the new repertoire for the instrument. Sections two and three

discuss two specific ways in which composing for the cello has been extended, through the addition and influence of electronic and non-Western elements, respectively. Here, I explore how new approaches to performance and the practical application of techniques from the electro-acoustic and non-Western music traditions have extended the role of the cellist in the areas of technique, participation, performance, and knowledge.

The following two chapters offer case studies on selected works. Highlighting these two specific ways in which composing for the cello has been extended (the addition and influence of electronic and non-Western music traditions), I use each piece as a platform to approach various issues relevant to the contemporary cellist. In each, I outline the history and origin of the extended genre, discuss characteristics and influences on the composer's style, explore the structure and form of the work as well as its cultural context, and, finally, work through the score from the performer's perspective, exploring new techniques, ascertaining any physical and technical challenges, and considering how these may best be approached by the cellist.

I gathered additional information for the case studies from other musicians' performances and interpretations. For *Habil Sayagi*, I listened to and analysed recordings by Ivan Monighetti, to whom the work was dedicated (with Ali-Zadeh on the piano), and Alexander Ivashkin. I also found recordings made by the Kronos Quartet of other pieces by Ali-Zadeh, written in a very similar style to *Habil Sayagi*, in addition to recordings by Habil Aliyev and other Azerbaijani artists playing traditional *mugham* pieces to be very informative. As there are no existing recordings of *Hearing Voices*, I looked to performances of other live electronic pieces in the repertoire (such as those discussed in Chapter One), focusing on performances by prominent contemporary cellists, such as Frances-Marie Uitti, Maya Beiser, Norman Adams, Anre Deforce, Anton Lukoszevieze, and Oliver Coates.

I had many informal discussions with different cellists over the course of my research. During these, I prompted my colleagues to discuss various relevant issues, such as ideas regarding important new additions to the repertoire, new techniques (s)he had come across, various approaches to playing these new techniques and new repertoire, how the performance experience changes when playing music from

extended genres, and ways in which playing with electronics can alter technique and the performance process. While I took the various contributions into consideration, I decided not to carry out formal interviews with these performers, or to include the discussions in this thesis. This was partially because my research is based around my practice and my experiences, but also because a survey of various performance approaches, which may have been the outcome, seemed beyond the scope of my research.

Throughout both case studies I have included sound samples for the reader.[77] The inclusion of sound samples is not incidental to my thesis. As well as 'backing up' many of the score examples, they contain numerous sound-illustrations of crucial points which no score example could demonstrate.

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[77] The sound samples used to demonstrate sections from *Habil Sayagi* and *Hearing Voices* were recorded by the author (2013). Those featuring Habil Aliyev are borrowed from the *Habil Aliyev* album, for sale by Turan Aliyev, and released on October 22, 2002 on the Habil Aliyev label.

<center>**Chapter One**</center>

<center>**An Exploration of Contemporary Cello Repertoire and Technique**</center>

The personal dimension

> The starting-point of critical elaboration is the consciousness of what one really is, and is 'knowing thyself' as a product of historical process to date, which has deposited in you an infinity of traces, without leaving an inventory.[78]

Much of the research in this thesis is drawn from an autobiographical perspective, and the observations and findings on cellistic matters are my own. As a result, the context in which this text is written – the culture I grew up in, the teachers with whom I have studied and their schools of training, and the various musical experiences and relationships I have had over the years have – had a clear influence on the perspectives, findings and conclusions made. Along the way, I have tried to maintain a critical consciousness, as well as employing those instruments of historical and current research of which my education has made me the fortunate beneficiary. However, my own experiences stimulated me to carry out this research. I have never lost hold of this cultural reality, nor of my personal involvement in the research. By taking into consideration the cultural context in which this information was gathered and the formative experiences that shaped me as a cellist today, I have striven to maintain a relatively objective stance; or, at the very least, the reader will have some understanding of the context in which I am writing.

To define this/my specific context, I am a white woman in my 30s who grew up in New Zealand. My educational route is not dissimilar from that of other contemporary cellists living in London today: I received my training through the traditional Western classical music educational system, earning a Bachelor of Music degree from the University of Canterbury in New Zealand, a Master's of Music in Performance Cello from the Peabody Institute of the Johns Hopkins University in the United States, and am now working towards a PhD in Music (Practical Performance)

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[78] Antonio Gramsci, *Prison Notebook*, trans. and eds. Quintin Hoare and Geoffrey Nowell Smith (New York: International Publishers, 1974), 324.

from Goldsmiths, University of London. Yet, as with other musicians, my journey is unique to me, with the musical experiences and events that I encountered, participated in, and observed, greatly shaping my individual musical philosophy, both as a cellist and a researcher.

My initial exposure was to the New Zealand music tradition, which grew out of nineteenth-century Western Classical music traditions and is predominantly rooted in British colonial history.[79] Alongside this was exposure to Māori music traditions. Early musical experiences included visits to the local Māori *marae*[80] where we would be welcomed with a *pōwhiri* (a welcoming ceremony containing speeches, dancing and singing) featuring oratory and *waiata* (the Māori word for song), which we, in turn, would respond to with our own *waiata* that we'd been taught in school, expressing our gratitude for their hospitality. School bus trips were coloured with sing-a-longs of popular Māori songs formed of chant-like melodies and simple harmonies, and accompanied by rhythmic guitar playing. In Polynesian tradition, music and singing was a way of life, a narrative to our experiences and adventures, a social event.

Though my mother was a piano teacher, and my grandfather a well-known church organist, my exposure to classical music was minimal. Church hymns, school choir, the Beatles, and Simon and Garfunkel summed up the 'Western' music of my childhood.

When my interest in contemporary cello repertoire steered me toward this research project, I had already been playing and studying the cello for almost twenty years. My interest had been sparked during my undergraduate study at Canterbury University, New Zealand, where I had been offered the unique opportunity to study with two renowned Russian cellists: Natalia Pavlutskaya and Alexander Ivashkin. During this time, my teachers schooled me in the Russian traditions of cello playing – this featured a powerful bow arm which I was taught to use to 'pull' the sound out of

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[79] Discussed further in 1.3.2.

[80] In Māori society, the *marae* is a place where the culture can be celebrated, where the Māori language can be spoken, where intertribal obligations can be met, where customs can be explored and debated, where family occasions such as birthdays can be held, and where important ceremonies, such as welcoming visitors or saying farewell to the dead, can be performed.

the instrument (rather than relying solely on the natural resonance of the instrument), and a fast and wide vibrato. Combined, these aimed to produce a thick, rich, and intense tone. My approach to technique, musicianship, and the very concept of playing the cello was demolished and then rebuilt with an ethos familiar to Russian musical culture, commanding an ultra-concentrated attention to detail and demand for commitment. Alongside this discipline, the Russian school ignited in me a new passion for the instrument, revealing that it had far greater sonic and communicative potential than I had previously realised.

It was during this time in Christchurch that I was first introduced to contemporary cello repertoire, and the cellists promoting and playing this music. Pavlutskaya and Ivashkin were active advocates of the instrument, the composers, and the exponents of avant-garde contemporary music, organising international festivals, concerts, and competitions (such as the now-defunct New Zealand International Cello Festival and Competition), and bringing important cellists of the day, including Mstislav Rostopovich, Siegfried Palm, Laurence Lesser, and David Geringas to judge such events, give masterclasses, and play concerts. This lively and nurturing environment was formative in my development, not only challenging and extending my perception of the boundaries of cello repertoire and technique, but also showing me that cello playing could go beyond the traditional repertoire.

Following these experiences which had given me a taste not only of the capabilities of the instrument, but also exposure to some of the best cellists in the world, I decided to pursue my graduate study in America, at the Peabody Institute of the Johns Hopkins University. While my course of study was less stimulating and revolutionary as a cellist than my experience in Christchurch (my instructor recommended that I concentrate on conventional repertoire again, with the attendant traditional routines of orchestra rehearsals, ensemble training, and audition preparation etc), in my own time I immersed myself in Peabody's new music community. I became very interested in premiering the music of composer friends. It seemed to me to have more social relevance than traditional repertoire, such as Elgar's *Cello Concerto in E minor* and Bach's *Six Suites for Unaccompanied Cello*. I performed many of my colleagues' compositions, including premières of works they

had written for me. These experiences set me on my path of exploration into contemporary cello playing.

The opportunity to study in Toronto with the contemporary cello specialist, Shauna Rolston, further cemented my move away from traditional repertoire. Rolston was well-established in North America as a performer of both traditional and new repertoire, and what drew me most to her was her interest in and support of new music. At this time, Rolston had premiered a number of new works written for her by Canadian composers such as Heather Schmidt, Bruce Mather, Christos Hatzis, and Chan Ka Nin, as well as Krzysztof Penderecki, Gavin Bryars, and Mark Anthony Turnage. She continues to be an advocate for new Canadian music. In addition, her approach to playing the cello was different from my experiences with the Russian teachers; it looked 'natural' – she used less intense vibrato and didn't seem to have to work so hard to 'pull' the sound out of the instrument. While there was a free and wild approach to her playing, she always produced a focused tone, without overly distorting the pitch with vibrato, and she considered tone quality the most important aspect of her technique. As a teacher, Rolston encouraged me to explore my instrument physically, from a more personal and individual level, to 'become one' with the cello and create my own sound and voice. As a contemporary cellist, she taught me that there was almost limitless new repertoire available to the cellist, and it was our job to support composers, and to play and approach their music with the same level of commitment as we would a traditional piece.

It was also Rolston who introduced me to the carbon-fibre cello, on which I currently play.[81] These cellos (which were markedly cheaper than any other performance-level instrument on the market) made a considerably louder sound than that of a traditional wooden cello. I recall Rolston performing Saint-Saëns *Cello Concerto No. 1* (1873) on this instrument with the Toronto Symphony in 2007; the instrument projected far better than many wooden cellos could in the large concert hall. The carbon-fibre instrument was almost indestructible (greatly facilitating

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[81] While the carbon cello sounds like a cello should, describes Shauna Rolston, 'it's like the sound is surrounding you. Pianists who accompany me say they can hear it behind me while, with a wooden cello, the sound is more out front.' Trish Crawford, 'Shauna Rolston and her carbon cello,' *Toronto.COM: Turn Up Your Downtime*, http://www.toronto.com/article/701421 (accessed December 31, 2012).

international travel), and portrayed an image of innovation, style and edge. This too challenged my ideas of tradition and revealed yet another way in which cello playing could move into the future.[82]

During this time in Toronto, I also started exploring various performing venues and ensembles/groups. I became a member of the Toronto-based chamber ensemble, Interrobang, which promoted new music, performing in unconventional venues, such as bars and art exhibitions. Performances of works such as Terry Riley's *In C* (1964) started to challenge and widen my ideas about performance, performance space, and interaction with fellow musicians in a performance, and also led me to question further the cellist's and cello's role in music. Around the same time, I bought an electronic cello and starting recording and performing with the 'metelodic' (heavy metal) band, Harlot. Initially, I had felt that I needed an amplified cello in order to be heard on stage; however, I soon discovered a new palette of sounds of which I had not previously been aware. When I moved to London to commence my PhD studies, my explorations of the possibilities of the cello in pop groups continued. Simply amplifying the instrument didn't meet my growing needs, so I began to explore various effect pedals and looping stations. Instantly, the sonic possibility of the instrument multiplied, alongside the context in which I could play and perform. More than any other music situation I had experienced up until this time, the cello became my own individual voice. I did not use my vocal cords to sing in the bands, I used my cello, and my sound could be as individual and distinctive as a singer's.

The late cellist, conductor, teacher and writer, Professor Alexander Ivashkin (1948–2014), my teacher, academic supervisor, and mentor for over 15 years, said in an interview with *The Strad* in 2004:

> It's very important not just to play but also to experiment with all forms of expression and experience . . . A conservatoire training can only take you so far. We need something else. It is no longer sufficient merely to spend one's entire career playing the standard repertoire over and over again. It is

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[82] Cello manufacturer Luis & Clark began developing a cello constructed from carbon-fibre in 1989. I met the maker, Luis Leguia, in Boston in 2006 (and subsequently bought my own carbon-fibre cello). Leguia told me of an experiment he performed with members of the Boston Symphony Orchestra, in which several cellists played 'blind' auditions using first wooden and then carbon-fibre cellos. The judges, seated behind a curtain, could not hear a difference.

important to travel and try to absorb as much as you can from different environments, cultures and experiences. [83]

This has become the ethos of my journey as a cellist and a researcher, and the foundation on which the following research has been carried out. Throughout this process, I have discovered that my work has not just been a study of hybrid, globalised music trends: I am the trend myself. With hindsight, I can see that my early multicultural experiences, and cross-traditionary, international training is a totally contemporary phenomenon that suits me for (and in some way demands) a contemporary, multicultural, electro-acoustic repertoire.

1.1. Introduction

The art and act of playing the cello have changed immensely over the past century.[84] In the period after the Second World War, a growing interest in investigating the instrument's sonic[85] and textural possibilities, alongside explorations of noise as music, provoked many composers to use traditional instruments in new ways. These experiments resulted in an increase in the genres comprising cello music, and – importantly for this thesis – developments in the electronic medium, along with exposure to and analysis of non-Western[86] musical traditions, began to appear in Western compositions. As these trends took hold, the concept and palette of extended techniques expanded to infiltrate all aspects of the cellist's role as player and performer.

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[83] Alexander Ivashkin, 'Pioneering Spirit', *The Strad* (December, 2004): 1282-1286.

[84] Composer and cellist Frances-Marie Uitti (1946–) suggests that changes in the cello score first became evident in two very different works, Zoltán Kodály's *Sonata* Op. 8 (1915) for solo cello and Anton Webern's *Three Little Pieces* Op. 11 (1914). Kodály's work challenged the performer to refine technical skills, as the score includes a five-octave range, *scordatura* (which employed a new harmonic expression unplayable in standard tuning), and extensive use of various types of left-hand *pizzicato*. In contrast, Webern's aptly named *Three Little Pieces* are 'highly coloured through the use of *ponticello* and *sul tasto* contrasts as well as wide leaps, artificial and natural harmonics, and extreme dynamic range from *ppp* to *fff*' (Uitti, 'The Frontiers of Technique', in *The Cambridge Companion to the Cello*, ed. Robin Stowell [Cambridge: Cambridge University Press, 1999], 212).

[85] For the duration of this thesis, the term *sonic* will be used to describe the quality and production of sound. The word has been established in the literature since the 1950s, when timbre and texture became key in composition. (One of many examples of this usage can be seen in Joshua Fineberg's article 'Spectral Music,' in which, speaking of the spectral method of composing, the author writes: 'the "panoply of methods and techniques" used are secondary, being only "the means of achieving a sonic end"' [Fineberg, 'Spectral Music', *Contemporary Music Review* 19, no. 2 (2000): 2].)

[86] Refer in this thesis to the introduction, 'Main Research Question,' or section 1.3.1 for an explanation of my usage of the term 'non-Western'.

I employ the term *extended* in multiple contexts throughout this chapter to describe the various ways in which cello playing, as well as the role of a cellist, have developed and changed. Although I use the term in various contexts, a definition of extended techniques at this early stage will be helpful.

Despite the prevalence of this term in the vernacular of contemporary music specialists, it is hard to find a clear and consistent definition. Oxford Music Online includes the entry: 'Instrument modifications and extended performance techniques.'[87] Surprisingly, the term is nowhere explicitly defined and does not appear in other major music dictionaries or encyclopedias.

Extended techniques, as implied by the name, require the performer to use an instrument in a manner outside traditionally established norms. However, extended technique is a fluid and elusive term, and these norms are constantly changing as music develops.[88] A technique that may have seemed very radical when a piece was initially written can quickly become well established. Additionally, what is classified as an extended technique can vary amongst instruments. While the use of harmonics is not an extended technique on the cello, on woodwind instruments and the piano it is. On a cello, plucking the string or playing with a mute are not extended techniques; however, tapping the body of the instrument is.

Thus the threshold between extended and traditional techniques is both fickle and fluid. This thesis, however, is less concerned with defining this boundary for the cello than with seeing how the cellist's role has expanded due to new sonic explorations of the instrument. The first part of this chapter will look at evolving philosophies and new approaches to writing for the cello, exploring how the sonic and textural potential of the cello has been expanded using acoustic means. The following

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[87]Hugh Davies, 'Instrument Modifications & Extended Performing Techniques', in *Oxford Music Online*, Oxford University Press, <http://www.oxfordmusiconline.com/subscriber/article/grove/music/47629> (accessed January 18, 2013).

[88]Technique is not fixed. Generally speaking, technique describes the physical demands involved in playing a particular instrument, and these have changed considerably through time. Cello technique developed throughout the eighteenth and nineteenth centuries to include, for example, thumb position, *spiccato* bowing, and vibrato. So despite the surge of additions made in the twentieth century, the idea of developing technique is not itself new.

two sections discuss ways in which 'foreign' elements have extended cello playing, specifically electronics and the musical traditions of non-Western cultures.

1.1.1. Expanding philosophies

The extension of genres in the cello repertoire, which includes both the incorporation of the cello into electronic music and the use of the cello to express musical ideas associated with other cultures' musical traditions, would not have happened without a revolution in attitude regarding the definition of music, and which sounds are admissible as music. Foreshadowing of extended timbres was evident at the end of the nineteenth century, with composers such as Richard Strauss, Gustav Mahler, Claude Debussy, Béla Bartók, Arnold Schoenberg, and Anton Webern rapidly extending the range of sounds – revealing a new adventurousness and desire for a broader means of expression, as well as for a wider variety of colours. This search intensified in the mid-twentieth century as composers explored new ways of writing for – and ultimately playing – the instrument.

Early sonic experiments in the cello repertoire departed from the traditional staff notation and began to incorporate a large number of graphic symbols, including shapes or patterns instead of, or in conjunction with, conventional notation. This was an important development in the communication of new sound colours beyond the scope of traditional notation.

This development also signified a major change in the role of the performer. 'Graph music' by Morton Feldman (1926–1987) is an example of this new notation, so named because he wrote it on graph paper. In *Projection I* (1950) for solo cello and *Intersection IV* (1953), Feldman wrote scores that only partially controlled the music, leaving the pitches indeterminate – only assigning registers (high, middle, and low) and specifying colours and articulations (such as *ponticello*, harmonics, and *pizzicato*). In *Music for Cello and Piano* (1955) by Earle Brown (1926–2002), the composer presents another early example of flexible communication by defining both the instruments and the pitches to be played but only sketching the durations. These two examples of graphic notation epitomise the new pathways for communication

between performer and composer, signifying a new approach to the composer/performer relationship and changes in the roles of each party. The composer declined the traditional authorial role of 'composer as creator,' asking the cellist to dictate the details of form and structure of the work in real time. Graphic notation further presented the performer with new freedoms in interpretation, technique, and performance. The exploratory nature of this new tradition meant that interpretations could be flexible. This was the beginning of a new approach to playing the cello.

As the concept matured and graphic notation grew in popularity, many avant-garde composers from the 1960s onward experimented with it on varying levels. Some used it as an alternative to traditional notation even when they could have achieved the same results with either method, simply because graphic notation was 'looser' and less prescriptive. This was because the individualised symbols and intentional ambiguities of graphic notation could lead to many possible interpretations in performance – a result the composers desired.

As new conceptions of what could be considered music emerged, so did explorations of sounds from all parts of the cello. In *Pression* (1969) for solo cello by Helmut Lachenmann (1935–), the composer explores the percussive possibilities of the cello, communicating his ideas by means of a specifically designed notational system of drawings which dictate the cellist's physical actions. This method is known as *prescriptive* notation, because it describes the performer's actions or methods for creating sounds. This is a modern-day form of tablature, a Renaissance-era method for notating music for fretted instruments and flutes. The more traditional *descriptive* notation, by contrast, describes the sounding result in terms of parameters such as rhythms, pitch, dynamics, and articulation.

In this work, the cello is a transmitter of different kinds of pressurised noise, with sounds produced on the body of the cello and with the bow itself (from bowing on the tail-piece to rubbing the body). The performer is asked to press, stroke, and hit various parts of the instrument and the bow. Moving away from traditional notation, the score maps out these physical actions. As the following two examples from the score demonstrate, the notation includes indications of physical movements and

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rhythms, coordinated spatially with a 'bridge clef' which depicts the strings, fingerboard, bridge, and tailpiece of the cello (figure 1.1).
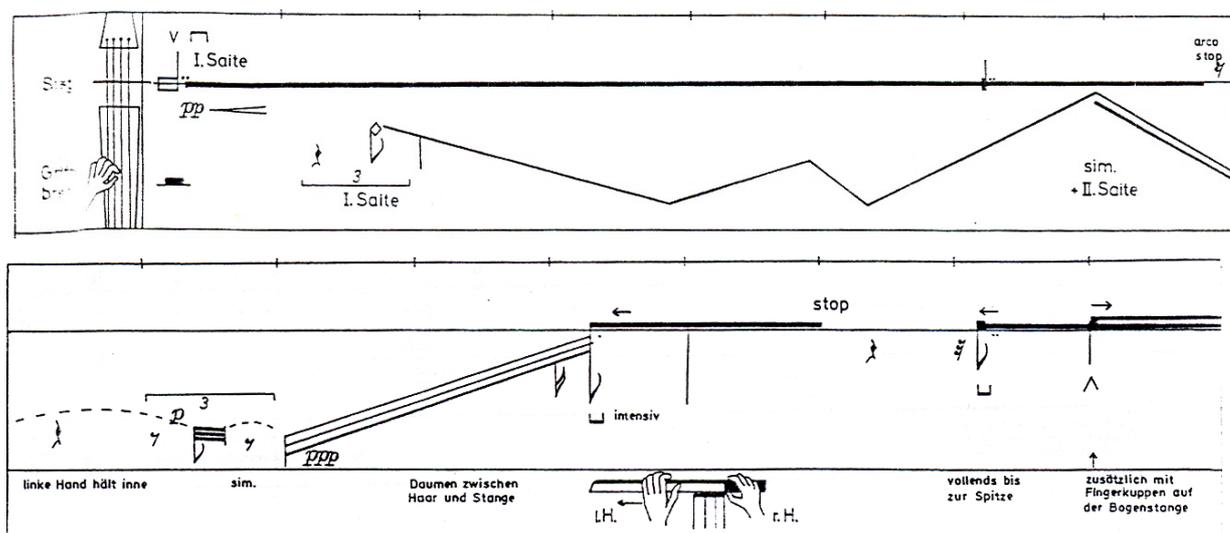
Figure 1.1. Two examples from Helmut Lachenmann, *Pression* (1969) for solo cello
Reproduced by permission of Breitkopf & Härtel
Copyright © 1972 by Musikverlage Hans Gerig, Köln
1980 assigned to Breitkopf & Härtel, Wiesbaden

My first experience witnessing *Pression* in a performance challenged both my ideas of playing the cello and musical aesthetics in general. The piece seemed like an experiment carried out to see how many ways the cello could make a sound; except in the traditional way – with the bow on the string producing a pure, clean tone. I had already seen the score and was expecting something percussive and disjointed; instead, the piece was gentle and beautiful, employing the whole body of the instrument to create a quiet and mysterious soundworld that was almost devoid of pitch (there is an interlude of chaotic grating sounds played behind the bridge that break this atmosphere, but this is short-lived).

One might argue that *Pression* does not contain 'extended techniques' at all, as the results of the exploration of possible sounds emerging from the instrument become the structuring material of the composition.[89] Lachenmann has employed performative energy (all the physical attributes and energies of the performer) as the

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[89] *Pression* is also one of the first pieces in the cello repertoire that introduces the concept of *musique concrète instrumentale*, where, moving away from established traditions, the music emphasises the way sound is produced rather than how it is supposed to be heard. For a structural analysis of *Pression*, see Jahn (1998).

compositional material, with the actual playing of the instrument becoming the compositional material. Here, the extended techniques are the structural foundation of the piece. David Alberman comments that 'The techniques, in short, are not optional when playing the music – they are the music.'[90] This new aesthetic direction represents a change in the traditional hierarchies by prioritising the performance over the text and by emphasising sound phenomena over the sound source. By doing this, Lachenmann shifts the focus from the score as a musical text to the action embodied in performance.[91]

The prescriptive notation found in these pieces raises questions about the relation of musical notation to intended gestures. The descriptive representation (signs) of sound is replaced by the corporeal (prescriptive) actions and gestures. In my experience, I found that every gesture and phrase should have a life of its own, allowing time for the sounds to emerge, both in terms of resonance and physical execution. Each cellist must adapt the performance to his/her own instrument, body, and acoustic, producing a unique interpretation. Prescriptive notational practices can be understood as an invitation for the musician to respond to the visual image with an action or gesture, forming an intuitive relationship between the notation and the performance.[92]

In the 1960's, Krzysztof Penderecki (1933–) described this new writing style, where the whole body of the cello was used to create music, as 'total cello.' He adopted this in an attempt to 'enrich the cello and give it another dimension.'[93] The instrument was played from endpin to scroll: it could be a percussive instrument; and its upper tessitura invaded the territory of the violin. It could play at extreme speeds and create an almost limitless range of sounds.

These new approaches to the cello that emerged after the Second World War significantly changed the role of the cellist. As musical language underwent immense change, the means of communication between composer and cellist needed to be

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[90] David Alberman, 'Abnormal playing techniques in the string quartets of Helmut Lachenmann', *Contemporary Music Review* 24, no. 1 (2005): 48.
[91] Tanja Orning, '*Pression* – a performance study', *Music Performance Research*, 5 (2012): 16.
[92] Ibid., 21.
[93] Galina Zhukova, 'Interview with Krzysztof Penderecki', St Petersburg Contemporary Music Center, http://www.remusik.org/en/journal/interviews/3-110907/ (accessed May 21, 2012).

greatly extended. Composers accorded more value to other parameters than the usual melody, harmony, rhythm, tempo, and dynamics, rearranging the hierarchy of values to give greater attention to register, articulation, irregular meters and rhythm, and timbre. Individual composers' approaches to notation varied, reflecting their stylistic priorities and attitudes to performers. Many loosened the restraints on the performer, granting a sense of freedom through deliberate ambiguity. Earle Brown's use of proportional duration avoids reliance on a fixed pulse or referential beat; similarly, Morton Feldman's *Projection* uses proportional pitch, notating only register with relative specificity; and Lachenmann's picture-like graphs indicate a free and playful approach to the instrument.

When these scores were written, graphic notation had not yet acquired longstanding performance traditions. The ambiguous nature of the directions provokes highly subjective interpretations. Because of this, different players might produce entirely dissimilar performances of a particular work. Additionally, when performance becomes a central element in the compositional process – that is, the player's actions – each individual player becomes a unique contributor to the conception of each individual performance, drawing on his or her own repertoire of experiences and skill to create the performance. In *Pression*, for example, the sound palette is completely recreated, and the cello as a traditional instrument with all its connotations and history is irrelevant. By using this compositional method, Lachenmann liberated the sounds, the instrument, and the performer from any pre-established traditions of the cello.

1.1.2. Exploration of the new sonic and textural potential of the cello using acoustic means

The technological revolution of the second half of the twentieth century had radical effects on music and approaches to composing. Some of the major extensions in cello playing in recent years grew out of developments in the electronic medium, in which the cello's sound is combined with or altered by an electronic sound source. However, while the cello has become an important instrument in its own right in the electronic medium (an issue discussed in depth throughout this thesis), the influence

of the early developments in electro-acoustic music in the 1950s and 1960s also inspired composers to create new musical aesthetics for the instrument using acoustic means. This philosophy contributed to the incorporation of non-Western elements and techniques into the cello repertoire.

Penderecki made some very important contributions to the cello repertoire (see Appendix 5) in which his concern with cluster sonorities and his chosen range of experimental timbres reveal the influence of technology on his aesthetic.[94] In an interview with Penderecki in 2010, the composer explained that he first became interested in the sounds made by electronic instruments which he was unable to realise using conventional instrumental techniques while he was working in the electronic music studio of the Polish National Radio in Warsaw. He went on to say that the new techniques (particularly for strings) and new notational methods he developed were an attempt to transpose electronic sounds into the orchestral domain.[95] While Penderecki wrote some electronic music, his primary aim in the 1950s and 1960s was to rely on the unconventional use of conventional instruments to achieve unusual and striking effects: '[we were] experimenting with strings, using also some elements of electronics but not with electronic instruments, trying to transcribe the sound, which I heard in a studio and adapted for the instruments.'[96]

Whereas Lachenmann's chief concern in *Pression* appears to be using the cello as a transmitter of various pressurised noises, challenging performance criteria, and facilitating an experiment in sound production, Penderecki seems more preoccupied with sound quality, texture, timbre, articulation, dynamics, movement, and expression as primary form-building elements in cello compositions. *Sonata* (1964) for cello and orchestra was the first piece Penderecki wrote for the cello;[97] however, it was his *Capriccio per Siegfried Palm* (1968) that become a benchmark piece in the repertoire, coming to signify the beginning of this new approach to writing for and playing the

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[94]Elliot Schwartz and Daniel Godfrey, *Music Since 1945: Issues, Materials, and Literature* (New York: Macmillan, 1993), 220.
[95]Andy Battaglia, 'The Passion of Krzysztof Penderecki,' *Resident Advisor* (August 2010), http://www.residentadvisor.net/feature.aspx?1234 (accessed August 5, 2013).
[96]Bruce Duffie, 'Composer Krzysztof Penderecki: In Conversation with Bruce Duffie' (2000), http://www.bruceduffie.com/penderecki.html (accessed May 21, 2012).
[97]*Sonata* for cello and orchestra (1964) requires similar techniques to those found in his more famous *Threnody to the Victims of Hiroshima* (1960), such as hitting the fingerboard, strumming and percussive gestures, hitting the strings with the wood of the bow, and playing behind the bridge.

cello. The composition focuses on the characteristics and qualities of sounds that the cello can make, with the composer writing in his 'total cello' style. More than any work previously written for the cello, it exemplifies the use of texture as the primary basis for musical ideas and their organisation, consisting almost exclusively of textural blocks and clusters.

The seven-minute piece is practically a catalogue of new cello techniques, using both conventional notation as well as his own system of symbols to represent performance instructions, such as playing between the bridge and tailpiece, playing on the tailpiece, left-hand finger percussion, tapping on the body of the cello, arpeggios behind the bridge, and specific directions on how to vibrate. The tone palette is created via nontraditional modes of playing the instrument (for example, scraping, creaking, and thumping on the body of the cello), and there is no melody, rhythm, or harmony in the traditional sense of those terms: they assume the role of different types of sounds and characters. He also pioneered a new approach to pitch. In place of note-by-note pitch relationships are two kinds of material: (1) pitch clusters and (2) various unorthodox sounds of indefinite pitch created by the new techniques. This approach to sound and creating music was very similar to that of early electronic compositions.

The work is only three pages long, though in this short time the dense notation exploits almost every technical and musical device the cello is capable of producing. This calls for a radical new approach to notation, and thus the composer includes a page explaining seventeen abbreviations and symbols that he uses throughout.

$\gtrless$	Fast, irregular tremolo
$\Uparrow$	Play between the bridge and tailpiece on two strings
$\{\Uparrow\!\!\!\Uparrow\!\!\!\Uparrow$	Quick arpeggio between the bridge and tailpiece, direction required
$\ominus$	Strong, short strokes at the side of the bridge
$\triangleright$	Emphasis on the tailpiece
>>>>>	Very hard, distorted accents
$\dagger$	With the finger knocking on the soundboard of the instrument
$\uparrow$	The highest possible sound on a string (string is required)
$\vert$	Beat with the flat hand on the fingerboard
Y	Tap a finger on the bridge
$\sim\!\sim\!\sim$	Rapid, excessive, unmeasured vibrato

Figure 1.2. Invented symbols for Krzysztof Penderecki's *Capriccio per Siegfried Palm* (1968), trans. Rebecca Turner

I first encountered *Capriccio per Siegfried Palm* during my undergraduate studies in Christchurch with Pavlutskaya and Ivashkin. My teachers viewed it as a revolutionary and pivotal piece in the repertoire and encouraged me to play the work. This experience presented new challenges. First, the visual images are related to various performance techniques, many of which are original and thus required the new symbols in fig. 1.2; in each instance, I had to translate the image into a physical action. I had to decide how to approach the score, how to structure music formed by blocks of unusual sounds rather than traditional thematic development, how to establish fluidity and continuity, and ultimately how to create an interesting and understandable musical experience for the listener.

What became clear to me during this process was how electronics had influenced the conception and sonic realisation of the work. The cello creates an extraordinary palette of sound throughout, making the instrument almost

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unrecognisable in performance. By creating equivalents of white noise,[98] filter effects, and percussive envelopes, and producing sounds on the acoustic cello that sound much like those of electronic music, the composer evokes the tape studio.

1.1.2.1. The influence of electronic traditions on the conception of acoustic compositions

Sofia Gubaidulina (1931–) has composed prolifically for the cello (refer to Appendix 5). Her compositions have also been influenced by the electronic medium, exemplified in her unusual combination of contrasting elements, numerology, the use of mathematical formulae, such as the Fibonacci series and the Golden Ratio as tools for structuring the forms of her works,[99] novel instrumentation, the use of contemporary playing techniques, and the imitation of electronic sounds.

Early evidence of this impact can be seen in her interest in the ANS synthesizer,[100] a photo-electric musical instrument created by Russian engineer Evgeny Murzin which can create sound/music from a visual image. The invention is based on the method of photo-optic sound recording used in cinematography (developed in Russia concurrently with the U.S.), which made it possible to obtain a visible image of a sound wave, as well as to do the reverse – synthesize a sound from an artificially drawn sound wave. The ANS score is produced by a graph-coded melody or with freehand drawings of a graphic structure, which can include random and regulated elements that are transformed into sounds.

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[98]The Oxford Companion to Music defines white noise a 'sound made up of a random distribution of audible frequencies at equal intensities; it is a continual hiss, and is a component of electronic music' ('White Noise', in *Oxford Music Online*, Oxford University Press, http://www.oxfordmusiconline.com/subscriber/article/opr/t114/e8240?q=white+noise&search=quick&pos=1&_start=1#firsthit [accessed August 5, 2013]).

[99] Mats Bergström, 'Change We Can Believe In: Sofia Gubaidulina's Mathematics of Physical and Religious Time,' *Chamber Music Today*, Blog Archive, http://chambermusictoday.blogspot.co.uk/2008/11/change-we-can-believe-in-sofia.html [accessed March 1, 2013]).

[100]Biographer Michael Kurtz says that Gubaidulina first started taking an interest in electronic music and the ANS synthesizer in the early 1960s (Michael Kurtz, *Sofia Gubaidulina: A Biography* [Bloomington, IN: Indiana University Press, 2007], 81). Though the initial design for this system was developed in 1938, the technical realization of the ANS as a musical instrument did not occur until 1958. ANS are the initials of Alexander Nikolaevich Scriabin.

An example of a graph-coded melody created by the ANS synthesizer can be seen in figure 1.3. Here, the horizontal axis represents time in seconds; the vertical, pitch in semitones. Figure 1.4 is a drawing of the graph structure by Stanislav Kreichi, a Russian composer who has done much work with the ANS. Both scores are read from left to right, and marks that are aligned vertically represent sounds that are heard simultaneously.[101]
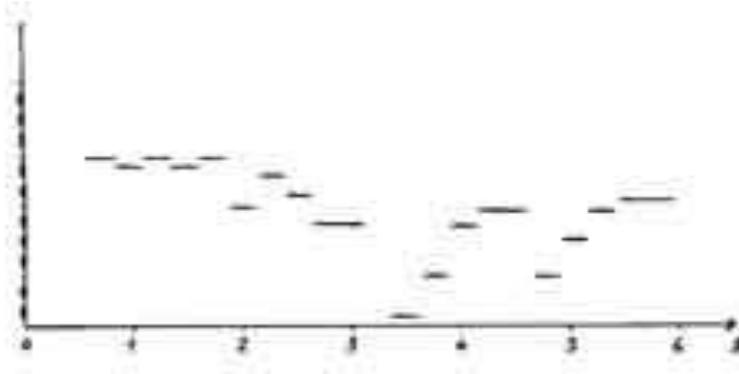
Figure 1.3. The graphic image of a melody as represented in an ANS score[102]
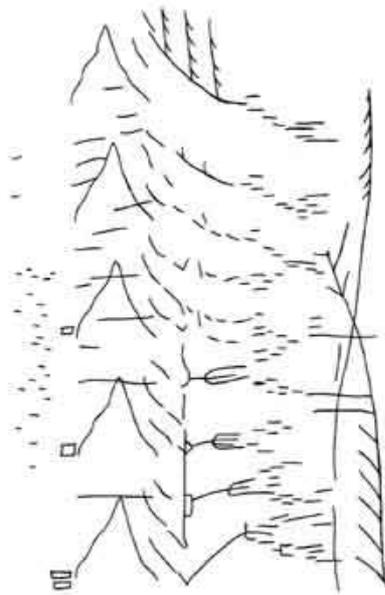
Figure 1.4. An ANS score picturing graphic structures drawn freehand on the mastic-covered plate [103]

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[101] Stanislav Kreichi, 'The ANS Synthesizer: Composing on a Photoelectronic Instrument', Theremin Center (1997), http://theremin.ru/archive/ans.htm, accessed July 5, 2013.
[102] Ibid.
[103] Ibid.

Gubaidulina wrote specifically for the ANS synthesizer (*Vivente – Non vivente* [1970]) and also adopted the concept of creating a freer graphic representation of her musical ideas, employing a picture or a graphic image to define the structure and inspire the sounds of many of her subsequent compositions. This approach is evident in her sketches for various compositions,[104] an example of which is shown in figure 1.5. The sketch shows similarities to a freehand drawing designed to be read by an ANS sythensizer. This image also demonstrates the composer's use of two series, the Fibonacci and Lucas numbers, to form the rhythmic structure of the work.[105]

Figure 1.5. Sofia Gubaidulina, '*Heute früh, kurz vor dem Aufwachen*' (1992–1993), sketch, 'last variant'[106]

Gubaidulina's *Ten Preludes* (1974) for solo cello provides a good example of the influence of the electronic medium on the composer's approach to composing. In the spirit of electronic music, all ten preludes are built around gestures and expressions that, in similar fashion to Penderecki's music, imitate the sounds of

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[104]These sketches are kept at the Paul Sacher Archive in Basel, in the Sofia Gubaidulina Collection at the Paul Sacher Foundation. See also Valeria Tsenova, *Number Mysteries in the Music of Sofia Gubaidulina* [Russian] (Moscow: Moscow Conservatory, 2000).
[105]Tsenova, 'Number and Proportion in the Music of Sofia Gubaidulina', in *Mitteilungen der Paul Sacher Stiftung* (Basel: Schweiz, 2001), 24.
[106]Ibid., 26.

electronic effects and instruments. However, the influence of electronic music runs even deeper in these preludes, with the composer using graphics to assist her in forming the work. Gubadulina's unique compositional method was inspired by the ANS synthesizer: starting with a picture or a graph, she would then get inspiration for the structure of the music and the textures created from that image.[107]

The two examples given above (figures 1.3 and 1.4) of ANS scores help explain the musical construction and language of *Ten Preludes*. For example, if Gubaidulina were to convert the image shown in figure 1.3 into a cello score, the higher sounds would be at the top of the register and the lower sounds nearer the bottom. The straight lines might be short bows, moving across the various strings. Timings might also relate to the length of each line, and the texture would surely be thin. Likewise, on first appearance, each of the ten preludes resembles an assembly of random outbursts of effects or expressions (similar to that of an electronic piece); but when understood in the correct context, one can see how the composer used the sonic palette of the cello, short gestures, and unusual sounds and techniques to imitate the progression and development of such an image. This is particularly clear in Prelude No. 10, 'senza arco, senza pizzicato' (which also features in the practical component [recital] of my thesis), with parts of the score looking like a musical translation of the image shown in figures 1.3 and 1.4.

Figure 1.6. Sofia Guabidulina, *Ten Preludes* for solo cello (1974) [108]
Copyright © MUSIKVERLA HANS SIKORSKI GMBH & CO. KG, Hamburg
Reproduced by permission of MUSIKVERLA HANS SIKORSKI GMBH & CO

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[107]In a personal interview with Alexander Ivashkin (June 21, 2013), he spoke of this conversation he had with Gubaidulina in Groningen in October 16, 2006.
[108]Gubaidulina, '10. senza arco, senza pizzicato,' *Ten Preludes* (1974) for violoncello solo, edition no. SIK1839 (Hans Sikorski/VAAP). Written in 1974 and revised in 1999, the complete work is approximately twenty minutes in length and is dedicated to the cellist Vladimir Tonha, who edited the revised copy published by Edition Sikorski.

Technology also influenced the timbres created by Gubaidulina in her music, with the sonic results often imitating those associated with electronic instruments and sounds made in the studio. When composing *Vivente – Non vivente*, Gubaidulina looked to highlight the contrasts and transitions between synthesized tones and natural sounds and noises: she taped laughter, sighs, screams, church bells, and fragments of a church choir, all of which underwent further processing in the studio and resulted in the new work.[109] This work yielded important new acoustical insights regarding timbre and articulation that were then translated into her approach to creating new sounds on the cello. As the title indicates, Prelude No. 10 is played without the bow or *pizzicato*; instead, the cellist plays *con le dita* (with the fingers), producing sound by striking the string from above the fingerboard with a finger. This technique creates an echo-like percussive effect, more closely resembling an electronically manufactured sound than one on the traditional cello. Other percussive sounds are created throughout (in the notes that accompany the score, the composer indicates that these should emulate the role of a side drum). For example, in bar 22 (see figure 1.6) the cellist plays a form of *tremolo* on the C string, using the thumb of the right hand. Like music written in the electronic medium, pitch and melodic line are secondary to timbral effects, gestures, and expressions in the *Ten Preludes*, a characteristic that has carried through into many of the composer's later cello pieces.[110]

Much of Gubaidulina's subsequent cello music was also written in the spirit, if not the actuality, of electronic music, employing many unusual effects, timbres, and theatrical elements. Like the cello music by Penderecki, Gubaidulina's compositions demonstrate how both the ethos behind the electronic medium and the new sounds created in the genre influenced the kind of music being written for the cello well beyond its own medium. While many of the new issues that gained prominence during the decades following the Second World War did overlap, the electronic medium was a particularly innovative field that stimulated many new approaches to composing for the instrument. The electronic medium can be directly correlated to revolutionary ideas regarding sound and pitch, the loosening of ownership by the

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[109]Kurtz, *Sofia Gubaidulina*, 83.
[110]For further information on *Ten Preludes*, the specific techniques used, the expressions created, and how Gubaidulina incorporated them into the work, refer to Miranda Wilson, 'Mysticism, Mathematics & Thimbles: The Cello Music of Sofia Gubaidulina', *Strings* (February 2012), 24-26.

composer, and a new focus on unusual ways of approaching sound colour and time, resulting in many new textures for the instrument.

The aim of this section has been to explore some of the early attempts by composers to create a new sonic landscape of sound for the cello. The following two sections will now discuss how these developments have changed and extended the cello repertoire, and consequently cello playing, in two specific new streams: 'the cello and electronics' and 'the cello and non-Western techniques.'

1.2. The Cello and Electronics

1.2.1. The use of the cello in the electro-acoustic medium

The ongoing quest for new sounds and ways of organising them has led some composers to search for resources which went beyond the limits of the acoustic instrument. Modern technology has provided such resources in the form of tape machines, mixers, microphones (amplification), and computers, revolutionising approaches to such musical elements as pitch logic, time, texture, and sound colour. Some of the major extensions in cello playing in recent years have resulted from these developments in the electronic medium, in which the cello has been combined with, or altered by, an electronic sound source. This has had effects on both technique and performance practices.

Composers began experimenting with incorporating electronics into live performance in the early 1950s. Most of the works written during these early stages were for instrument and tape. Edgard Varèse's *Deserts* (1950–1954) for orchestra and tape was one of the first works of this type, and Dutch composer Henk Badings's *Capriccio* (1952) for violin and two sound tracks is one of the earliest known solo instrument/tape pieces (instead of 'tape', the composer specified two soundtracks, since stereo was a new technological development at the time). Composers didn't begin writing prolifically for the cello in the medium until the 1960s. From then on, however, the cello has quickly become a popular tool in electronic music, with composers utilizing it for collaborations and experiments because of its rich

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overtones, the colouristic potential of its long strings, and its deep resonance. While all of the repertoire discussed in this section falls under the umbrella of 'Cello and Live Electronics' music (throughout this discussion, the term 'live electronic music' will refer to pieces which combine an acoustic instrumentalist with electronic devices in a live performance), various innovations have produced works for the repertoire which could be loosely placed into three primary categories as distinguished by David Neubert: (1) with tape, (2) with electronics, or (3) studio processed.[111] The first category is the most common, since it is the simplest logistically for live performance (all that is required is a tape recorder/play back system, amplifier, and speaker system). The second category is often the result of a composer-performer collaboration and is usually restricted to those who have the necessary equipment – for example, an electric cello or a pick-up, and computer. The third category is not intended for performance but is used for commercial or album-recording purposes. This final category is not discussed at any great length in this thesis, as while it is related on some levels, it does not involve the act of performing live with technology but more the recording process.[112]

There are many aesthetic issues concerning electronic music, but for the purposes of this research, my discussion will focus on some salient issues that a cellist may encounter when playing live electronic music: effects on technique, changes in the relationship with the instrument, changes to the role in performance (leader, follower, space, control), relationship to the electronics, managing the electronics in a performance, working with sound engineers, the boundaries between performance and theatre, the body and performance, acoustic versus studio, and the relationship between the audience and the performer.

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[111]David Neubert, 'Electronic Bowed String Works: Some Observations on Trends and Developments in the Instrumental/Electronic Medium', *Perspectives of New Music* 21, no. 1/2 (1982–1983), http://www.jstor.org/stable/832892 (accessed May 4, 2012).

[112] Playing in the recording studio presents a different performance situation than live performance. First, the pressure to play a perfect performance is lifted as there is the option/tradition of recording a section many times, then editing together the best takes to create the final 'perfect' product. Second, you can manipulate the sound post recording, by adding effects such as reverb, distortion, enhancements, and layering multiple takes of the same part to create a richer and thicker sound. And finally, you are able to record different lines to create multiple voices.

1.2.2. Cello with tape

During the early stages of electronic music, sound sources were entirely different – either pure electronics or pure instrumental sounds playing alongside each other. As the medium developed, the sources gradually began to merge, and one of the major trends associated with electronic music began to develop: the search for timbral integration between the cello (in this case) and electronic instruments. Though the tape part was pre-recorded, and the acoustic cello not altered, each sound source would look to imitate, and extend, the sonic possibilities of the other.

A preliminary example of this can be seen in Mario Davidovsky's (1934–)[113] landmark piece for the cello titled *Synchronisms No. 3* (1965), for cello and pre-recorded tape, which explores the instrument's relationship with synthesized sounds. This piece was part of the composer's Synchronism series and is indicative of the trend of merging sources, with *Synchronisms No. 3* primarily integrating the mediums by means of rhythmic and tonal 'synchronisation'. In the work, the composer successfully blends the cello and electronic sounds in terms of colour, and at times the timbre and texture of the live and the pre-recorded sounds are so well matched that they become almost indistinguishable. This is achieved largely by having the cello create similar sounds to the synthesized ones; through the use of *pizzicato*, running passagework, *col legno,* and harmonics, the player produces a range of special effects on the instrument, creating an electronic music palette on the cello similar to that on the tape. Timbral integration is particularly successful toward the end of the work, when the cello plays a sustained low C-sharp and the tape takes over the same pitch by imitating the cello timbre.

The integration of taped electronics into a live, virtuosic performance introduces some new elements into performing. One of the most basic of these is the challenge of playing with a pre-recorded tape part. In this early example, exact coordination between the live performance and electronic sounds is only attempted during short passages. In extended passages one component is meant to accompany the other, introducing an element of chance, and allowing also for inevitable time

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[113]Mario Davidovsky was a colleague and pupil of Russian composer Vladimir Ussachevsky, who was particularly known for his work in electronic music.

discrepancies that develop between the live performance and the constant-speed tape recorder. Furthermore, Davidovsky deals with another issue relating to playing with a tape, that of cuing the performer when to play, by carefully scoring tape cues for the cellist. This established a precedent for scores to include a separate tape part in the score.

Carl Vine (1954–) imitates 'natural music' in *Inner World* (1994) for amplified cello and tape, integrating sounds from the cello with electronic effects to create the sounds of nature – for example, the wind, waterfalls, and seagulls. In this particular piece, the tape part is constructed entirely from a recording of cello playing by David Pereira, the dedicatee and first performer of *Inner World.* Vine integrated this recording into an accompaniment for the live solo cello which consisted of both cello-sounding lines, and passages where the sounds are more distorted.

Several new performative issues became clear when I first played with a pre-recorded accompaniment. The nature of the electro-acoustic part means that in many cases – unless the composer does not consider synchronisation of the live and tape parts important – the tape part is a dictatorial and perfect metronome. This is especially true when cause-effect relationships are 'created' through live-tape coordination, making split second timing essential. Unlike Davidovsky's *Synchronisms No. 3*, where coordination is only required in short sections of the piece, in *Inner World* synchronisation is demanded throughout. This becomes increasingly challenging when the music grows in intensity and the dynamics get louder. The final section of *Inner World* provides an example of this - from bar 228 through to the end the dynamic level for both the cello and tape parts ranges from *f* to *fff*, and can result in you feeling submerged and, at times, lost in the textures.

Another performance issue is dynamic balancing between the parts: if the tape part is too loud the cello will not be heard above the recording; however, if it is too quiet, the cellist cannot hear the accompaniment and it becomes virtually impossible to play in time. The sound engineer plays a very important role in the performance of any work written for the cello and electronics (there are, of course, some exceptions, where the cellist chooses to control and assess all the electronic components in a performance – in this scenario, the cellist is typically the composer, engineer, and

performer). Much responsibility falls on the sound engineer to manage sensitively balancing in real-time. The cellist should issue clear instructions to the sound engineer before a performance in order to try and avoid the distraction of asking for the levels to be adjusted during a performance (regardless, experience has proved that such communication is almost unavoidable due to unpredictable factors, such as feedback or noise from the audience). I also found it helpful if the sound engineer follows the score too. By doing this, (s)he can be an active agent in a performance and adjust the levels in accordance with the score and the cellist's interpretation. Of course, there are more complex issues related to sound diffusion in a performance that go beyond balancing and into matters such as, for example, the deployment of sound in space – stereo and quadraphonic systems etc. This often becomes another central consideration for the sound engineer.

1.2.2.1.   Timbral integration and playing techniques

An important performance technique for the cellist is learning how to play *with*, not alongside, the electronics.[114] As such, the performer must train his/her ears to hear the intricate lines the electronic part is producing, and then experiment with new ways of playing techniques on the cello to imitate and interact with these sounds.

Before entering the performance space, the cellist needs to develop an understanding of his or her role in the work at hand. First, (s)he must consider what type of sound will contribute best to the ensemble – if timbral integration is an important compositional focus, the performer should strive to achieve this through the application of techniques. In Carl Vine's *Inner World*, for example, the recorded cello part moves along the spectrum from an acoustic cello sound to sound effects, where the 'natural' cello sound is unrecognisable; the best way for the live cello part to integrate itself into this soundscape is through choice of bow strokes and left-hand techniques. The performer should experiment with different bow strokes (for example, *flautando*, *sul tasto*, and *sul ponticello*), bow pressure and speed, *spaccato*,

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[114] Jamie Bullock, Lamberto Coccioli, James Dooley, Tychonas Michailidis, 'Live Electronics in Practice: Approaches to training professional performers', *Organised Sound* 18 no. 2 (August 2012): 170-177.

col legno, *tremolo*, and *ricochet,* in addition to various left-hand techniques, like varying speeds of vibrato, left-hand vibrato, and left-hand finger pressure, in an attempt to create sounds similar to those heard on the tape.

Alongside this, the performer must establish an understanding of the dialogue between the two parts. As suggested by Emmerson, composers often move between the clarity of original sound and modified sound, creating a situation where the live instrument moves between leader (playing the grand gestures) into subordination with the textures.[115] It becomes the performer's job to differentiate between 'tape-led' and 'solo-led' formations, analyse the interaction and gestures that take place between the two, and highlight the difference between the 'floating', 'ambiguous', and 'grounding' textures being created.[116] In 'solo-led' sections the cellist will be in familiar territory, using traditional techniques and striving for a clean and clear sound. In the 'tape-led' sections, the player should draw on various techniques, such as those suggested above, in order to imitate the pre-recorded lines.

Examples of this kind of dialogue can be heard throughout *Inner World*. Bars 191 to 214 present a solo-led section, where the cellist plays a lyrical melody while the tape part accompanies with steady harmonic *pizzicato*; and bar 172 a tape-led section, where the cellist is instructed to play *tremolo sul ponticello*, in order to imitate the sounds being created on the tape and become submerged in the textures. At other times, the cellist must precisely imitate sounds heard on the tape part to create conversational interaction between the parts. Bars 169 to 171 provide a good example, with electronics creating a sound reminiscent of a seagull's call that the cello line must immediately imitate. After trying many types of *glissando*, I found that I needed to play it from high up on the D string and apply a fast, heavy bow stroke in order to create a similar effect. Similarly, in bars 215 to 227 techniques such as 'knock on side of cello', 'slap low front of cello', and playing long *ricochet* bow strokes create a conversation between both the live and recorded parts.

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[115] Simon Emmerson, 'Acoustic/electro-acoustic: The relationship with instruments', *Journal of New Music Research* 27, no 1-2 (1998): 151.
[116] Ibid.

1.2.2.2. The use of pre-processed tracks to create the illusion of an ensemble

The use of a pre-recorded backing track as an accompaniment in live performance has become increasingly popular. This method may be used in order to enhance fusion between the electronic and instrumental timbres, or to create the illusion of an ensemble when availability, space, or funds do not allow for one.

David Lang's (1957–) *World to Come* (2010) includes an eight-cello, pre-recorded accompaniment, eliminating the need to employ eight additional cellists for a performance. Additionally, the composer intends the music to play alongside a visual performance consisting of a large video screen displaying various landscape scenes, with the cellist sitting in front. The images can vary depending on the videographer, but they are always synchronised with the music.[117]

Lang's piece, similarly to Vine's *Inner World*, extends the definition of ensemble playing. Here, the performer must play alongside an electronic ensemble. In such cases, one of the main objectives is to stay in time with the pre-recorded backing tracks, whether auditory or backing videos, which are also synchronised with the track. Synchronisation is imperative throughout this work, and as no clear beat is present, the cellist must wear headphones to hear a metronomic click track. Though playing with a click track is not a new technique (it is routine in the popular music recording industry, or when recording a movie soundtrack in an orchestra), it is relatively new for the classical cellist in a live performance situation, and can be challenging. I've found it helpful to practice playing the piece with a metronome click, as this will help tune the ear to the constant pulse and highlight any sections where the performer may be unconsciously fluctuating in tempo.

This presents a subtle change in performance objectives. A main focus becomes that of staying in time with the click track and 'fitting in' with the prepared

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[117] Lang has recently written an arrangement of *World to Come* for cello and orchestra (2010) which was premiered in London at Queen Elizabeth Hall February 24, 2014, by Maya Beiser and the BBC Concert Orchestra. In this performance there was no videography. This may have been for practical reasons, or it could imply that Lang uses the video to add an additional presence to the performance, a role which the live orchestra fills in this particular arrangement.

parts. Though the cellist appears to be taking on the traditional role of the soloist, in that (s)he leads the music and the accompanying parts follow, the situation actually shares more similarities with recording in a studio, where the cellist's musical boundaries are much narrower and precise playing becomes the main goal. The new challenge becomes that of creating an interesting and personal interpretation within the constricted boundaries.

In some respects, the cellist is disempowered by this relationship with the tape and is consequently unable to influence many aspects of performance: there is no 'real-time' control over balancing, the overall effects of the electronics are often inaudible to the performer, and a metronomic tempo can be constricting. While a margin of flexibility can be built-in through multiple cues, and satisfactory balancing will, under optimal circumstances, be established in a sound check before a performance, I have found from personal experience that the medium itself isn't appropriate for the flexibility demanded by different acoustics, venues, and audiences. The addition of a fold-back speaker to exercise subtler control over the sound mix and levels may be useful for the player to enable him/her to hear the overall balancing; however, the performer needs to have come control over sound – an awareness over timbral nuance, level sensitivity, and inter-performer balance – and the ability to adjust these elements in real-time.

1.2.3. Category two: cello with electronics

While we can assume that many professional cellists have had some experience with playing pieces in the first category (cello with tape), performing the pieces in category two (cello with electronics) is less common. To distinguish between the two in the context of this thesis, I will refer to the works in this second category as cello with electronics. With these pieces the live cellist often interacts with the electronics in real-time, taking a share in creating the work. The parameters are not all fixed and the sounds produced cannot be fully predicted. Both the acoustic performer and the electronics devices (and/or engineers) are 'live' and active in the creative process.

If one were to sort the pieces in the repertoire belonging in this second category into three ascending categories by level of difficulty, they would go as follows: (1) works with easy digital delay settings; (2) works with real-time control over the effects; and (3) works which use a computer with multimedia software.[118] In this first level, controlling the electronics requires little or no involvement by the cellist. With level two pieces, the cellist must learn how to edit and save a patch on a Multi Effects Processor unit; this is the beginning of true interactive electronics, with MIDI pedals controlling an effect in real time. Effects are gradually added or removed while playing, and MIDI pedals eliminate the need (though it is sometimes preferable) to have an assistant to run the electronics. The cellist must acquire additional coordination in order to play the pedals with his/her feet, like an organist. Level three includes works that have extensive electronic setups and require a computer and software, in which the cellist must be proficient. At this level, it is possible to build up the sound by adding layers to a sample in real time, creating long, sustained phrases.[119] A separate sound engineer is most beneficial, if not imperative, in all three performance situations.

As the cello was further integrated into the electro-acoustic medium, and the development of the genre progressed, performers were challenged by increased interaction with the electronics, the taking on of the added responsibilities of controlling the various electronic devices, and increased participation in the compositional process through experiments with technology. Additionally, new issues arose that needed consideration, such as changes in performance criteria, theatre and performance, studio versus live sounds, and space.

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[118] Level one includes pieces such as Tom Flaherty's *Trio* (1991) for electric cello and digital delay, and Carlos Rodriguez's five-movement suite titled *Crater Lizards* (1986). *Hearing Voices* (see Chapter Three) belongs in level two, as does *Shadows and Light* (1989) by Ken Steen. Category three includes works such as Michael Gatonska's *On Connecticut Naturalism* (2003) and *Landmine* (2001) by Anna Rubin.

[119] Technology, such as Pauline Oliveros' Expanded Instrument System (EIS) is an example of a performer-controlled delay-based network of digital sound processing devices that enables the performer to change parameters and control a sound-processing environment. The EIS was designed to be an improvising environment for acoustic musicians. With this set-up, the performer has appropriate microphones, a computer, and a collection of sound processing devices. Foot switches and expression-type foot pedals are interpreted by the computer to control signal routing from the microphones among the sound processors, as well as control certain functions of the processors themselves. On the computer's screen, the performer sees a display of the available functions which he/she can control with a single foot pedal. See Peter Ward and Pauline Oliveros, 'Expanded Instrument System (EIS),' *Proceedings of the International Computer Music Conference*, (Montreal: 1991), 404-407.

1.2.3.1. The extension of performance criteria

Brian Ferneyhough's (1943–) ground-breaking *Time and Motion Study II* (1973-76) for amplified cello and live electronics provides a helpful example when exploring how the union between the cello and live electronics extended and challenged traditional cello playing. Here, the electronics, and the electronic performer, become an integral part of the performance, both visually and in the realisation of the score. This work is composed for the performer's whole body; it is not just the hands of the amplified cellist that are busy: both feet operate foot pedals, and at times he/she has to vocalise too, via a throat microphone. This work uses live electronics not just for amplification and sound projection, but also to permit the delayed and transformed playback of certain passages.

Visually, the cellist is surrounded by a considerable amount of electronic apparatus. This can be seen in the stage setup specified in the 'Electronic Circuit Plan' included in the score (see fig. 1.7). While advancements in technology have simplified the performance process required from when the piece was first performed in 1977[120] – what would have been five open reel tape recorders and three electronic assistants, has been simplified down to one person (or sometimes two), performing a virtuosic role on his or her computer, replacing all those people and a huge amount of that equipment[121] – the work still requires an elaborate and complex use of electronics.

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[120] This performance took place at the Donaueschingen Festival, October 1977, with Werner Taube playing the cello.
[121] An example of this simplified realisation can be seen in a performance by Neil Heyde (cello) and Paul Archbold (electronics), recorded in 2007 (Brian Ferneyhough documentary, 'Electric Chair Music,' music produced and recorded by David Lefeber, directed and photographed by Colin Still [Optic Nerve, 2007], https://www.youtube.com/watch?v=Py5Vk90ZTak [accessed June 8th, 2014]). In another realisation, Reynold Rott plays the cello alongside two electronic assistants: Yayasan Musik Indonesia and Bliss Studios, *Time and Motion Study II* (2012), https://www.youtube.com/watch?v=ghyN-kJpcbI, (accessed June 10, 2014).

Contact.
mic. affix
on/below
fingerbd.

Cont.
mic. on
body of
instr.

Footpedal

Footpedal

Air. mic.
in front of
instr.

m-preamp.
with 3
outputs!

R.m.

Input R
aux.

Input L
mic.

Output 1

Output 2

Input R
aux.

Input L
mic.

Output 2

Outp. 1

14"

erase

mic. L   R.   Aux.

mono

mic.   Aux.

erase

mic. L   R.   Aux.

mono

9"

Live-cello
sound
(two speakers
preferable)

Handregulator

Handregulator

Modulated
sound (only)

(playback
stereo)

L.   R.

Imp.   Imp.

:ants are
lectronics,
rect field
t. A third
useful for
overall

Figure 1.7. 'Electronic Circuit Plan' for Brian Ferneyhough's *Time and Motion Study
II* (1973-76)
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The cellist sits in the traditional place in the hall (at the front in the centre), but is encompassed by electronics and has the electronic performers sitting close by. Microphones are connected to the performer's body, to the cello, and are also placed in front of the cello. As the work plays out, the cello lines are recorded and then played back while the cellist is playing new parts of the piece. Multiple speakers are positioned at various places in the performance space. Two are placed next to the instrument, these play back recorded parts with a 9 second and 14 second delay. Then further out, two speakers play back parts recorded in completely different sections of the work. Right up close to the cellist is an additional speaker that produces distortions of the cello, where the cello's performed voice is distorted by the physical voice of the cellist.

On a simple level, the piece is exploring the relationship of the cellist to the technology by which the player is surrounded, scrutinised – and, inevitably, found wanting. As suggested by the title, the work is about time: remembering the past and looking into the future. The taped parts, in essence, act as memories, both good and bad, interrupting the present. On a philosophical level, the audience sees the cellist reacting to their own 'past' – mistakes (s)he may have made in previous sections, and clashes that may occur with the current lines being played. On a gestural and physical level, we watch the cellist navigating a furiously difficult score, contending with three foot pedals, vocal lines and a vocal microphone, and contact microphones on the instrument to bring out the percussive sounds.

This score was written between 1973-76, and while the cellist's job of reading and responding to the score remains largely the same, the sound engineer's job has changed as a result of advancements in technology; it falls, however, within the area of the sound engineer's expertise to adjust his/her performance accordingly. While it is clear that the sound engineer plays an integral and substantial role in the realisation of *Time and Motion Study II*, this is not always the case, as the amount of input needed from him/her varies from work to work. I will suggest three groups. In the first group are works, such as Vine's *Inner World*, which require relatively little input from the sound engineer, just the basic balancing of levels is necessary due to the amplification of the cello (and, in this particular case, the cuing of the tape part at the indicated time). In the second group are works which involve live electronics throughout, for example, Cryne's *Hearing Voices*; in some instances, such as this, the composer may design the work so the cellist can, theoretically, control the live electronics during the performance (of course, a sound engineer is still needed for balancing), however, the performer may not feel comfortable with this responsibility and opt to hand over some of this responsibility to the sound engineer (see, 3.5 for further discussion). Finally, in the third group are works such as *Time and Motion Study II*, where the sound engineer plays an equal role to the cellist, becoming a true ensemble partner in the performance.

This work is not only complex in terms of electronics, but this densely notated score also presents the performer with myriad instructions – almost every note has a signpost delineating dynamic, tonal, or timbral definition (see figure 1.8), displaying

characteristics of the music from the New Complexity style of writing.[122] This style is most readily characterised by the use of intricate notation, which has direct results on the complexity of the performance process for the cellist. Microtonality, altered tuning, highly disjunctive melodic contours, innovative timbres, complex polyrhythms, unconventional instrumentations, and abrupt changes in loudness and intensity are combined to produce scores of unparalleled difficulty for the performer, demanding an extended knowledge and a great deal of experience to assist in deciphering and performing these extremely detailed and densely notated works. Fast and frequent changes demand rapid-fire reactions and impeccable technique. Only an advanced player would attempt to learn so complicated and abstruse a work.

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[122]A largely British movement, New Complexity is a term dating from the 1980s that describes a group of composers who wrote music that shares similar aesthetic and formal characteristics. They sought to achieve a 'complex, multi-layered interplay of evolutionary process occurring simultaneously within every dimension of the musical material' (Christopher Fox, 'New Complexity', in *Oxford Music Online*, Oxford University Press, http://www.oxfordmusiconline.com/subscriber/article/grove/music/51676?q=New+Complexity+Music &search=quick&pos=5&_start=1#firsthit [accessed April 21, 2013]). Notable composers in this style include Brian Ferneyhough, Michael Finnissy, Richard Barrett, James Dillon, and Roger Redgate.
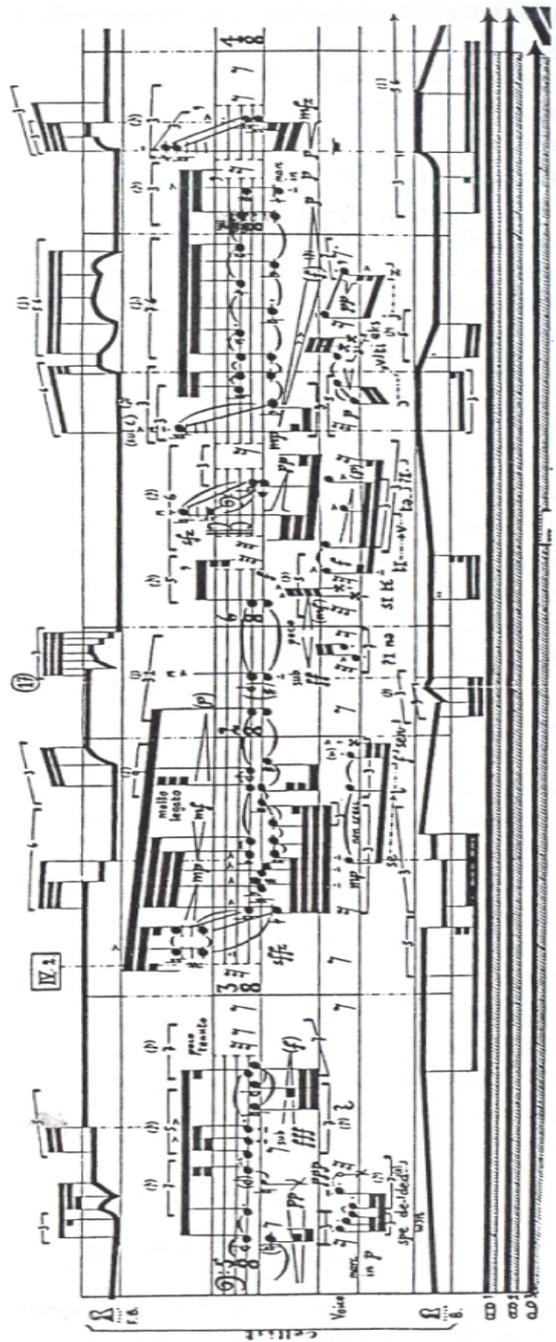
Figure 1.8. Brian Ferneyhough's *Time and Motion Study II* (1973-76)
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As shown in figure 1.8, the score is written on five lines: the pedals are fully notated so must be co-ordinated with the live events, the vocal sounds (labelled voice) have their own language explained in a key, and the assistants' lines consist of loops and tape lines. The cello part is written on two lines that constantly interrupt each

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other, and the cello oscillates between two contrasting types of material: the first characterised by static, fluid, and perpetual motion, and the second by dynamic, diverse, and expansive motifs. Constructed of extremely fast passages and complex cross-rhythms, the performer's part leads to a situation in which (s)he is pitted against him/herself in the realisation of an almost impossible score. Multiple playback loops repeat in stereo the player's successes and failures, finally building into a hallucination.

1.2.3.2.   The extension of expressive resources

There have been many ways in which composers have looked to extend the expressive resources of the performer in the electronic medium. Schwartz and Godfrey summed these up into two basic approaches: (1) by augmenting the range of sounds produced by the instrument, and (2) by broadening the range of activities required of the performer.[123] Clearly the range of sounds are augmented in *Time and Motion Study II* through the application of various electronic effects, vocal effects, and the employment of many new and extended approaches and techniques for playing the cello. While this work is ground-breaking in this context and deserving of analysis, for the purposes of this discussion I am going to focus on the second approach: how these developments have widened the performer's physical activities and role in a performance.

From a mechanical perspective, the addition of foot pedals and other control devices widens the cellist's physical activities, in addition to presenting him/her with new challenges, such as creating musical fluidity, and dealing with various mechanical issues that arise with blending and co-ordination between the acoustic and electronic instruments, control devices, and technical assistants on stage. While this can boost the capabilities of the performer (for example, enhancing sound), the cellist is challenged to learn and incorporate these new physical actions seamlessly into the score. Some musicians (such as the New York violinist Mari Kimura) try to avoid too much interaction with the external electronic elements, both because they believe that

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[123] Elliot Schwartz and Daniel Godfrey, 'Multi-media and Total Theatre', in *Music Since 1945: Issues, Materials, and Literature*, 136-163.

the action of pressing the pedal with your foot can distract the audience from the musical experience, and also because the physical movement can alter the bow arm and left hand position, which may effect sound production.[124] While I sympathise with this viewpoint, I believe that any affects on technique, and consequently sound production, or additional physical actions that are necessary in order to perform a work in this medium, are important components in its conception and realisation. Therefore, they should not be hidden from the audience, but rather become a part of the performance. We may observe this in *Time and Motion Study II,* where the electronics are an integral part of the performance.

The execution of the physical gestures in *Time and Motion Study II* creates an important link between the body of the musician, the body of the instrument, the electronics, and the audience. The body of the musician becomes an inseparable part of the music in the moment of the performance, through the physical and almost choreographic nature of the work. This presents the cellist with new performance criteria, where accuracy and musical development become secondary to the act of performing. In musicologist Richard Toop's article, 'Brian Ferneyhough in Interview',[125] the composer talks about a theatrical element begin added to the process of physically playing and performing his music. Interpreting performance as an approximation, Ferneyhough requires the performer to take on new roles, with the music being about the collision between the performer's body and their instrument, and the scores requiring the performer to 'play,' not merely play. When the performer's response to a score is presented as musical material rather than for the primary purpose of producing sounds, we see a break with the concept of the work as an abstract object that is written down in a score and fully realised through sound. This new perspective on performance shifts a piece from being music-centred to performance-centred, greatly increasing each individual performer's role in the conception of a work. The corporeality of the performer invites him/her to take a central role in the realisation of the work, producing a performance that cannot be replicated by anyone else, or even the same performer in a subsequent performance.

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[124] Mari Kimura, 'Creative process and performance practice of interactive computer music: a performer's tale', *Organised Sound* 8, no. 3 (December 2003): 289-296.

[125] Richard Toop, 'Brian Ferneyhough in Interview', *Contact* 29 (1985): 10-12. In this same article, Ferneyhough states that he is interested in the gap between the score and result, how the performer will react to the challenges presented by the score, and how they can bring something creative and unique to the music.

As these boundaries between music, performance, and theatre start to blur, they provoke the question of whether the cellist should concentrate on accurately reproducing the score, or if the 'experience' of performing the work and the visual results are more important. While Classical Western musicology has traditionally separated movement/experience and sound, prioritising sound, more recent non-Western and electronic music study don't separate the two with such ease.

1.2.3.3. Theatre and performance

The boundaries between performance and theatre, and theatrical aspects of performance, are important issues in repertoire in the electronic medium. The idea of representation as a presentation or reflection of an idea is present in much of the classical music tradition where the work (i.e. the score) has a high status. However, a change in the approach to the performance of music has been occurring in recent years. The work formally viewed as an object is now seen in terms of relational interplay between multiple agents: the performer, work, composer, electronics, performance space, and audience.

While the performer's role is ultimately to interpret and present the signs contained on the score, every musician approaches the task of performance differently. 'The pianist Leif Ove Andsnes regards himself as an actor, with each work offering him a different part which he tries to bring to life for the audience, "to personify the composer's ideas through the means he considers suitable, on an aesthetical, technical and personal level."'[126] Nicholas Cook concurs: 'Thinking of the music as "script" rather than "text" implies a reorientation of the relationship between notation and performance.'[127] My formative cello teacher, Natalia Pavlutskaya, placed high importance on a performer's presentation on the stage, and often incorporated ideas from the acting techniques of Konstatin Stanislavski (1863-1938). In this

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[126] Tanja Orning, '*Pression* – a performance study', *Music Performance Research*, 5 (2012): 18. Quoting from, Astrid Kvalbein, *Leif Ove Andsnes – I og med musikken*, trans., Tanja Orning (Oslo: Det Norske Samlaget, 2005), 178.

[127] Ibid., Orning; and Nicholas Cook, (2003) 'Music as Performance' in *The Cultural Study of Music: A Critical Introduction*, ed. M. Clayton, T. Herbert & R. Middleton (London: Routledge, 2003), 206.

system, which Stanislavski developed between 1911 and 1916, and further refined between 1934 and 1938, actors learned to portray believable emotions in performance.[128] In our lessons, Pavlutskaya challenged me to apply these ideas to my own playing, suggesting that from the moment I walk on stage I am 'in character.' As such, I was encouraged to avoid making unnecessary body movements or tuning loudly so as not to detract from the 'drama' of a performance.

The level of theatrics employed during a performance vary greatly, however. One can loosely separate the repertoire and approaches into two categories (1) the natural theatrical elements that arise as the performer co-ordinates with, and controls the electronic devices, and the broadening range of activities required of the performer (movement, gesture), and (2) the methods of exaggeration or over-amplification sometimes employed in the medium to add a corporeal presence to a piece or intensify the drama; or altered or enhanced physical gestures employed by the performer to align their movement with the sonic feedback. *Time and Motion Study II* represents a work in the first category. While Ferneyhough clearly explores the potential of both physical and musical gestures, the work cannot truly be categorised as music theatre. In Mauricio Kagel's *Match* (1964), theatrical elements can actually overshadow musical factors. Here, a tennis game takes place between two cellists with a percussionist as umpire. In *Time and Motion Study II*, all the actions are done to produce the music and no additional 'acting' is required of the cellist. In general, the majority of the pieces in the repertoire do fit into this first category, and it tends to be a performer's prerogative whether to add additional movement and exaggeration to a performance. There are, however, some pieces written in the electronic medium that lend themselves to this approach, where the performer may feel the work would benefit from adjustments to behaviour on stage, whether to accommodate the relationship with the other sound sources and agencies, or to add some corporeal presence to a performance.

Michael Gordon's *Industry* (1992) for solo cello and electronics is an example of a work where methods of exaggeration may be used to introduce some human presence into a work. This particular piece explores the possibilities of combining the

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[128] For more information refer to: Sawoski, Perviz, 'The Stanislavsky System: Growth and Methodology', http://homepage.smc.edu/sawoski_perviz/Stanislavski.pdf (accessed March 26, 2014)

cello with electronics in a style that one might call art rock,[129] navigating the various sound textures created by distorting the classical cello with electronic effects and guitar pedals. Minimalist in style, for the first third of the work, Gordon repeats the same broken chord motive, occasionally changing one note in the harmony or adding *glissando*.[130] Following this, the work gradually intensifies (with the composer using tools such as repeated down-bows), and distortion and reverb are steadily increased until the work erupts in a frenzied explosion of sound.

In a performance of this piece, the climax is largely controlled by the sound engineer via an auxiliary from the sound desk rather than increased in motion in the score. This can create a lack of consistency between the intensity of the physical action by the cellist and the resulting sound. In such situations, some cellists may strive to co-ordinate the visual experience with the sonic experience by exaggerating his/her gestures in order to align the physical gestures with the intensifying sonic feedback, rather than the organic sounds (s)he is creating on the instrument. Some (such as Bahn, Hahn, and Trueman) caution performers, as they believe exaggerated gestures can result in larger planes of separation between the electronic and live performer. And while the use of exaggerated gestures in performance is fairly commonplace in the rock world (it is not unusual for singers to mime on stage while a pre-recorded part is played, or for backing tracks with additional pre-recorded vocal parts to be played in order to create a thicker sound), this is not common in the classical tradition; in fact, the lack of genuineness would be frowned upon by many. However, when discussing the topic in the context of the electronic medium, where a live performer's ensemble partner consists of electronically produced sounds, new issues can be taken into consideration.

In the case of *Industry*, the fact that it can be categorised as art rock implies that it is a combination of art music and rock music so could legitimately employ the

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[129]Oxford Music Online defines art rock as 'A style of rock that overly displays musical influences from Western classical styles' (Robert Walser, 'Art Rock', in *Oxford Music Online*, Oxford University Press, http://www.oxfordmusiconline.com/subscriber/article/grove/music/49138?q=art+rock&search=quick&pos=1&_start=1#firsthit [accessed August 6, 2013]).

[130] It could be suggested that *Industry* paved the way for many new works in this minimalist style some ten years later – for example, Steve Reich's *Cello Counterpoint* (2003) for cello and pre-recorded tape, David Lang's *World to Come* (2010), and *The Room Is the Resonator* (2009) by David Fennessy.

musical and performance traditions of both genres.[131] The relation between Western 'art' musics and vernacular (or popular) musics in Western society has a long and complex history.[132] Hybridisation and integration are two prominent characteristics of our postmodern times, and much has been written about the contemporary hybridisation possibilities in genres of electro-acoustic music. Steve Reich wrote: 'we are living at a time now when the worlds of concert music and popular music have resumed their dialogue.'[133] I am not suggesting that the performer should completely cross over into popular genre performance practices;[134] however, this new approach to performing may help with the creation of new identities, which is an exciting and relevant prospect. In my experience of both playing and watching various performances of this piece, I have come to the conclusion that some moderately added gestures and co-ordination with the sonic feedback create a more unified and exciting performance experience for the audience.

1.2.3.4.　　　Space

Concepts of 'space' in performance are brought to the fore when playing a piece in the electro-acoustic medium. Space is an integral part of sound, and this is ever true when playing with electronics. Music and space combine in a symbiotic relationship, and the effectiveness of any space for a performance is related to the listening abilities of composers, performers, and audiences. First, the player must be discerning in choosing an appropriate performance venue for electronic and interactive computer music: if it is too large the sound will get lost, however, if it is too small the amplified sounds will be overwhelming. It should be designed for full bandwidth and maximum dynamic range, and low noise floor. Having performed in both small and large concert halls, and in festival venues, which are generally large with high ceilings (if not outdoors), I can attest that a medium-sized concert hall, with high-tech sound system, (such as Queen Elizabeth Hall in the South Bank Centre) is the preferable venue when performing with electronics as it enables careful balancing

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[131] Rock bands and rock concerts often contain strong theatrical elements; Queen, Led Zeppelin, Madonna are a few iconic examples.
[132] Refer to Simon Emmerson, *Living Electronic Music*, 93, for further reading.
[133] Ibid., 69.
[134] Apocalyptica and 2 CELLOS give two examples of cello groups who have crossed over into the popular genre.

and control over the sound, in addition to encouraging a still and quiet audience, which helps with concentration.

A further issue related to performance space is that of sound diffusion. Typically, sound production is very one-dimensional, coming out of two speakers pointing into two directions. While a degree of directionality and audible perspective can be created by using stereo-sound, creating the impression of sound heard from various directions, as in natural hearing, it can still be confusing for an audience, as the visual cues given by the cellist and the sound source are often contradictory. Currently, the performer has no control over sound diffusion, either at his/her own local level or the overall sound and mix within the space. Having a loudspeaker in close vicinity to the source of the sound (the cello) would give greater control over the directionality of the original and modified sound sources, and variation in sound could be achieved by having multiple speakers in different directions. Additionally, the audience seating should be fixed so you can direct the loudspeakers for the best possible results. A sound diffusionist who follows the score, controlling and adjusting the dynamic level accordingly, can help with co-ordinating the action and sonic result for the audience.

Changes to 'space' in a performance have resounding effects on the performance experience for both the player and the listener. Electronics have changed the nature of performance with the combination of 'live' or acoustic playing and 'studio-created' sounds. As I have already noted, one of the major trends has been to blend the sounds of the two mediums, and this, along with the displacement of sound caused by the loudspeakers, changes the performance experience as it can become difficult for the audience and the performer to distinguish who is making what sounds, blurring the boundaries between 'live' and 'studio-created' sounds. Visual-spatial aspects of the performance can blur this further, as the cello, which is essentially seen as an acoustic instrument – most of the electronic apparatus is subtle and by and large, the instrument is played in the traditional way – produces sounds quite different from those typically expected from the instrument.

1.2.4. Electronic categories and trends, and their effects on the cellist

When surveying the various works written for cello and electronics, I notice a trend toward a homogeneous blend between the traditional cello and the electronic media. This blend has been achieved by reciprocal timbral imitation in both mediums – accomplished by developing instrumental techniques that are 'quasi-electronic', by using electronic techniques to synthesize instrumental sounds, by the manipulation of instrumental sounds electronically (either live or in the studio), and, more recently, growing flexibility in terms of sound production and control by the performer.

Performing with live electronics raises several challenges. When cello and electronics were first combined, most of the repertoire was at level one in difficulty – the cellist played alongside a tape. However, as the medium developed, and composers and the use of technology in composition became more advanced, the repertoire started to demand extended technical knowledge and input from the cellist. This typically involved equipment and electronic components such as software and pedals. As technology continues to develop so too do the techniques of performance. If cellists want to keep up with new repertoire, they must learn to operate, adapt, and build software themselves – and then be able to control devices in real time while performing. Additionally, the 'human versus machine'[135] scenario has a built-in sense of theatre. The presence of electronics in a concert hall setting draws attention to visual-spatial aspects of the performance, especially if the cellist has extra responsibilities related to the electronics to carry out during a performance. In other circumstances, the combination of the live performer with a pre-recorded tape (oftentimes of the cellist's own playing) presents an interesting scene for the listener, confronted by the performer in present and past simultaneously. Furthermore, the view of just one performer can noticeably contrast with the sound, or multiple sounds, coming from a different location.

Ideas regarding live and studio sounds, contradictions between performer action and sonic result, changing ideas of space, the boundaries between theatre and music, and logistical issues that arise when playing with electronics are all relevant to

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[135]Schwartz and Godfrey, 'Multimedia and Total Theatre', in *Music Since 1945*, 143.

the performance of electro-acoustic repertoire. The addition and application of the electronic elements greatly varies the sounds and resonant properties of the acoustic cello, resulting in both an extension of inherent characteristics (e.g. the prolongation of decay times) but also unexpected behaviours which force the cellist to adjust their mode of playing. For example, if unexpected feedback occurs when playing on the lower strings it may force the cellist to suddenly change the string (s)he is playing on or greatly lesson the pressure of the bow on the string in attempt to halt the reaction with the electronics. One of the most unsettling issues for the cellist when playing with live electronics is the lack of control over the performance situation, causing the cellist to have less *agency* when it comes to certain variables (such as dynamics, pacing, sound quality, sound direction, and tempo), and the inflexibility of the electronic elements. Richard Moore coined this lack of control over performer action and sound result: 'control intimacy'.[136] Not only are simple subtleties, such as direction or projection of the cello's sound, obliterated by the current loudspeaker systems, nuances of timbre and loudness are also distorted. This can take away the performer's ability to control such elements. Additionally, the performer often has little or no control over the tempo, dynamics, balancing, and overall pacing of a piece. Further developments in technology and performance will surely benefit these aspects of the medium.

In most conservatories and universities, playing with live electronics is not a standard requirement in cello performance, and seldom part of any cello curriculum.[137] Thus, as with many new and experimental developments, the responsibility falls on the cellist either to carry out his/her own research and experiments with the software and electronics on the market, or, as is more common, to learn gradually by working with and learning from the creators of electro-acoustic compositions and the tools and programs required for playing them.

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[136] Richard F. Moore, 'The Dysfunctions of MIDI', *Computer Music Journal*, 5, no. 4 (1988), 19-28.
[137] There are some exceptions, such as California Institute of the Arts that specialise in contemporary classical music and include classes on playing with electronics as a part of their education.

1.3. The Cello and Non-Western Techniques

The search for an expanded sonic landscape for the cello has also contributed to the emergence of repertoire containing non-Western elements. This was stimulated in part by a similar pursuit to that of Lachenmann, Penderecki, and Gubaidulina: the stretching of boundaries, redefining what were to be considered 'musical sounds', extending techniques, expanding genres, and challenging the performer to develop a new understanding of the instrument. As with the works of these composers, this new style of writing saw other composers searching for new sound qualities and textures from the cello, as they attempted to create a new soundscape and aesthetic using acoustic means.

While both electronic and non-Western influenced repertoire challenge the performer to search for ways of creating new qualities of sounds on their instrument, the musical contexts and inspiration are very different. In the electro-acoustic medium, composers shift the cello into a modern and technological context, where imitating, blending and interacting with processed sounds, along with understanding, co-ordinating with, and controlling various electronic devices become important performance considerations. Conversely, in non-Western influenced music, composers move the cello into different cultural contexts, extending the cello's sonic palette in order to create sounds and nuances heard in various folk music traditions. One approach looks forward to innovation and technology for inspiration, the other back, to (sometimes) ancient music traditions; both offer a treasury of new sounds, and different theory, philosophy, and performance practices.

These new approaches to writing for the instrument are in accord with features and characteristics of the postmodern movement of the 1970s. This saw some composers beginning to blend older traditions with newer, tonality with atonality, Western music with non-Western music, 'classical' idioms with 'popular' idioms, and scholarly music with folk music. The following from Jonathan Kramer's 'Characteristics of Postmodern Music' are particularly relevant in the context of this research: changes in categories (the use of the acoustic and electrically modified cello, the extension and fusion of genres, changes to performance context, and space); technology being used not only as a way to preserve and transmit music but also as

deeply implicated in the production and essence of the music; challenges to the boundaries between "high" and "low" styles; a tendency towards cross-culturalism and polystylism; and considering music not as autonomous but as relevant to cultural, social, and political contexts.[138] While, on varying levels, most of these characteristics can be applied to the non-Western influenced music recently introduced to the repertoire, the final three are of particular relevance in the following discussion.

1.3.1. The influence of non-Western styles and techniques on the cello repertoire

As stated in the Introduction, the use of the term *Western* throughout this dissertation refers not so much to a geographical locality as to an established set of musical practices and expectations. The influence of non-Western music on the repertoire is not a new phenomenon; there is a significant tradition of composers incorporating superficial characteristics of music from foreign lands into their music. Some composers, such as Dvořák, Smetana, and members of the Russian Mighty Five have used folk tonalities and harmonies to impart a nationalist flavour to their work, and others, like Debussy and Bartók have used specific themes lifted whole from their folk-music origins. However, a discussion of the various ways in which composers in the standard repertoire have incorporated folk music into their compositions is beyond the scope of this thesis. Instead, I will focus on a style of writing which began to emerge as part of the postmodern movement in the 1970s, one which saw composers searching not only to assimilate folk elements (such as melody, harmony, and rhythm) into their music but also a desire to go further and translate the sound qualities of these non-Western instruments and traditions into the sound of their music. The performer, in turn, is presented with the challenge of creating these new timbres on his/her instrument. These challenges come in two main areas: (1) the need to gain a certain degree of understanding of the non-Western musical tradition assimilated into the piece, and (2) the need to explore the ways to most successfully imitate the sounds

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[138] Jonathan Kramer, 'The Nature and Origins of Musical Postmodernism', in *Postmodern Music Postmodern Thought*, ed. Judy Lochhead and Joseph Auner (New York and London: Routledge, 2002), 16-17.

and musical nuances of the particular tradition on the cello, fusing the non-Western elements with Western techniques.

1.3.2. The development of a New Zealand music tradition

As composers uncovered new sources of material for their music, they extended both the cello's sonic palette and playing techniques in order to imitate the nuances from their native musical traditions. Various nationalistic styles developed, for example, in Eastern Europe and Western Europe, the Middle East, England, America, Brazil, Australia, and New Zealand, resulting in some fresh and original additions to the contemporary cello repertoire. This topic is vast, so for the purposes of this chapter I will focus my discussion on the development of a uniquely New Zealand music, using the example of my homeland to explore some of the historical and cultural elements that lead to the development of this new approach to composing, how it materialised in the repertoire, and how this affects cello technique, performance, and approach to playing. A more in-depth study on this process and results, though in the context of the Azerbaijani *Mugham* tradition, can be found in Chapter Two.

One can hardly broach the subject of non-Western influence on the repertoire without some mention of issues related to cultural appropriation, cultural imperialism, post-colonialism, and globalisation. As noted by the literary theorist and intellectual Edward Said, 'the connection between imperial politics and culture is astonishingly direct.'[139]

Said wrote much about post-colonialism and the general patronising and dominating attitude of the West towards Middle Eastern and Asian cultures; parallels can be drawn between his ideas of 'Orientalism' (a term which Said redefined to refer to the West's condescending perceptions and depictions of Middle Eastern, Asian, and North African societies) and the attitudes towards, and treatment of, the Māori people by early British immigrants. Said observed that Orientalism depends for its

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[139] Said, Edward, *Culture and Imperialism*, (Vintage, London: 1994), 7.

strategy on a 'flexible positional superiority, which puts the Westerner in a whole series of possible relationships with the Orient without ever losing him the relative upper hand.'[140] While such issues are, largely, beyond the reach of this performance-based research, New Zealand history, and the development of a New Zealand music, does provide a helpful platform from which they can be mentioned.

New Zealand was colonised by Britain in the late eighteenth and early nineteenth centuries. To say that the consequent process of imperialism gave rise to political and economic dominance by the West of this undeveloped country is not to say anything very disputable: however, it also has cultural aspects.[141] In his pivotal book on cultural appropriation, *Orientalism*, Said wrote that while it is indisputable to say that modern Orientalism has been an aspect of both imperialism and colonialism, 'it is not enough to say it; it needs to be worked through analytically and historically.' Said was interested in showing that Orientalism 'embodies a systematic discipline of *accumulation*.'[142] A comparable statement could be made regarding the development of a uniquely New Zealand music style: it embodies a similar discipline of accumulation, and has been an aspect of both imperialism and colonialism, but needs to be worked through in order to understand it.

The concept of cultural imperialism as explained by Roy Shuker[143] involves the transmission of fashions, styles, and products from the dominant (often Western) nations to developing nations. This transmission of culture is evident in the early music traditions in New Zealand. Colonised in 1840, the country, over the next few decades, saw European migrants striving to recreate familiar cultural traditions in their new home. A prominent church culture brought with it the tradition of singing Christian hymns; amateur choral and orchestral societies flourished from the 1850s; a thriving brass band movement began in the 1870s; and in the early twentieth century pipe bands became widespread (in Scottish tradition, these pipe bands usually consisted of a section of Great Highland Bagpipe, a section of snare drummers, several tenor drummers, and usually at least one bass drummer).

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[140] Ibid.
[141] Mitchell, Tony, *Popular Music and Local Identity* (London and New York: Leicester University Press, 1996), 50.
[142] Said, Edward, *Orientalism*, Second Edition (Peregrine Books, England: 1985), 123.
[143] Shuker, Roy, *Understanding Popular Music*, Second Edition (London, Routledge: 2001).

The formal traditions of European classical music took longer to develop, due to the country's geographical isolation. Composers such as Alfred Hill (1869-1960) were educated in Europe, but came back to New Zealand, bringing late nineteenth-century compositional traditions with them. Douglas Lilburn (1915-2001), New Zealand's laureate composer, also received a European education, studying with Ralph Vaughan Williams (1872-1958) at the Royal College of Music in London before returning home after the Second World War broke out. Following his return home, Lilburn gained international recognition for his compositions, many of which were inspired by New Zealand's environment.[144]

Many of New Zealand's post-Lilburn composers acknowledge a debt to him.[145] These composers display widely differing styles. Some have embraced modern technology, including computer techniques; some have closely followed modernist trends; and others absorbed the sounds of the Asia/Pacific region and synthesized them with European styles. While the contributions from European and American music traditions and developments cannot be ignored, a uniquely New Zealand classical music tradition has developed. This distinctive style of music is influenced by the percussive rhythms of the Pacific,[146] and infused with sounds from

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[144] An example of Lilburn's uniquely New Zealand style can be heard in his *Landfall in Unknown Seas* (1942) for narrator and string orchestra, the second in his early trilogy of works dealing with themes of New Zealand identity, following the *Aotearoa Overture* (1940) for orchestra and it predecessor, *A Song of Islands* (1946). Following some interest in serial techniques (which led to several notable works, including *Symphony No. 3* [1961], and *Sonatina No. 2* [1962] for piano), Lilburn went on to pioneer electronic music, where he continued to incorporate/assimilate distinctive New Zealand elements into his music, for example, native New Zealand bird-calls.

[145] Works such as his *Landfall in Unknown Seas* (1942) profoundly influenced the first postwar generation of composers, among them Edwin Carr (1926–2003), David Farquhar (1938–), Larry Pruden (1925–82), and Ronald Tremain (1923–1998). All spent at least part of their careers in New Zealand and trained or influenced the next generation, which includes Jack Body (1944–), Christopher Blake (1949–), Dorothy Buchanan (1945–), Lyell Cresswell (1944–), Ross Harris (1945–), Jenny McLeod (1941–), John Rimmer (1939–), Gillian Whitehead (1941–).

[146] One of the most well-known Māori traditions is chanting, which is charactertised by the excited shouting of a rhythmical text. One of the best-known dance traditions of Polynesia is the *haka*. The music for these dances is sung in a style of declamation that lies between speech and song. This style is called *heightened speech*. Vocal sounds and various body percussions such as stamping feet, clapping hands, and slapping of thighs help to keep rhythm (William Malm, 'Music Cultures of the Pacific, the Near East, and Asia', in *Prentice-History of Music Series*, ed. H. Wiley Hitchcock [New Jersey: Prentice Hall, INC., 1967], 12).

Māori traditions[147] (a number of composers have anchored their music in the South Pacific through use of Māori language, images or legends).

1.3.2.1. Landscape music

Elemental landscapes and weather patterns are reflected in this music, resulting in a prevalence of sounds from the natural world: wind, trees, water, insects, and various birdcalls that are common in New Zealand. Examples include Lilburn's *SoundScape with Lake and River* (1979), which incorporates recorded natural sounds of waves and a stream from Lake Taupo, and Ross Harris' *Horizons* (1974) that features water, the whale song, and sea shells. The most prominence natural source, however, is the birdcall. New Zealand composers are not, of course, the first to use bird song in their music, but unlike any other natural sound source, the songs of these native birds are truly unique and specific. While wind, water, and cicadas can be heard anywhere, the Tui, bellbird, kokako, and kea can only be heard in New Zealand.[148]

Literary critic and sociologist, Peter Beatson calls this uniquely nationalist music of New Zealand, 'landscape music' (where the term landscape is used generically to include seascapes, skyscapes, flora, fauna, weather, and any other local evocations of the spirit of place). He suggests that in this style, the composer 'attempts to approximate the actual colours, textures, movements, spaces and

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[147]Pre-European Māori music was predominantly sung. The singing was microtonal, with a repeated melodic line which did not stray far from a central note. Instrumental music was played on traditional Māori instruments, which include the Māori flute; the trumpet, made from wood; percussive instruments made from wood and jade; and whirled instruments (often used to summon rain) made from bone, wood, or stone (Brian Flintoff, *Taonga Puoro, Singing Treasures: The Musical Instruments of the Māori* [Nelson, New Zealand: Craig Potton, 2004]).

[148] Peter Beatson, 'The Quest for the Long White Whale: Nature Imagery in New Zealand Classical Music',
http://www.massey.ac.nz/massey/fms/Colleges/College%20of%20Humanities%20and%20Social%20Sciences/PEP/PDF_documents/Sociology/Beatson/Classical%20music%20essay.pdf. Composers use various modes in order to imitate New Zealand's native birds: from conventional musical instruments, to generated electronically, or recorded live and either played straight or are electronically modulated. Some of the most effective sequences occur when live, electronic, and instrumental bird sounds are blended and edited together. We hear these birds in Lilburn's *Dance Sequence* for Expo '70 in Osaka, which includes a white heron, two huias, a kiwi, four fantails, a tuatara, four kakas, a pukeko, and two large and two small moas.

emotional tonality of nature itself.'[149] This is representative of the new non-Western influenced style of writing relevant to this thesis: one that doesn't simply assimilate folk elements, such as rhythm, harmony, and melody into a work, but looks to translate sound qualities (colours, textures) into the music. Consequently, the Western instrument and player are placed into a new context, and are called to find ways in which (s)he can transform and transport their instrument into a foreign music tradition.

Journey of Matuku Moana (1993), by Gillian Whitehead, demonstrates this nationalistic 'landscape music', presenting a polystylistic blend of sounds from the Māori music tradition with European styles. Revealing her Western education (Whitehead studied in Europe during the 1960s and 70s)*, this piece started out as a graph chart, which consisted of various motifs (for example, transcribed birdcalls) that provided the material for the whole piece, 'sticking with the pitches but stretching the time scale to suit the musical ideas.'[150] Alongside this, the composer draws on her Māori heritage for inspiration (the work is based on Māori creation myths), using the cello to imitate birdcalls along with traditional Māori melodies and instruments.

Evidence of this can be heard in the composer's borrowing of two specific birdcalls throughout the piece. At the beginning, Whitehead employs the pitches (key) and melodic range of the currawong's call to create a beautiful, fleeting melody played in the middle range of the instrument.[151] Later on in the work, the gentle tune of the Otago *korimako* (bellbird) is borrowed to lead to a peaceful and tender conclusion. With a sound similar to that of finely tuned bells, Whitehead employs artificial harmonics, ringing high in the register, to create this effect. My own experimentation has revealed that these harmonics should be played purely and clearly, letting each note ring out like a bell. Although the birdcalls are two very simple musical ideas woven into a predominantly European-style score, they add an unusual and distinctive colour not heard in other pieces in the repertoire, extending the timbres and textures created by the instrument.

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[149] Ibid., Beatson.
[150] William Dart, *The Journey of Matuku Moana, quoting Gillian Whitehead (2001),* http://www.thearts.co.nz/artist_page.php&aid=75&type=essay&essay_id=38*, (accessed August 13, 2012).*
[151]The currawong's birdcall can be heard online: Joan Rennie, 'Currawong Song', You Tube (2010), http://www.youtube.com/watch?v=-gPCa53J5EM (accessed April 23, 2013).

In postmodern style, this approach to composing challenges the boundaries between 'high' and 'low' styles, with highbrow Western classical music techniques intermingling with the folk music traditions of the Māori. Beatson suggests that composers may include aspects of their native music traditions within the framework of a European style in order to create an 'authentic' cultural identity. He writes that this music constitutes 'an aspect of *Pakeha* cultural nationalism: "Nature" is used as a legitimising principle for the naturalisation of European art in Aotearoa…artists have worked to construct an "authentic" indigenous *Pakeha* cultural identity by using representations of specifically New Zealand natural images as guarantors of that authenticity.'[152] The very idea that a European framework could authenticate a national identity demonstrates the resounding effects of Imperialism, revealing a continuing connection between the New Zealand peoples' perception of what is legitimate, and imperialist desires and projections.[153] Adherents of Western classical music often characterise the music of Bach and Beethoven as a universal language that transcends historical and geographical boundaries and stands apart from the complex realities of politics. Recent scholarship, such as that contributed by Applegate and Potter, challenge this assertion, and divulging classical music's complicity in nationalist racialist projects of the last two hundred years, they argue that 'Western music's "universal" qualities have been evoked in the past to avow the superiority of European culture.'[154]

Waiata (1995) for cello solo and tape, by Brigid Bisley's (1961–), is also postmodern in character. Drawing on multiple music traditions, this plaintive chant combines Māori and European traditions, challenging the boundaries between high and low styles. In the notes accompanying the score, Bisley wrote that the work was influenced by 'the sound-world of pre-European Māori *Waiata* (song), in particular

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[152] Ibid. (Peter Beatson, 'The Quest for the Long White Whale: Nature Imagery in New Zealand Classical Music',
http://www.massey.ac.nz/massey/fms/Colleges/College%20of%20Humanities%20and%20Social%20Sciences/PEP/PDF_documents/Sociology/Beatson/Classical%20music%20essay.pdf [accessed March 28, 2014].
[153] Said made similar connections between Orientalist representations and imperialist desires and projections in, Said, *Orientalism*, 1985 and *Culture and Imperialism*, 1994.
[154] Celia Applegate and Pamela Potter, 'Germans as the "People of Music": Genealogy of an Identity' in *Music and German National Identity*, ed. Celia Applegate and Pamela Potter (London: The University of Chicago Press, 2002): 1-35.

the *Waiata aroha* (love lament) and *Waiata tangi* (lament of grieving and loss, sung at funerals)'; while being at the same time influenced by her Scottish ancestry, in particular the Scottish lament, saying that her 'love of Celtic laments and bagpipe dirges comes through in the extensive use of grace notes, drones and modal sounding melodic fragments.'[155] This piece is also a part of the electronic medium, incorporating a pre-recorded tape, which is used to create a delayed effect, in addition to adding an extra voice to the melodic line and additional depth to the texture. The second cello line is included in the score and should be recorded by the cellist in advance, then operated by a sound engineer during the performance.

Waiata borrows the nondiatonic and microtonal melodic movement (sometimes going from pitch to non-pitch like a chant) and confined pitch range (within a minor third) characteristic of a *waiata*, where a single melodic line is repeated, generally centred on one note, and then falls away at the end of the last line.[156] It also includes sounds representative of the natural world.

The influence of pre-European Māori music traditions on the construction *Waiata* is clear from bar 1, with the second cello line (tape) creating the soft, wind-like effect of the Māori flute[157] for the main cello part to enter above, playing a tightly contained microtonal melodic line (staying within a minor third) which slides between each note. Each part continues within these roles: the taped cello part creating sounds reminiscent of the land, using techniques such as circular bowing (indicated in the score and explained in the symbols), *con sordino*, *sul ponticello* and *sul tasto*, while the solo cello plays the sorrowful melody for the majority of the piece.

This new style of music presents an example of cross-culturalism. Post-colonial studies call to question whether this uniquely New Zealand classical music

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[155] Brigid Bisley, 'About the Title, and the Piece', *Waiata* for solo cello and tape (Brigid Ursula Bisley: New Zealand, 1995).

[156] Chant-like in feel, *waiata* are sung solo, in unison, or at the octave. In the genealogical chants and similar forms of tribal historical chants, this tone is surrounded by tone of indeterminate pitch so that no specific scale system emerges. Because of the heavy word-orientation of such music, many songs are written without meter or are heterometric, shifting accent to keep in step with the text (Malm, 'Music Cultures of the Pacific, the Near East and Asia', 12-13).

[157] The Māori flute is the most popular instrument in the Māori music tradition and is made of wood or from the bone of a bird. The instrument is known for creating a sound reminiscent of the land, in particular the wind.

sound was a result of dominant Western ideology being forced onto an indigenous people, or if it is an example of hybridisation. In the literature, there is a distinct difference between 'cultural imperialism' and 'hybridisation', which, I suggest, better describes the music discussed in this section. Cultural imperialism means that local and regional cultures are dispelled by the dominant culture,[158] and the theory refers to 'the imposition upon other countries of a particular nation's beliefs, values, knowledge, behavioural norms and style of life.'[159] While this may have been the case when New Zealand was first colonised in the nineteenth and early twentieth centuries, when colonial traditions, such as choirs, Christian hymns, brass bands, and pipe bands were imported by Britain as a means of asserting and diffusing the foreign culture on to the native Māori, in the middle of the twentieth century a mutual exchange of ideas began to take place in the new country. Hybridisation, on the other hand, has been described by some, such as Tony Mitchell, as an exchange between cultures, rather than a single culture erasing another culture. As two cultures blend, a new style of music develops.[160] While cultural imperialism, and the more recent theory of cultural globalisation, is often criticised on the basis that it frequently disseminates a 'homogeneous, hegemonic form of culture, reflecting the attitudes and values of western, particularly American, capitalist societies,'[161] cultural hybridisation as a theory argues that cultural globalisation is accompanied by a desirable outcome, the hybridisation of national cultures, which Nederveen Pieterse defines as 'the ways in which forms become separated from existing practices and recombine with new forms in new practices.'[162]

This section on New Zealand music is not included to promote New Zealand music, or to highlight hybridity in music for creativities sake; it is an attempt to deal with and explore the complex political and natural/landscape histories; to make sense of a place and its people through composition; and, to ultimately help the cellist gain a

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[158] Shuker, *Understanding Popular Music*, 2001; and Tony Mitchell, *Popular Music and Local Identity: rock, pop and rap in Europe and Oceania* (London and New York: Leicester University Press, 1996).

[159] Salwen, Michael, 'Cultural imperialism: A media effects approach' in *Critical Studies in Mass Communication* 8, no. 1 (1991): 29-38.

[160] Mitchell, 1996.

[161] Salwen, 1991. Further discussion can be found in the Introduction. See, also, Marwan Kraidy's counterarguments regarding globalisation and hybridity in the Introduction.

[162] Nederveen Pieterse, *Globalization and Culture: Global Mélange* (Lanham, MD, Rowman and Littlefield: 2004), 64.

better understanding of the complex and various histories behind the new music they are presented with. As with many imperialised nations, colonisation was a long and bloody business, with ramifications even today; the indigenous-settler dynamic is still extremely fragile in New Zealand as elsewhere, and there are still many wounds that need to be healed and balancing of powers that need to find equilibrium. It is possible that this multicultural composition could offer one way to work through this, a kind of peaceful dialogue aiming to heal, rather than just being an example of old-style nationalism, where composers aimed to make music that reflected or championed place in somewhat different ways. As a nation, the people of New Zealand pride themselves on their integration of cultures and traditions, proudly striving and proclaiming to be 'one nation' and 'one people,' rather than seeing one culture as the dominating party. In terms of music and identity, both Pākehā and Māori take ownership over the sounds of nature and landscape, positioning them as an important identifying characteristic. While there are still remnants of Western dominance and classic nationalism, this new attitude and ethos seems to be representative of postmodern ideas of 'place,' difference, and identity in music, along with the sharing and fusion of musical styles and traditions.

1.3.3.   Effects on the cellist and the repertoire

Many twentieth-century composers turned to their various folk music traditions as part of their musical language. While the idea of incorporating music from other cultures into a new composition is not new, the desire to use the cello to find new sound colours, new textures, and new expressive means in various non-Western musical traditions was unprecedented. This trend also grew out of composers increased interest in varieties of texture and timbre during the second half of the twentieth century. As they uncovered new sources of material for their music, composers extended both the cello's sonic palette and playing techniques in order to imitate the nuances from their native music traditions. This, in turn, required the performer to engage with and gain an understanding of a specific non-Western musical tradition in order to give an informed performance of a work.

The Western cellist desiring to perform music inspired by non-Western musical traditions must learn to hear unfamiliar intervals, follow interlocking rhythms, and meet the technical demands of oral or manual articulation. An informed performance may require knowledge of a specific tradition's instruments and the sounds they produce, and improvisatory techniques such as ornamentation, *glissandi*, rhythmic manipulation, the encircling of tones, and the careful balancing of motifs (see also 2.6). While typically presented with a fully notated score, the player can benefit from some theoretical knowledge and, on occasion, an awareness of the tuning implications and the hierarchy of pitches, as interpretation of notes is paramount – which notes to emphasise, what constitutes appropriate phrasing, and what specific improvisation techniques are required to replicate the nuances of the tradition (this is helpful when playing music influenced by Middle Eastern traditions). The cellist must also have a high attention to detail, as certain techniques are altered in intricate ways to evoke musical sounds from the various traditions.

While I have only presented a small sampling of works in this sections, this, alongside my background research, points to a trend that seems to be to extend and alter certain cello techniques in order to allude to musical traditions and instruments of other styles, rather than completely transporting the cello into a new genre. Although the composers mentioned have injected certain sounds and textures from their native music into their cello works, it seems standard when writing such pieces for the cello generally to retain the cello sound, and even to employ Western forms and compositional methods – for example Whitehead's *Journey of Matuku Moana*, which originated in a graph chart – while at the same time expanding the sonic range and capabilities of some traditional techniques. Ultimately, this produces a cross-fertilisation of local and international sounds, thus creating a form of hybridisation, where the techniques and characteristics of two traditions, whether it be Western and Pacific, Western and Middle Eastern, or an array of various other combinations, are drawn on and united to form a new style of music, and a new approach to playing.

Larger issues, such as globalisation (in addition to the historical, social, cultural, and political contexts in which the music developed, the cross-cultural and polystylistic influences, and the blurring of boundaries between genres and high and low styles), have also been touched on. Globalisation describes the growing

connection between different parts in of the world by parallel processes on the economic, political, and most importantly to this study, cultural levels.[163] This thesis argues that hybridisation (a result of globalisation) in music has resulted in the development of new and interesting music styles and additions to the repertoire (see also 2.3.1). Traditionally, a culture is closely linked to a place; however, today, under the conditions of globalisation, the relationship between place and culture is reconstructed. This is evident in the new and various styles of music and technique that can now be found in the cello repertoire in the twenty-first century. John Tomlinson suggests that while people may recognise these new cultural constructions, they may 'see the whole but not the separate parts.'[164] I would like to suggest that the same thing can happen in music: a Western cellist may play a new work without realising or recognising the non-Western influences on the piece. (S)he may find a work such as Bisley's *Waiata* an interesting addition to the contemporary repertoire, but lack an understanding of the unique musical techniques that have been blended with our Western understanding of cello playing. It has become the cellist's job to be aware of the various cultural transformations taking place in music and translate this awareness into their playing.

1.4. Concluding Thoughts

My purpose in this chapter has been to provide an overview of some of the important developments in the repertoire in recent years, and how these have affected cello playing and technique. One of the major developments since the 1950s has been an increased interest in the textual and timbral potential of the instrument, as many composers have sought to create new aesthetics and to transport the cello into new contexts. The development of electronic music was pivotal in these explorations – not only in terms of the cello's increasing popularity in the electro-acoustic medium, but also influencing the way in which many composers approached writing for the acoustic cello. This influence has a wide range: from looking to imitate electronic music using acoustic means and developing new techniques to achieve this end; to

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[163] Sallie Marston and Paul Knox, *Human Geography: Places and Regions in Global Context* (Englewood Cliffs, NJ: Prentice Hall, 1997).
[164] John Tomlinson, *Cultural Imperialism: A Critical Introduction* (London: Pinter, 1991), 8.

applying the various approaches of the electro-acoustic medium to composing and compositional methods; to forming new ideas about sound and consequently extending the sonic potential of the cello; to alternative approaches to the form, rhythm, timbre, melody, harmony, and the overall construction of a piece; to experimenting with unusual combinations of contrasting elements and novel instrumentation.

Developments in communication and technique are two major areas that have experienced change in the cello repertoire in recent years. Changes to technique are summarised in the concluding chapter of this thesis to help sum up my discussions in all three chapters, so here I will provide a shorter list of them.

Communication between the composer and the cellist has been extended in both form and content. Like the wide variety of styles and approaches to playing and composing, notation has now come to specify different things in different contexts, usually indicating what the composer regards as most necessary to control. For example, in electronic music this is usually timbral gradations, bow pressure, articulation, and which additional materials (electronic devices) to use and when and how to use them. In a non-Western-inspired work, the most important elements may be the subtleties of moving from one note to another, irrational treatment of rhythms, and again, directions on using additional materials.

Whatever an individual composer's aesthetic philosophy, the performer must understand it in order to actualise it. Similarly, the unique physical and technical demands of a piece, as well as its expressive nuances, must be made clear to the cellist in order for these aspects to come out in performance. In a non-Western-inspired piece, this communication goes beyond telling interpreters what to do and extends to how to think or which materials to use. Aspects rarely considered in a traditional Western piece, such as the nuances of moving from one pitch to another or timbral changes affecting the substance of tone, may be the object of close notational focus, first for the composer and then the performer.

The issue of communication between composer and performer has been touched upon from various angles in this chapter in contemplating extensions to the

cello repertoire and technique. Of equal if not more importance throughout this chapter, however, has been the discussion of how the cellist needs to respond to modern repertoire. The exploration of the sonic potential of the cello, both in the electronic-acoustic and non-Western mediums, has personalised the instrument and the player. While some parts of the 'art music' tradition are inclined to exclude (or at least de-emphasise) individual sound and personality (portraying the nature of a 'timeless' art has largely standardised interpretation, techniques, and location, placing little importance on human character or the act of performance), these new approaches to writing for the instrument each comes with its own soundscape or recognisable human presence, demanding the personality and presence of each performer. This can be seen in the electro-acoustic works, which by nature often possess a 'real' personality, as the cellist (or the sound engineer) manipulates the sounds produced on the instrument, making a personal contribution to the composition, sound-world, and performance of a piece of music. The new non-Western techniques also bring the possibility of engendering a more 'personal' performer response. Each 'foreign' music tradition presents and inspires the cellist with new sounds and nuances that they are then challenged to recreate on their Western instrument. This comes with a responsibility to represent justly and accurately a particular music tradition, and at the same time, gives the performer a certain liberty and freedom regarding interpretation and approach; since, while these sounds and music traditions may be centuries old, they are new to the cello, so no playing traditions have yet been established for them. The cellist is free to use his/her imagination and original ideas about how to recreate a certain sound or nuance, and then experiment with various approaches to techniques that will best enable them to achieve this on their instrument. Each performer's approach will be different, and each instrument will respond differently to physical actions. By consequence, the performer has the agency to create a very individual and personal sound.

Issues discussed in this chapter which need consideration from the cellist when approaching a modern score include: how prescriptive and descriptive notation should be interpreted and executed by the cellist; how the exploration of the sonic and textural potential of the cello by the avant-garde composers of the 1960s and 1970s, which resulted in unprecedented changes to cello technique and playing, altered the way in which the cellist should approach his/her instrument (and view the practice

and purpose of performance); and how combination with electronics or non-Western traditions increases the knowledge required by the cellist, and the technical vocabulary that they need to develop.

It has been my aim in this chapter to provide some answers to these questions. I have demonstrated not only that the cello has been the recipient of a vast array of new and innovative works, written by some of the most prolific and pioneering composers of recent times, but also that it has proven itself to be a malleable and versatile instrument which can be easily transported into various extended contexts and genres.

In the next two chapters I will examine more closely how these changes and developments have directly affected cello playing and the performer in two very specific contexts: non-Western music and electronics. Clearly, these represent only two areas of development in cello playing; however, I have chosen them because they are two recent trends in composition which have resulted in substantial modifications and additions to cellists' technique, approach to building an interpretation, and performance. As with any case study, I intend that the information presented will be applicable to other pieces in the repertoire.

Chapter Two

The Cello and Non-Western Techniques:

A Case Study on *Habil Sayagi* (1979) for Cello and Piano,

by Franghiz Ali-Zadeh

2.1. Preliminary Assessment[165]

Habil Sayagi[166] ('In the Style of Habil'), for cello and prepared piano, was
written in 1979 by Azerbaijani composer Franghiz Ali-Zadeh.[167] Born in Baku in
1947, Ali-Zadeh is part of a generation of composers who grew up in Azerbaijan
during the second half of the twentieth century and aimed to express the character of
Azerbaijani music by integrating the emotional, modal, melodic, and structural
content of their native classical folk music, *mugham*,[168] with the European classical
repertoire in which (s)he received their formal training.

Habil Sayagi presents the composer's most successful example of this new
approach and is the foundation on which she has based many of her subsequent
compositions. This *mugham*-inspired work employs modern Western compositional
techniques and devices to make the two European instruments imitate the sounds and
nuances of Azerbaijani folk instruments, in particular those found in the *mugham*
trio.[169]

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[165]This term refers to the background research which I propose a performer should undertake when
confronted with a new work. See 2.6.1 and 2.6.2.

[166] The composer requested this spelling for the work in our email interview (January 17, 2011; trans.
from Russian, Anastasiya Filippochkina). *Habil Sajahy* she revised to *Habil Sayagi* following the
establishment of a new alphabet in Azerbaijan. In the Republic of Azerbaijan, the Azerbaijani alphabet
now refers to a Latin script used for writing the Azerbaijani language. This superseded previous
versions based on the Cyrillic and Arabic alphabets or Arabic *abjad*.

[167] Alternative spellings of the composer's name include: in Azerbaijani, Firəngiz Əlizadə and, in
Russian, Франгиз Али-Заде. Alternative transliterations include: Firangiz, Frangis, Frangiz, and
Franguiz; Ali-Sade, Ali-Zade, and Alizade.

[168]Azerbaijani *mugham* is also known as *mugam*. In an interview, Azerbaijani composer and musician
Mo Ansari explained that in the Azerbaijani alphabet a dash is placed over the 'g' in *mugam*. Hence, in
order for the pronunciation to be correct when transliterated into English, it is more accurate to say
'*mugham*'. I will be referring to the music tradition as *mugham* in this case study (Mo Ansari,
interview with the author, May 18, 2012).

[169]*Mugham* is traditionally performed by a *khananda* (singer) holding a *gaval*, which is a tambourine-
like instrument, accompanied by a performer on the *tar* (long-necked lute), a plucked instrument that
looks like an elongated guitar and is held in a horizontal position; and, the *kamancha*, which is similar

Habil Sayagi is a work of Ali-Zadeh's early period, when she was beginning to develop her own original style around 1970, as a student of the renowned Baku composer Qara Qarayev (1918–1982).[170] At this time, her style was notable for the exploration of unusual instrumental combinations, the use of both Western and Eastern instruments, and an increasing interest in incorporating elements from the *mugham* tradition.

Habil Sayagi is dedicated to cellist Ivan Monighetti, with whom the composer has a close relationship and for whom she has since then written further works, such as *Ask Havasi* (1998, written by Ali-Zadeh for the cellist's fiftieth birthday as a personal expression of gratitude for their friendship and collaboration over many years). The work was premiered by Monighetti, with Ali-Zadeh on the piano, in the Small Hall of the St. Petersburg Philharmonic in 1979.

2.2. Azerbaijan and the *Mugham* Tradition

Azerbaijan has a split identity due to its long and complex history of occupation by various surrounding countries. Sharing borders with Turkey, Iran, Georgia, and Russia, its unique geographical position turned it into a battlefield and a target for its neighbours' cultural, ethnic, and religious claims over the years, in addition to making it the recipient of influences from the various musical traditions.[171]

Mugham developed out of these influences. Belonging to the Azerbaijani system of modal music that is thought to have originated from Persia and developed

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to a violin or cello and played with a bow. Sometimes the *mugham* trio is expanded to include an additional membranophone (drum) instrument such as the *gosha-nagara* (kettle drum).

[170]In traditional Russian transliteration, Kara Karaev. Qara Qarayev was a prominent composer of the Soviet period and one of the forefathers of this new contemporary style of writing. A student of Leonid Rudolf and Uzeir Hajibeyov in Baku, and later, Dmitri Shostakovich in Moscow, Qarayev juxtaposed features of *mugham* with jazz, blues, African music, European counterpoint styles, and developments of twentieth-century Western music such as twelve-tone technique.

[171]Information regarding Azerbaijan's turbulent history can be found in Tadeusz Swietochowski's 'Azerbaijan: The Hidden Faces of Islam', *World Policy Journal* 19, no. 3 (2002), http://www.jstor.org/pss/40209821. Also see Shireen Hunter, *The Transcaucasia in Transition: Nation-Building and Conflict* (Washington: The Center for Strategic & International Studies, 1994).

slowly over hundreds of years, it ultimately bears evidence of Persian, Arabic, and Turkish cultures and their musical traditions.[172]

The people of Azerbaijan share a linguistic kinship with Turkey, speaking a Turkic language and sharing the traditions of *ashiq* troubadours (*asiq* in Azerbaijani and *asik* in Turkish).[173] However, the literature demonstrates the plurality of influences on of the culture, and although the Turkish language established itself in Azerbaijan, there are remains of the refined Persian culture in the cultivated and aristocratic circles.[174] In short, over time Arabic became the language of science and philosophy, and Persian the language of literature and poetry.

Much of the poetry that is used by the singer in *mugham* performance today was written by ancient poets of both Turkish and Persian descent, such as Nasimi[175] (1369–1417) and Rumi[176] (1207–1273), and passed down orally through the generations.[177]

It is fitting at this point to begin to explore *mugham*. *Mugham* encapsulates both the classical and secular music of Azerbaijan. One of the nation's primary music

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[172]*Mugham* is a meta-ethnical genre because it is not restricted to one particular region but covers a wide area of the Middle and Far East. The Uighurs in Xinjian (Sinkiang) call this musical development *muqam*, the Uzbeks and Tadjiks call it *maqom* (also *shasmaqom*), while the Arabs, Persians, and Turks call it *maqam* ('Mugam', Jo's Nexus, http://www.datacomm.ch/lawless/mugam.htm [accessed December 28, 2011]). See Jean During, 'La Musique Traditionnelle de L'Azerbayjan et La Science des Muqams', *Collection d'etudes musicologiques* 80 (Baden-Baden & Bouxwiller, 1988).

[173]Razia Sultanova and Simon Broughton, 'Azerbaijan in the Mugham', in *The Rough Guide to World Music: Africa and Middle East*, ed. Simon Broughton, Mark Ellingham, and Jon Lusk (London: Rough Guides Ltd, 2006), 489–94.

[174]The relationship between these nations was forged because of the Turkish origin of the sovereigns of Persia, as well as the strong religious ties through Islam of the Shiites since the sixteenth century (During, *La Musique Traditionnelle de L'Azerbayjan*; 'Mugam', Jo's Nexus).

[175] Nasimi was from the Azerbaijani city of Shamakha, and his poetry expressed the philosophy of *hurufism*, a mystical Sufi doctrine (Raymond Lifchez, *The Dervish Lodge* [Berkeley: University Press of California, 1992], 247).

[176]A Muslim poet, jurist, theologian, and Sufi mystic, Rumi was born in Afghanistan in 1207. His works are written in the New Persian language, though they have been translated into many of the world's languages. Rumi's poetry forms the basis of much classical Iranian and Afghan music.

[177] Poetry and music sit side by side in the *mugham* tradition. A vital part of Azerbaijani cultural heritage is the art of *ashiqs* and *khanande*. Both are performers and creators of ballads, which employ poetry and music, combining preexistent and instantaneously created sources. A *khanande* is primarily a musician, merging prewritten classical texts with improvised musical patterns, while an *ashiq* often draws on themes from preexisting songs and melodies that match his/her improvised story. The *ashiq* tradition is characterised by high-pitched, high-volume, full-throated mountain yodeling Caucasian-style, rendered in the dramatic declamatory manner of epic storytelling. For further discussion on the poetry used in *mugham*, see 2.5.4.

traditions, it involves improvisation, poetry, and narrative, drawing upon popular stories and local melodies.

The word *mugham* itself has several meanings. It describes a specific type of musical composition and performance, one which is based on many different modes and tonal scales. It is a modal system; an anthology of melodies, themes, motifs, and rhythmic gestures; a musical genre that links orally transmitted music with classical written poetry; a musical form built around improvised recitations interspersed with songs and dance-like episodes; and a performing tradition identified with particular settings and purposes. It is monophonic, modal, microtonal, metre-free, semi-improvised, and richly ornamented.

Though it is often referred to as one of Azerbaijan's folk music traditions, *mugham* is more accurately defined as a classical tradition, as it is a highly complex form of art music with specific systems and concepts of musical expression that demand of its performers a very high standard of professionalism.[178] Dr. Nasib Goyushov, a philologist, explained that while 'the canons of mugham destgah have usually been passed from master to apprentice via oral practice…a number of special papers were written explaining the tonal-modal system of the music in detail. Thus this art cannot be considered only as an oral folk tradition. Mugham, as a classical music genre, has its own conceptual and categorical systems, together with well designed structures, canons and dynamic composition' [*sic*].[179]

Strictly speaking, *mugham* is a secular practice. From this perspective, it embodies humans seeking the truth, the sadness and grief of the search, and pleasure

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[178] The difference between folk and classical music is sometimes unclear. Broadly speaking, the key difference lies in their origins. Classical music is considered as an 'art form,' whereas folk music is considered a traditional amateur practice. While classical music is generally written down, displays formal discipline, and played is by professional musicians, folk music is usually orally transmitted from generation to generation, having 'evolved at the hands of unsophisticated community in some unselfconscious manner' (Norm Cohen, 'Folk Music', in *Oxford Music Online*, Oxford University Press, http://www.oxfordmusiconline.com/subscriber/article/grove/music/A2241135?q=folk+music&search=quick&pos=1&_start=1#firsthit [accessed May 23, 2014]).

[179] Nasib Goyushov, 'The Spiritual and Aesthetic Foundations of Mugham', Visions of Azerbaijan: Discover the Land of Fire, http://www.visions.az/art,312/ (accessed December 3, 2012). Since the early days of Islam, philosophers and musicians have explored the *mugham* tonal system: the tonal collection, concepts of scales, compositional devices, auditory effects, and cosmological meaning. See also 2.4.3.

when the aim is achieved.[180] However, the narratives that the music is formed around demonstrate religious influence, with the themes and songs often based on the ancient poetry of Azerbaijan. Love is a common topic, not only love between man and woman but also love for the mother country and mystical love for God. The spirituality behind the *mugham* tradition developed in a predominantly Islamic society, and despite *mugham* being viewed as secular music, it has not avoided influence from Islamic traditions.

One of the ancient traditions of music in Azerbaijan is the Islamic call to prayer. Known as *azan*, the Islamic call to prayer is an eerie, otherworldly chant which makes use of strange melodies with long pauses that induce in the listener an awe-inspired, impressive sense of the sacred. Chanting plays an important role in Muslim practice and society:[181] the tone and intensity of the voice, and the clarity of articulation, are important in both spoken prayer and recitation of the holy verses of the Qur'an. These features have filtered into the melodic lines found in *mugham*, influencing the nuances of the music.

2.3. The Composer's Musical History and Style

2.3.1. A musical revolution

Azerbaijan was incorporated into the Soviet Union when the USSR was established in 1920 and remained under Soviet rule until 1991. Thus the nation was under powerful Russian influence throughout the majority of the twentieth century, and this influence touched all spheres of life, from politics to religion to music. Despite this control, Azerbaijani art and music experienced a cultural revolution of sorts during this time as people began to seek out their own individual voices.

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[180]'Mugam', Jo's Nexus.
[181] On issues of music status in Islamic society, see Lois Ibsen al Faruqi, 'Music, Musicians and Muslim Law', *Asian Music* 1984, 8–13; and, Regula-Burchardt Qureshi, 'Sounding the word: music in the life of Islam', in *Enchanting Powers*, edited by Lawrence E. Sullivan (Cambridge, MA: Harvard University Press, 1997).

Many Azerbaijani composers were trained in the Russian School, which was based on Western classical traditions. Russian music had undergone its own revolution during the second half of the nineteenth century. A group of composers (the Mighty Five) began searching to develop their own nationalistic Russian art music that didn't simply imitate older European music or rely on European-style conservatory training. This quest originated in St. Petersburg in 1856 and its effects radiated throughout the whole of the USSR, as composers from the republics were encouraged to develop a nationalistic, Soviet style of music. This demonstrates cultural imperialism and dominance from both Russia, who imposed their cultural objectives on the smaller, weaker country, and the West, whose musical aesthetics were imposed on Azerbaijani music traditions by way of Russia. However, similar questions to those raised in the Introduction and Chapter One regarding the difference between theories of cultural hybridisation and cultural imperialism, and whether either can produce desirable outcomes, are relevant. In *The Export of Meaning: Cross-cultural Readings of Dallas,* Liebes and Katz illustrate that people who are exposed to foreign cultures are influenced selectively, depending upon the characteristics of their national or ethnic cultures, and are likely to integrate foreign elements with their own cultures.[182]

I am not suggesting that the Azerbaijani people wanted these dominating foreign powers imposing their ideals on them; however, they did choose which elements they wanted to assimilate into their own musical traditions. Of course, one could argue that in such a context people have to operate according to whatever the structures of the dominant power are: if you want to be a musician, you go to conservatoire and learn the way the state wants you to learn, so this is not necessarily a 'choice'. In this sense, there is a constant push and pull between individual agency (the power to act according to one's own desires) and the agency of the state, which constrains and shapes individual actions. Either way, out of this 'encouragement' a new style of Azerbaijani professional music started to flourish as Azerbaijani composers began to explore and work with their individual folk material. These composers wanted to create a true Azerbaijani music, not one that simply displayed

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[182] Tamar Liebes and Elihu Katz, *The Export of Meaning: Cross-cultural Readings of Dallas* (Cambridge: Polity Press, 1993).

'oriental' features (as many felt the Mighty Five's ideals demanded[183]) but one that represented their culture and *mugham* traditions, while at the same time integrating events and developments occurring in the Western art music tradition.

Spearheaded by composers such as Uzeyir Hajibeyov[184] (1885–1948) and Muslim Magomayev[185] (1885–1937), this new style of music was characterised by the interplay between improvised and written musical traditions and by the intermingling of Azerbaijani folk and Western musical elements. The research carried out by these composers, along with the adjustment of *mugham* to current cultural situations, ultimately led to a conjunction of *mugham* with European classical music. [186]

As these efforts to create a new style of Azerbaijani writing intensified, a new group of professional Azerbaijani composers began to emerge, composers who worked to develop hybrid genres that maintained a nationalistic style.[187] *Mugham*-opera,[188] *mugham*-symphony,[189] and solo instrumental compositions were written, as

[183]Marina Frolova-Walker writes that Uzeyir Hajibeyov (see following footnote) did not like the persistent 'orientalism' encouraged by Russia and the Mighty Five forefathers. He saw techniques such as the dominant use of the augmented second in Azerbaijani music as a clichéd way of making music sound 'oriental' (Marina Frolova-Walker, *Russian Music and Nationalism: From Glinka to Stalin* [London: Yale University Press, 2007], 331, quoting Uzeir Hajibeyov, first published 1925, repr. in Zimfira Safarova, *Muzikal' no-esteticheskiye vzglyady Uzeira Gadzhibekova*, [Uzeir Hajibeyov's aesthetic view regarding his Musicals], 1973:45).

[184]Hajibeyov was an Azerbaijani composer, conductor, publicist, playwright, teacher, and translator. Early in his career, he began a study of Azerbaijani folk music, abstracting the frets used by composers today in addition to encouraging the use of folk instruments in 'Western-style' compositions. In his book *Collection of Azerbaijan Folk Songs,* which he published along with the composer Muslim Magomavev in 1927, Hajibeyov notated more than three hundred Azerbaijani folk songs. In 1945, he published *The Principles of Azerbaijani Folk Music*, which has been translated into several languages including English (Uzeyir Hajibeyov, *The Principles of Azerbaijani Folk Music*, trans. G. Bairamov [Baku: Yazichi, 1985]).

[185]Muslim Magomayev was also an Azerbaijani and Soviet composer and conductor. In 1916, Magomayev wrote his first opera, entitled *Shah Ismayil* (trans., 'King Ismayil' or 'King Ismael'), based on the homonymous Azerbaijani folk epic. Unlike other early Azerbaijani operas by composers such as Hajibeyov, *Shah Ismayil* was less focused on the ethnic musical component and instead embodied European operatic styles.

[186] This provides a good example of the above – the complex and competing power relations (individual nationalist sentiment, state training, and performance regimes) are embodied in creative acts and works. Works like these are not a simple statement of Azerbaijani feeling or similar, but a presentation of the political situation in a more general sense.

[187]This line of professional composers included Soltan Hajibeyov, Niyazi Hajibeyov, Qara Qarayev, Fikret Amirov, Suleiman Aleskerov, Jahangir Jahangirov, Arif Melikov, Seyid Rustamov, Vasif Adigozal, Akshin Alizade, Faradzh Qarayev, and Azer Dadashev.

[188]Hajibeyov is recognised by his people as the father of Azerbaijani classical music and opera (Matthew O'Brien, 'Uzeir Hajibeyov and his role in the development of musical life in Azerbaijan', in *Soviet Music and Society Under Lenin and Stalin: The Baton and the Sickle*, ed. Neil Edmunds [New York: Routledge Curzon, 2004], 209-227). He was the first composer to write an Azerbaijani opera using folk instruments and melodies, integrating European styles and techniques with *mugham* while

the composers looked to incorporate folk instruments, *mugham* frets, melodies, poetry, and themes into traditional Western styles and genres.

A distinctive Azerbaijani sound and style of music was forming, one that hinted at a true integration of *mugham* and Western musical techniques, not just music containing surface-level, characteristic, 'oriental' flavours. These developments acted as a catalyst for the younger generations of composers, encouraging them to keep experimenting and opening the door for further developments. It was in this environment that Franghiz Ali-Zadeh grew up and was shaped as a composer.

2.3.2. The formation of Franghiz Ali-Zadeh's style

Ali-Zadeh's individual style grew out of a number of influences. Her initial output reflected the influence of Qarayev, the Second Viennese School (in particular Schoenberg's ideas on harmony and serial development, and his 'developing variation' technique[190]), and the events and developments occurring in Russia during the second half of the twentieth century. Elements that specifically influenced Ali-Zadeh and became features in her compositions include using traditional instruments in untraditional ways; stretching an instrument's timbral palette and vocabulary; fusing different styles and genres; engaging folk music and incorporating folk instruments; creating unusual instrumental combinations that explore atypical

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retaining the essence of the tradition. The most famous example of a *mugham*-opera by Hajibeyov is his *Leili and Mejnun* (1907), in which typical operatic elements, arias, duets, and choruses are juxtaposed with *mugham* episodes containing vocal improvisation and traditional instrumental accompaniment.

[189]Examples of *mugham*-symphonies include *Shur, Kurd Ovshari* (1948) (*Ovshari* is the name of a Turkish tribe) and *Gulistan Bayati Shiraz* (1971), by Fikret Amirov ('Gulistan' is a place with many flowers, 'Bayati' means old, and 'Shiraz' is the name of a city around which Turkish and Iranian tribes live); *Rast* ('Straight') by Niyazi (1929); and Ali-Zadeh's *Mugham Sayagi* (1993). In general, these *mugham*-symphonies are named after a traditional *Dastgah*, (a complete *mugham*, for example, a *Shur*, *Bayati Shiraz*, or *Rast* –refer to 2.4.3 for further explanation) despite containing characteristics from both *Mugham* and Western music traditions.

[190] See Ethan Haimo, *Schoenberg's Serial Odyssey: The Evolution of His Twelve-Tone Method, 1914-1928* (Oxford: Clarendon Press, 1990), 73n8. Developing variation is a formal technique in which the concepts of development and variation are united such that variations are produced through the development of existing material. Ali-Zadeh uses this technique in her writing, including in *Habil Sayagi,* where she creates variation and development from the material offered by specific 'cells' or frets which she incorporates into the work (rather than through the unravelling procedures of contrapuntal tonal music). On the use of serial development in *Habil Sayagi*, Ali-Zadeh said though she does follow the intonation of *mugham* her 'melody is built on the principle of "seriality" of the four sounds' (Ali-Zadeh, interview).

rhythms, pulse, and harmony; and employing multimedia technology. These are also characteristics of the postmodern movement.

Initially Ali-Zadeh chose to write within the constraints of traditional Western forms and instrumentation, such as her 1970 *Sonata for Piano, No. 1* (In Memoriam Alban Berg), her *Concerto for Piano and Orchestra* (1972), and *Symphony* (1976). However, as the composer's style developed, it was marked by an increasing interest in incorporating elements from her native *mugham* tradition. She began to write works that incorporated the emotional, modal, melodic, and structural content of *mugham*, as well as drawing on other distinctly Azerbaijani features, such as native poetry and native instruments.

The conception of *Habil Sayagi* flowed naturally out of Ali-Zadeh's musical evolution and became her first important cello work. After writing *Habil Sayagi* in 1979, she didn't compose another work specifically for the cello for nearly twenty years. In 1998, however, she became involved with Yo Yo-Ma and The Silk Road Ensemble and since has written a piece for the cello almost every year. These recent cello works demonstrate the features foundational to the composer's established individual style: the use of traditional Eastern themes and narratives (religious narratives, literature, and poetry), the interaction of Eastern and Western instruments, clear distance from traditional Western art music forms and structures, and the welding of traditional improvisation with Western notation. A list and information regarding these works can be found in Appendix 3.

2.4. The Influence and Incorporation of *Mugham* Traditions in *Habil Sayagi*

Habil Sayagi is clearly formed around the timbre, theory, nuances, structure, spirituality, and cultural codes of Ali-Zadeh's native *mugham* music, and this becomes clear when exploring these elements of the work.

2.4.1. Structure

Issues relating to the influence of *mugham* (and other cultural elements) on the form of *Habil Sayagi* are discussed in depth in 2.5. However, a brief description of the work seems necessary at this point.

Habil Sayagi is a one-movement composition. Similar in form to a suite, the work unfolds in four uneven sections linked by association to the narrative that unravels to form the overall structure.[191] Section one, a long introduction and development section, spans 201 of the piece's 248 bars. Section two includes the slow *arioso* and the moment of arrival (bars 202-209), while section three is the dance of ecstasy (bars 210-45). The work comes to a close with section four, the coda (bars 246-248). Built around the traditional *mugham* sequence of narrative sections and dance interludes (or a series of recitatives and instrumental episodes), the structure is analogous to that of many traditional *mugham* pieces.

The form however, does not comply with the rules of a traditional *mugham* performance, in which the length of improvisatory sections are not specified but rather are dictated by the performer (although the artistic imagination of the performer is based on a strict foundation of principles determined by the mode and therefore does not present an amorphous, impulsive improvisation).[192] Thus a traditional *mugham* performance can last for hours. In *Habil Sayagi*, however, Ali-Zadeh uses a traditional Western score to dictate and control how the work develops and is formed, clearly guiding the performer through notation in the instrumental (or what traditionally would be improvisatory) sections.

This issue emerged in my email interview with the composer, Ali-Zadeh explained that one of the major ways in which her music varies from traditional

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[191]Ali-Zadeh said she believes that the formation of form in *mugham* 'can be completely attributed (or relates) to the drama of *mugham*', and that 'every given moment in *mugham* means nothing, but takes on great importance in the context of the whole, the entire composition' (Ali-Zadeh, interview).
[192]In the case of a 'suite-rhapsody-*mugam*' (a description that can be loosely applied to the form of *Habil Sayagi*) the term *improvisation* is not really accurate, since the improvisation is so strictly regimented by the respective mode. *Mugham* music is often thought of as akin to jazz, a comparison that is not entirely accurate either. Although *mugham* does allow for a wide margin of interpretation, categorising it with jazz is an oversimplification, since it fails to account for the different kinds of improvisation for different *mugham* modes.

mugham is that she does not adhere to the principles dictated by each fret. This variation ultimately determines the form of the work: *Habil Sayagi* 'is clearly not a traditional *mugham*, which has its own clear system of "*gushe*", partitions, and free composition, developing the laws of the composer's will.'[193]

2.4.2. Imitating folk instruments

Ali-Zadeh's main tribute to the *mugham* tradition in *Habil Sayagi* is her use of the cello and piano to imitate the sounds and nuances of the instruments found in a *mugham* trio. She adopts the tone colours, techniques, and characteristics of the *kamancha*, the *tar*, and the *gosha nagara*, hinting at a typical *mugham* folk ensemble of a bowed instrument, a plucked instrument, and a percussive instrument.

As the name *Habil Sayagi* suggests ('In the Style of Habil'), the cello takes on the role of the fiddle-like *kamanche*, imitating the style of renowned Azerbaijani *kamancha* player Habil Aliyev[194] and employing techniques such as *glissandi, col legno,* improvisation, ornamentations, encircling of tones, and time-stretching in order to achieve the desired effects. The prepared piano is given the job of imitating the remaining instruments in the ensemble.

In order to give an accurate and authentic performance of *Habil Sayagi*, it is important for the performer to have a basic knowledge of the sounds and nuances of the instrument the cello is called to imitate.[195] The *kamancha* is made of mulberry or walnut and is played with a horsehair bow (which, unlike the cello bow, is left fairly loose). It resembles an upside-down violin or a miniature cello and is played resting on the performer's lap (on a spike similar to the endpin on a cello).

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[193]Ali-Zadeh, interview.
[194]Habil Aliyev was born on May 28, 1927, in Agdash, Azerbaijan. Exalted in his homeland and abroad, he is well versed in Persian traditional music and has played for many years at Tehran concert halls.
[195]Both the *kamancha* and Habil's style of playing lend themselves to the deep, soulful voice of the cello. See 2.4.4 for a discussion on Habil's playing.

Figure 2.1. The *kamancha*[196]

The *kamancha* plays an important role in Azerbaijani folk music, especially in
the mournful and expressive *mughams*, including the *Shushtar*, *Shur*, and the *Bayati-
Shiraz*.[197] Loved for its timbre, the instrument is regarded highly by *mugham*
composers. Hajibekov said: 'Music played on kamancha is perfect . . . and is closer to
a human voice. Kamancha is the best of all melodic instruments' [*sic*].[198] The
kamancha, in this respect, is similar to the cello: both have a human-like shape, and
are thought to produce a soulful sound close to the human voice.

Ali-Zadeh told me that she considers the cello an ideal instrument for
imitating *mugham* and Azerbaijani instruments because of its wide range of timbres
and tone colours.[199] When writing *Habil Sayagi* she chose to incorporate the two
mugham frets known for being mournful and lyrical – the *Shur* and the *Bayati-Shiraz*
– as both are well suited to the cello's sonic potential.

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[196]This image of a *kamancha* was found as a result of a general online search for images of the
instrument. No specific reference was available (accessed February 9, 2013).

[197]Definitions and further explanation regarding *mugham* frets and various related issues can be found
from 2.4.3 onwards in this section.

[198] Uzeyir Hajibekov is quoted by Emil Nasirov on, 'Kamancha', Mugam Radio,
http://www.mugamradio.az/instruments/kamancha (accessed September 30, 2011).

[199]Ali-Zadeh, interview.

Ali-Zadeh's prepared piano creates the *mugham* platform (or soundscape) over which the *kamancha* (or in this instance, the cello) plays. The piano predominantly imitates the *gosha nagara* and *tar*, but it also reproduces the sitar, tambura, cymbals, and even ankle bells. Middle Eastern tone colours are created through various techniques: (1) mutes, which are placed to mute the clear pitch of a piano string and alter it to sound like a *gosha nagara* (an effect also achieved by knocking on the piano lid); (2) playing strings with mallets or plectrums to mimic the effect of a *tar*; (3) following specific notes in the score, such as 'tremolo on the open string played with rubber mallets' and elsewhere recommending that the pianist 'pluck the string energetically' (again treating the instrument more like a *tar* than a keyboard); (4) excess use of the pedal to create the blurring tremolo effect of a strumming *tar*; (5) and the incorporation of a string of glass beads, laid across to the strings, to create buzzing and rattling sounds suggestive of ankle bells and cymbals.

The following table indicates how the prepared piano is used to create the sound of a *mugham* trio throughout *Habil Sayagi*, and the means by which these effects are created by the pianist.

Table 2.1. The Prepared Piano Creating a *Mugham* Analogy

Bar	Musical effect	Imitating
29 (*sotto voce*)	Percussive, steady beat; uses felt sticks [Track 1]	*Gosha nagara*
49 (*animato*)	*Tremolo* effect; achieved by playing tremolo on the piano strings using felt sticks [Track 2]	The fast-sounding *tremolo* traditionally played on the *tar*
66	Interrupts the cello part with occasional sets of resonating notes ('Pluck strings energetically')[200] [Track 3]	Sounds like chords ringing out on the *tar*
84 (*sotto voce – doloroso*)	Effect continues, though more present and intense as the duplets turn into triplets [Track 4]	*Tar*
98 (*calmato, contenu*)	Piano plucks sporadic, single notes [Track 5]	*Tar*
116 (*animato*)	Same *tremolo* effect as earlier; more urgent; supporting cello part	*Tar*
162 (*con fuoco, dramatico*)	Piano wildly interrupts cello part at irregular times (approximately once per measure) with thunderous chords, creating a blurred cluster of sound that intensifies (with the chords becoming longer and more frequent) into the climax ('with the palm of the hand on the bass strings')[201] [Track 6]	*Tar*, *Gosha nagara*
202 (*arioso*)	Melodic line (supporting/accompanying the *kamancha*); reintroduces a steady pulse by playing predominantly broken chords in left hand [Track 7]	*Tar*

2.4.3. Frets and modes

Amongst its many definitions, the word *mugham* can refer to specific categories of fret (similar to the Western 'mode'), melody, and genre. When considered in regard to mode, the term *mugham* refers to the seven main frets in Azerbaijani music (*Rast, Shur, Segah, Chargoi* (or *Chahargah*)*, Bayati-Shiraz,*

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[200]Franghiz Ali-Zadeh, *Habil Sayagi* (Hamburg: Sikorski, 1979), 5.
[201]Ali-Zadeh, *Habil Sayagi*, 16.

Humayun, Shushter) and also a number of tonic variants (*Mahur, Dugah, Bayati-Gajar, Kharic Segah, Orta Segah, Mirza Huseyn Segahi, Yetim Segah*, etc.). As in the Western modal system, in which the major scale could be seen as two identical tetrachords separated by a whole tone, every fret represents a strongly organised scale built up of tetrachords, possessing a firm tonic prop, and each step of the fret has its melodic function. Each of the frets has a distinctive and vivid emotional meaning. Unlike Western modes, *mugham* frets are associated not only with scales but with an orally transmitted collection of melodies and melodic fragments that performers use in the course of improvisation, building compositions made up of many parts.

The choice of a particular *mugham* and a style of performance fit a specific event – for example, a wedding or a funeral. The dramatic unfolding in performance is typically associated with increasing intensity and rising pitches, and the improvisatory nature of the music allows for a form of poetic-musical communication between performers and listeners.[202]

The development of *mugham* theory dates back to the early thirteenth century, when Safiaddin Urmavi (1198-1283), composer, calligrapher, and performer on the *ud*, standardised the tuning system of the *ud* and other string instruments. Urmavi also wrote two famous treatises, in one of which (The Sharafiya Treatise on Composition) he developed a system of tones and intervals that divided the octave into seventeen parts. This became 'the most accepted basis of recognition of modes throughout the Islamic Middle East.'[203] Additionally, he defined the important role of the tetrachord in the formation of modes.

The word *mugham* first appeared sometime in the thirteenth or fourteenth century, around the same time that the Azerbaijani scholar Abdulkadir Maraghi (1327–1388) defined the categories of modal scales. Following the modes of medieval theory, a music theorist of the nineteenth century, Navvab Mohsen (1833-1918), named twelve Azerbaijani *mughams*: Rast, Ushag, Buzalik, Huseini, Isfahan,

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[202]Naroditskaya, *Song from the Land of Fire*.
[203]Hormoz Farhat, *The Dastgah Concept in Persian Music* (Cambridge: Cambridge University Press, 1990), 4–5.

Zangula, Rahavi, Buzurk, Arak, Kuchik, Nava and Hijaz.[204] He also identified twenty-four *sho'bes* (an improvised section in a traditional *dastgah* [a complete *mugham*]), and collected and classified forty-eight types of *gushes*.[205]

Hajibeyov, the founder of modern Azerbaijani musical theory, reduced the number of primary modes to seven. Working from Urmarvi's theory of tetrachords, Hajibeyov defined five types of tetrachords based upon the combination of whole, half, and one-and-a-half steps, which were then used to describe the seven main frets.

Table 2.2. Seven Main Frets[206]

Rast	1 – 1 – ½
Shur	1 – ½ – 1
Segah	½ – 1 – 1
Shushtar	½ – 1 – ½
Chargoi/Chahargah	½ – 1; ½ – ½
Bayati-Shiraz	1 – 1 – ½
Humayun	½ –1; ½ – ½

Hajibeyov also described how the tetrachords can be conjoined, in which the last tone of one tetrachord overlaps with the first of the next, or when the two are separated by an interval of a second or a third. Using this formula, the seven main *mugham* scales are formed.

There are many complex rules of composing within this framework, and though Ali-Zadeh does not adhere to all of them, she does incorporate *mugham*'s modal system into *Habil Sayagi*: 'The main foundation/building blocks for *dastgah* is the fret of each *mugham*, which is unique and not similar to any other system of modes (major, minor). These are the modes and structural basis of my compositions.'[207]

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[204] Ibid.

[205] Mahmudova defines the *gushe* as a theme thesis, an initial melodic statement that embodies the main artistic idea of a *mugham* monody (Shahla Mahmudova, *Thematic material in Azerbaijani mugam* [Baku: Shur, 1997], 21).

[206] Hajibeyov describes a tone as '1', a semitone as '½', and a tone and a half as '1; ½'. I will be using the same formula throughout this chapter (Hajibeyov, *The Principles of Azerbaijani Folk Music*, trans. G. Bairamov [Baku: Yazichi, 1985]).

[207] Ali-Zadeh, interview.

Each fret has specific meanings and is used to evoke different emotions. Ali-Zadeh has drawn on these meanings, loosely constructing *Habil Sayagi* around three specific frets: *Shur*, *Chargoi*, and *Bayati-Shiraz*.[208]

The *Shur* mode is created through the amalgamation of three tetrachords on the formula: 1 – ½ – 1. Commonly used in Azerbaijani lyric songs, its traditional role is to create merry feelings for the listener despite the flattened third giving it a minor feel.[209]

Figure 2.2. The *Shur* mode

In order to form the *Chargoi* mode, one builds a tetrachord on the formula: ½ – 1; ½ – ½. The *Chargoi* mode, which in the *mugham* tradition creates a passionate and excited atmosphere, is the longest mode according to the number of sounds, consisting of eleven membranes.

Figure 2.3. The *Chargoi* mode

Bayati-Shiraz is built from a tetrachord on the formula 1 – 1 – ½. Consisting of nine membranes, it is created by the amalgamation of two tetrachords and one passing membrane in the middle. A song reminiscent of lullaby, it is associated with gentle sadness:

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[208]The composer confirmed the use of these frets in our interview: 'First – "*Shur*", then in the dramatic episode – "*Chargoi*", in the lyrical arioso "*Byastya-Nigar*", and so on' (Ali-Zadeh, interview).
[209]Uzeyir Hajibeyov, 'Principles of azerbaijani folk music' (Baku: Yazichi, 1985), Musigi Dunyasi, http://musbook.musigi-dunya.az/en/conn_tetrahord.html (accessed April 22, 2011).

Figure 2.4. The *Bayati-Shiraz* mode

Below is a chart of how Ali-Zadeh has incorporated these three frets into *Habil Sayagi*.

Table 2.3. Use of Frets in *Habil Sayagi*

Opening section	*Shur* (1 – ½ – 1)	Introduced bar 29	G – A – B-flat – C
Dramatic episode	*Chargoi* (½ – 1; ½ – ½)	Hints at from bar 72, fully stated at bar 137	A – B-flat – C-sharp – D
Lyrical *arioso*	*Bayati-Shiraz* (1 – 1 – ½)	Bar 202–217	E – F-sharp – G-shape – A
Allegro	*Chargoi*	Bar 218	A – B-flat – C-sharp – D
Alternating between the two frets	*Bayati-Shiraz*	Bar 232	(E) – F-sharp – G-sharp – A
	Chargoi	Bar 238	A – B-flat – C-sharp – D
	Bayati-Shiraz	Bar 244	(E) – F-sharp – G – A
Coda	*Bayati-Shiraz* and *Chargoi* combined	Bar 246	F-sharp – G-sharp – A – B-flat

Habil Sayagi does not begin in an obvious mode. In the opening instrumental episode, the solo cello hints at the *Chargoi*, with the notes found in the middle tetrachord rearranged (C – D-flat – E – F), but Ali-Zadeh does not linger in the fret.

The first clearly established mode appears at bar 29, where the composer introduces an expressive cello line with a minor feel in the *Shur* mode, using G – A – B-flat – C. A feeling of anticipation underlies this melody, created largely by the steady, repeated crotchets played by the piano. While the composer does not seem to be looking to create a merry atmosphere, as is traditional in this mode, it could be

suggested that instead, she is pointing to its fundamental energy created within a minor feel, using the fret at the beginning to signify the start of a journey, embarking with hope for what lies ahead.

Around bar 72, the piece enters into a dramatic episode in which the composer draws on the *Chargoi* fret, developing and exploring the mode, until bar 98. At measure 110, Ali-Zadeh commences a ninety-bar development section drawing on elements from the energetic and passionate *Chargoi* mode, establishing the fret clearly at the start of the *agitato* section at bar 137 (A – B-flat – C-sharp – D). This section is in double and triple time, all centred on the same fret but leaping between the octaves.

At bar 202, the work enters into a lyrical *arioso amoroso estatico* section. Here, at the quiet climax, Ali-Zadeh draws on the gentle *Bayati-Shiraz* fret, arriving at a much-anticipated destination that transports the listener to a new and peaceful place following the impassioned elation of the development section. At this point the mode is obvious (E – F-sharp – G-sharp – A), and the composer remains within the boundaries of these four notes throughout this free improvisatory section and into the cadenza.[210]

The *Bayati-Shiraz* fret resembles the European minor scale, most notably because of its flattened sixth, and its purpose here is similar to that of the minor scale in Western composition. Throughout this section the music expresses mystery, longing, and soothing.[211]

At measure 218, Ali-Zadeh returns to the *Chargoi* mode for the lively and stirring *allegro* section, generating a dance-like atmosphere. The fret is established in the first beat of the bar: A – B-flat – C-sharp – D. The composer doesn't remain here

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[210]It should be noted here that though Ali-Zadeh has used the formula for the *Bayati-Shiraz* fret (1 – 1 – ½), she has not built the scale from the traditional tonic, which constructs the tetrachord from a D, rather than an E as selected here.

[211]A traditional description of the minor key is provided in an article by Kate Hevner: 'passive, a downward drawing weight; it is determined and defined; it expresses gloom, despair, sorrow, grief, mystery, longing, obscurity, restlessness, melancholy; it is mournful, dark, depressing, doleful, dull, plaintive, and soothing' ('The Affective Character of the Major and Minor Modes in Music', *American Journal of Psychology* 47, no. 1 [1935]).

for long, however, electing to alternate between *Bayati-Shiraz* and *Chargoi* frets from bar 232 until entering the coda at bar 246.

The coda appears to be a combination of the *Bayati-Shiraz* and *Chargoi* frets. Ali-Zadeh has written dissonant clusters of sound around F-sharp – G-sharp – A, and B-flat.

In summary, while Ali-Zadeh unmistakably employs *mugham* frets in *Habil Sayagi*, she does so according to her own vision for the piece as opposed to being dominated by traditional structures.

2.4.4. Gender and society

While women have for centuries performed wedding songs, *marsias* (laments) and lullabies – a repertoire based upon the *mugham* model system, they were not considered performers of *mugham* compositions until the twentieth century.[212] The advent of socialism (1920) was associated with gender desegregation. Women were encouraged to take part in public musical performance and music education, and in the early 1920s the first professional female musicians graduated from the conservatory founded by Hajibeyov.[213]

Issues relating to the representation of gender and music have become an increasingly popular topic amongst music historians in recent years. In *Feminine Endings*, Susan McClary writes that in 'most dramatic music, there are both female and male characters, and usually (though not always) the musical utterances of characters are inflected on the basis of gender'.[214] This observation is not only applicable to Western music but also true of the *mugham* tradition where gender is represented by the particular frets.

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[212] Saadat Seidova. *Muzika v drevnix obradah Azerbaijdzhana* (Music in ancient Azerbaijani rituals) (PhD diss., University of Tiflis, 1981), 21.
[213] Hajibeyov, who was a professor at the conservatory, encouraged women to enter the field of musical performance and typically does not raise the issue of gender in his theoretical and critical works.
[214] Susan McClary, 'A Material Girl in Bluebird's Castle', *Feminine Endings: Music, Gender and Sexuality* (Minneapolis: University of Minnesota Press, 1991), 7.

There are two categories of *mugham*, male and female, and they are mainly defined with respect to the voice range and emotional content. For example, the *Segah*, *Shahnaz* and, *Bayati Shiraz* are considered female *mughams* because of their high-pitched ringing sounds, while the *Rast*, *Shur*, and *Chargoi* are recognised as male *mughams* for their low registers, and dramatic, courageous, heroic, and passionate characteristics.

In *Habil Sayagi*, Ali-Zadeh draws on the modal language of two male *mughams* (the *Shur* and *Chargoi*), plus the female *Bayati Shiraz*. Though the composer doesn't adhere closely to traditional *mugham* formulas in *Habil Sayagi*, she said that at times 'the themes coincide with the intonation of certain systems…First – *Shur*, then in the dramatic episode – *Chargoi*, in the lyrical Arioso *Bayati Shiraz*.'

In section 2.5, I suggest that the narrative of this work is built around the concept of a journey towards ecstasy or nirvana, with the main body of the work metaphorically representing the struggle and effort this entails. As such, it could be suggested that the composer employs the modal language of the *Chargoi* to allude to masculine images of war and heroism. Then at the arrival of ecstasy the female *Bayati Shiraz* enters with its soft, and gentle feminine characteristics, representing warmth, comfort, and peace. In the final two sections of *Habil Sayagi*, Ali-Zadeh combines both the *Chargoi* and *Bayati Shiraz* in the same musical stream, substantiating her claim that while she incorporates the tonal language of the frets into her music, she doesn't adhere to the formal *Mugham* structures.[215]

This signals a move away from native *Mugham* traditions and instead points to foreign influence and the effects of globalisation and modernisation (previous discussions relating to cultural imperialism and cultural hybridisation also pertain here). Until this point Ali-Zadeh has appeared to adhere the fairly universal cultural codes of male dominance, drawing predominantly on two male frets to execute the journey. Only briefly does she allow the feminine *Bayati-Shiraz* to take the lead in the soft climax section, where it is quickly outplayed and dominated by the wartime

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[215] Ali-Zadeh, interview.

Chargoi. But, like in this new contemporary era where women are beginning to find a voice, the *Bayati Shiraz* does not completely disappear (from bar 209 onwards Ali-Zadeh alternates between the *Bayati Shiraz* and *Chargoi* frets), instead, it begins to merge with the *Chargoi* mode, signifying a new dimension in the relationship.

While this employment of the frets lends itself to an in depth discussion on issues relating to gender and music (for example, gender arrangements in various societies, characteristic roles assigned to each gender and their representation in music, male dominance, power, and resistance represented in the structure of music to name a few), it is a vast topic that is out of the range of this research.[216] What is of relevance, is the cultural significance this flexible and contemporary use of the frets holds within *Mugham* traditions, and the composer's choice to utilise the *Bayati Shiraz* mode, which has come to represent a more liberal and modernised Azerbaijani society (arguably, a consequence of Western influence).

In many ways, the *Bayati Shiraz* could be seen as a metaphor for Azerbaijan, reflecting its cultural, political, and religious dynamics at the beginning of the twentieth century.

The history of the *mugham's* development is atypical. Though considered one of the major Azerbaijani *mughams*, in the nineteenth century the *Bayati Shiraz* did not exist as a complete composition (when Navvab formulated the theoretical basis of the art form, listing main and auxiliary *mughams*, he did not place *Bayati Shiraz* as an independent *mugham*). It was Hajibeyov, in his work *Principles of Azerbaijanian Folk Music*,[217] who presented it as one of the seven main modes. Additionally, while the original six *mugham* have remained fairly constant in their structure and form

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[216] Such issues have been the topic of increasing amounts of scholarly research in recent times. Initial works focused on the lack of woman's musical activity in the scholarly literature, concentrating primarily on collecting, documenting, and notating woman's music (Farrer, 1975; Cormier, 1978; Bowers and Tick, 1985, Briscoe, 1986, Pendle, 1991; Marshall, 1993; and, Neuls-Bates, 1996). Following this, the focus turned to gender, with scholars, such as Koskoff (1989), Keeling (1989), and Herndon and Ziegler (1990) examining various societies' gender arrangements and gender styles, seeing music creation and performance as contexts for reinforcing, changing, or protesting gender relations. Then the most recent wave of literature is heavily influenced by postmodern scholarship in feminist theory, cultural and performative studies, semiotics, and psychoanalysis studies. Represented in works by Solie (1993), McClary (1991), Citron (1993), and Brett and Wood (1994), among others, it has sought to understand the links between social and musical structures and the ways in which each can be seen in relation to each other.

[217] Hajibeyov, *The Principles of Azerbaijani Folk Music*, 1985.

since their inception, the new *Bayati Shiraz* has seen many changes, with the *mugham's* dramatic outline, modal scale, and *gushes* being constantly altered and re-invented.[218]

Most commonly associated with, and performed by, women in Baku (traditionally at weddings at funerals), this particular *mugham* in part, represents a relaxing of fundamental Islamic views on music and woman's role in society.[219]

And lastly, the *Bayati Shiraz* could also be said to represent the peoples' search for uniqueness. The word *Bayati* designates one of the Turkish tribes residing in ancient Azerbaijan, and *Shiraz* is identified with the Iranian city of Shiraz where the tribe of *bayat* was located, thus bonding Turkish with Iranian elements and creating a new and original sound for a people in search of a unique identity.

2.4.5. In the style of Habil Aliyev

As mentioned earlier, *Habil Sayagi* was written in honour of the great Azerbaijani *kamancha* player Habil Aliyev. Given that the title means 'In the Style of Habil', it seems fair to propose that an important part of the cellist's job in performing this work ought to be attempting to imitate Aliyev's style.

Aliyev's playing is characterised by a lyrical and mournful nature, and the musician is not afraid to delve deeply into the melodies of each specific *mugham*. This is due in no small part to his background. Having grown up during the Second World War, he has said that his style grew out of his response to the suffering he witnessed: 'It seemed as if, amid the cries of the mothers, I created new melodies which reflected the horrors of war. I think that my kamancha still holds those sounds and those screams.'[220]

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[218] Naroditskaya 2002, 195.
[219] The fact that Azerbaijan became the first democratic and secular republic in the Muslim world in 1918, bears further evidence of the 'relaxing' of rigid Islamic influence
[220] 'About', Habil Aliyev, professional website, http://habilaliyev.az/eng/about/ (accessed November 15, 2010).

According to Mo Ansari, several specific attributes have led to Aliyev's playing being held in such high regard by his fellow Azerbaijani.[221] First, Aliyev has exceptional technique. The strings on a *kamancha* are tuned a fifth apart; however, the fingerboard is on a slight angle, making it very difficult to play, as the fifths do not align across the strings. Ansari explains that the player needs to 'feel' this position in order to play in tune, and Aliyev does so extraordinarily well. Furthermore, it is very challenging to play with an even sonority on the *kamancha* – people will spend years trying to achieve this consistency. Aliyev has mastered the balance, and Ansari explains that it is always evident when Aliyev is playing a certain *mugham* because his sound is so lyrical and sonorous in comparison to others. Finally, Aliyev won the respect of his people when, as other *kamancha* players started to play music by Western composers (such as Mozart), Aliyev chose to play only *mugham*. This combination of factors has made Aliyev's playing popular as well as moving. Ansari expresses it well: 'People say when Habil plays *kamancha* they cry.'[222]

Some further background on frets is necessary to understand the nuances of Aliyev's playing. A *mugham* fret is established not only through the intervals of a specific fret but also through the shape of the melody, which reveals the characteristics and features of the Azerbaijani mode (the melody being the essence of *mugham* modes).[223] The improvised interpretation of a *mugham* requires a precise knowledge of the *gushe* (pattern or theme) and its particular technique of ornamentation; however, the paradigm is generally so flexible that several types of improvisation are possible (including the sequence of the musical components, the modulations, and the pieces which connect the musical components). The musician can either play the model learnt by heart or create distance from it while merely retaining the modal colouring. Ultimately, each performer interposes his/her individual interpretation on a *mugham* performance, and consequently the specific nuances of the performer's playing creates a unique and recognisable interpretation.

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[221]Ansari, interview.

[222]Ibid.

[223] Rena Mammadova, *Muzykalno-esteticheskie osobennosti azerbaidzhanskih mugamov* (Musical and aesthetic characteristics of Azerbaijanian *mughams*), trans. Inna Naroditskaya (Baku: Znanie, 1987), 14.

Throughout the next section, I will discuss how Ali-Zadeh has drawn on Habil Aliyev's unique interpretation and characteristic style in each of her three chosen *mughams* in *Habil Sayagi* (the *Shur*, the *Chagoi*, and the *Bayati-Shiraz*) by comparing *Habil Sayagi* with four *mugham* recordings performed by Habil Aliyev (each corresponding to one of the frets). Please refer to the suggested sound tracks for the specific comparisons.[224]

The *Shur mugham* is traditionally known for creating a merry spirit in the listener. The main characteristics of this fret which Ali-Zadeh drew on in *Habil Sayagi* include: the establishment of a lyrical and light atmosphere; the self-accompanying drone below a melodic line; remaining within a tight medium range of notes belonging to the *Shur* scale; and the occasional interruption to the free, improvisatory melodic lines by steady, marked rhythmic tunes.

In the section beginning at bar 28 [Track 1], Ali-Zadeh features the notes found in the *Shur* fret as well as writing a melodic line involving characteristics of the melodic contours in a typical *Shur mugham* (for example, a tight range of notes, ornamentations, the use of an accompanying drone, and free rhythms). Compare this section of *Habil Sayagi* to an early moment in Habil Aliyev's recording *Shur*, where the *kamancha* comes to a standstill and then restarts with a lyrical solo melody (though in a higher register than that heard in *Habil Sayagi*) and an accompanying double-stopped pedal-note [Track 8]. Similarities to this early section in *Habil Sayagi* can also be heard later on in the *Shur*, as Aliyev remains within tight melodic range and incorporates an octave pedal below the melodic line [Track 9].

At bar 49 of *Habil Sayagi*, Ali-Zadeh's line becomes more rhythmic and distinctive, with a regular pulse and the addition of *tenuto* lines to some of the notes [Track 2]. An emphasis on rhythm is also discernible throughout Aliyev's *Shur mugham*. The first example appears at the start of the piece [Track 10], in which it is possible at times to hear an accompanying pulse provided by a percussive instrument such as the *gosha-nagara* (Ali-Zadeh assigns this accompanying role to the piano

[224] The sound samples featuring Habil Aliyev are borrowed from the *Habil Aliyev* album for sale by Turan Aliyev, released on October 22, 2002 on the Habil Aliyev label. The recordings are live.

during the related section in *Habil Sayagi*). It is clear again later in Aliyev's *Shur mugham*, where the *kamancha* plays a rhythmic, pulsating solo [Track 11].

As previously established, the impassioned and energetic *Chargoi mugham* is employed throughout the long development section of *Habil Sayagi*. Of the three frets used by Ali-Zadeh in *Habil Sayagi*, the *Chargoi mugham* contains the fewest similarities to Habil Aliyev's recording of the *Chahargah* (an alternate spelling of *Chargoi*). Aliyev's *mugham*, lasting eight and a half minutes, stirs up a great deal of anticipation and excitement for the listener by gradually climbing in intensity throughout. This progression is achieved solely through rising in dynamic and rhythmic emphasis, as opposed to the numerous techniques that Ali-Zadeh uses to build to her climax. However, there are a few similarities worth mentioning between the two pieces.

Aliyev builds intensity by introducing running passages, but he interrupts them with reminiscent melodic lines; these interruptions become less frequent as the piece intensifies [Track 12]. Ali-Zadeh does the same thing in several places in her piece, most notably in the section from bar 116 leading into the fast *agitato* section.

Ali-Zadeh further uses rhythmic emphasis to create a feeling of drive in the uplifting *agitato* section beginning at bar 137, where the cello line becomes more urgent and rhythmically driven. Additionally, the pedal/drone is combined with repetitive, rhythmic running sequences (bars 184 and 191) [Track 6], akin to what Aliyev does throughout his *Chahargah* [Track 13].

Finally, unlike Habil's previous *Shur mugham*, which remained predominantly within the same octave, his *Chahargah mugham* skips among octaves, making use of the instrument's full range; a technique that Ali-Zadeh uses frequently during her development section.

Moving to the third fret, characteristics of the melodic *Bayati-Shiraz mugham* can be heard in several sections of *Habil Sayagi*. It is especially clear throughout the *arioso amoroso estatico* (bar 202) where the melody is woven from small motifs. Repeated, varied, expanded, diminished, reversed, or frozen as a contemplation of a

single tone, these sounds join together to create a unified arabesque melody. In addition to this, the inclusion of dotted rhythms, grace notes, and an overall feeling of sadness which are all common features of this *mugham* [Track 14].

A long instrumental episode, starting about three minutes into Aliyev's recording and lasting approximately four minutes, has a narrative quality similar to Ali-Zadeh's *arioso* section. It also provides cellists striving to imitate Aliyev with a valuable example of how to perform the *glissandi* and *tremolo* indicated by Ali-Zadeh in the corresponding section of *Habil Sayagi* [Track 15 and Track 7].

As Aliyev's performance reaches its closing section, the *kamancha* moves to the very top of its register, almost crying out – an effect that Ali-Zadeh appears to adopt in the cello line midway through the *arioso* section, leading into the cadenza, just before bar 205, and also in the climatic section leading into the *arioso* (bar 201) [Track 16 and Track 17].

A recurring micro-motif (or *avaz*) of a dropping major third, from the B-flat down to F-sharp, is audible throughout the entirety of Aliyev's performance of the *Bayati-Shiraz*, defining the work's melodic contour. Though Ali-Zadeh does not focus on this specific interval in the *arioso* section of *Habil Sayagi*, the same high B-flat is used almost like the tonic note throughout the section, which always pivots from and returns to the B-flat. Moving around the same tight melodic range like this is a major feature of the instrumental *Bayati-Shiraz*.

Habil Aliyev recorded another version of the *Bayati-Shiraz* called *Menim Tebrizim*, which provides further examples of the ways in which Ali-Zadeh has incorporated characteristics of the *mugham* and Habil Aliyev's style into *Habil Sayagi*.

A few minutes into *Menim Tebrizim* [Track 18], as the drum stops playing and Aliyev enters into the instrumental episode, similarities to the section of *Habil Sayagi* that begins at bar 65 are evident [Track 3]. In both pieces, the music comes to a standstill and the soloist enters into a cadenza-like episode consisting of free semi-quaver runs and left-hand *pizzicato* (though in *Habil Sayagi* the piano is playing

distorted chords at the start of each bar while in the *Menim Tebrizim* the *kamancha* plays alone).

The following instrumental episode [Track 19] displays similarities to the *sotto voce-doloroso* section in *Habil Sayagi*, as both sound free and *ad-libitum*. Aliyev's playing expresses mournful and drawn-out contemplation, consisting of scalic passages and left-hand *pizzicato*, just as Ali-Zadeh requests in her work [Track 4].

At bar 204 of Ali-Zadeh's piece, the cello part plays a short cadenza [Track 20] that sounds remarkably similar to a cadenza played by Habil Aliyev during the second half of *Menim Tebrizim* [Track 21]. Several other moments in Aliyev's recording reveal characteristics of his playing and the *mugham* style that may have influenced Ali-Zadeh when composing *Habil Sayagi*. The way in which Ali-Zadeh builds the intense final moments of her development section (bar 201), which leads into the *arioso amoroso estatico* climax [Track 17], follows the same form as a similar section in *Menim Tebrizim*. In this section, the *kamancha* springs up the octaves, leaping to the uppermost notes on the instrument, then proceeds into a calm *arioso*-like solo section [Track 22]. Finally, in *Menim Tebrizim* Aliyev concludes his *arioso* to begin a short, rhythmic section resembling a dance [Track 23], not dissimilar to the dance Ali-Zadeh initiates at bar 209 [Track 24].

As I have attempted to demonstrate through these comparisons, Ali-Zadeh has drawn on many aspects of the *mugham* style in the intricate nuances of each specific *mugham*. In addition to this, it is important to note that the *mugham* influence can also be heard in the more general melodic features, such as the use of melodic patterns spun out of thematic cells; the prominence of *ostinato*; a declamatory nature; the use of many cadences; and ornamentation (all of which are present in the example tracks).

2.5. A Cultural Narrative: Nirvana and Physical Love as a Form Concept

2.5.1. An analogy of a journey

Ali-Zadeh was born and raised in an Islamic society, and I suggest that this background influenced the form and structure of *Habil Sayagi*, as this work contains Islamic-influenced ideas on music, love, poetry, and the spiritual and physical journey of Man. Examined in this light, one could conceive of the piece as narrating a journey toward enlightenment, with the main body of the score (section one) representing the voyage of self-discovery and surmounting obstacles, so that one might finally reach a position of peace and tranquillity, or nirvana (the Islamic concept *najat*) in section two. Hinting at this idea, Ali-Zadeh said that in *Habil Sayagi* she was trying to create 'a certain emotional atmosphere of "overcoming" the struggle, striving toward the light, struggles that result in floating, purification, nirvana.'[225]

The idea that life is a prelude to something better, a trek of analysing oneself, cleansing one's soul, and labouring toward the ultimate nirvana state, is a common theme in many Eastern religions, including Islam (Azerbaijan's national religion and hence Ali-Zadeh's by proxy, at the very least). Muslims believe that life is the struggle to make one's spirit strong in accordance with the teaching of Islam, which enables one to find the 'way' that leads to Allah.

Renowned English Islamic scholar Reynold Nicholson emphasises the importance for Sufis of the idea that life is a 'journey'.[226] Nicholson writes that 'Mystics of every race and creed have described the process of the spiritual life as a journey or a pilgrimage.' He goes on to say that the 'Sufi who sets out to seek God calls himself a "traveller" (*salik*); he advances by slow "stages" (*maqamat*) along a "path" (*tariqat*) to the goal of union with Reality (*fana fi 'l-Haqq*).'[227]

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[225]Ali-Zadeh, interview. This journey theme is foundational in *mugham*. Azerbaijani scholar Nasib Goyushov writes: 'The origins of music in most ancient cultures are explained in cosmological terms. The same is true of descriptions of mugham, which is understood as an attempt by the spirit to climb from earthly chaos to cosmic harmony' (Goyushov, 'Spiritual and Aesthetic Foundations').

[226]Sufism is commonly recognised as a mystical branch of Islam (Nile Green, *Sufism: A global history* [West-Sussex: Wiley-Blackwell, 2012]).

[227]Reynold Nicholson, *The Mystics of Islam* (London: Routledge, 1962), 20.

We may infer further connections between the Sufi philosophy of music and the musical journey of *Habil Sayagi*. For example, we could read Ali-Zadeh's formal structure of the first section as a metaphorical spiritual journey, and the second as the arrival at spiritual capacity, sustaining this through to the coda.

Sufi philosophy has played a major role in shaping the *mugham* tradition throughout the centuries; in fact, musicologists, such as Urmavi, proposed that Arabian *makam* and Azerbaijani *mugham* originated from the notion of *magam* of the Sufis, which included ceremonies that were accompanied by music from the beginning to the end.[228] For Sufis, Islam is not the religion of peace so much as the religion of love.[229] They believe that they live in order to love God, and, calling their music heavenly, they believe that 'music serves to kindle the flame of his (man's) mystical love, to intensify his longing for mystical union, and even to transport him to a state of ecstasy and to sustain him there to the limit of his spiritual capacity.'[230] In Sufi philosophy music is viewed as a method of worship and a means of spiritual advancement, and 'the social acceptability of music has been particularly addressed within Sufism in respect of *sama*' (blessed listening – the search for truth and perfection with song and dance).[231]

2.5.2. A discussion of structure and form

Having noted the Sufi motif of journey present in *Habil Sayagi*, I will now examine in greater detail how the piece relates to native music and culture in structure and form.

Habil Sayagi is composed in four sections. Tentative at the beginning, it gradually builds intensity to a point nearing eruption, at which stage the work

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[228] 'Mugam History', Mugam Radio, http://www.mugamradio.az/about-mugam/mugam-history (accessed September 25, 2011).
[229] Mark Sedgwick, 'Revelations,' *Times Literary Supplement*, July 12, 2013.
[230]Qureshi, *Sufi Music of India and Pakistan*, 1. See 2.5.4 for further discussion on the influence of Sufism on *Habil Sayagi.*
[231]Goyushov, 'Spiritual and Aesthetic Foundations'.

culminates into a place of contentment, peacefulness, and arrival where, as Sufis would say, one is free to 'dance'. Ali-Zadeh explains the evolution of the work:

> I imagine that the main idea of a *Mugham*-movement is from simple – to complex, from one repetitive sound, to parallel complex sounds (multiple polyphonic sounds/parts), from the lowest notes of a dark colour to brilliant-high overflowing passages, from the simple recitative in the beginning – to virtuoso passages at the limit of the vocal cords.[232]

This fourteen-minute work has a dramatic arc of ever-increasing tension and excitement. With a shape resembling that of a Northern Indian raga performance or a Persian classical piece, it begins with an unmeasured statement on the main solo instrument of a basic melodic shape, then continues without any feeling of basic pulse through an exploration of ideas based on that contour. An outline of the proposed structure is provided in the following table.

Table 2.4. Proposed Structure for *Habil Sayagi*

Section	Bars	Musical Events
Section One	A: 1–28	Cello introduces work
	B: 29–48	Prepared piano enters, 'time' starts
	B.1: 49–65 B.2: 66–83 B.3: 84–97	Prepared piano and cello draw energy off each other and slowly build intensity
	C: 98–115	New material and texture introduced, creating a calmer mood
	C.1: 116–61 D: 162–201	Gradual process of intensification
Section Two	E: 202–9	Soft climax
Section Three	F: 210–45	Dance period
Section Four	G: 246–48	Coda

2.5.2.1. Section one

I have divided this first section into eight separate subsections. Section one provides an introduction to the work, preparing the listener for the journey toward ecstasy.

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[232]Ali-Zadeh, interview.

Subsection A includes bars 1–28. During this time the solo cello progressively introduces the work, establishing the tone, *cupo, quasi niente* ('deep/dark', and 'like nothing'). Improvisatory in style, the music proceeds like a narrative, and the player must be free in the execution. Multiple changes of time signature, divisions into two, three, and five, free *glissando*, and many small accelerations and decelerations in speed – all are attempts by the composer to make the sound as free and irregular as possible. Typical of the solo line in *mugham* music, the development of the solo cello line is gradual, without any drastic changes in speed, dynamics, or melodic range; in fact, the cello stays within a two-octave range (low C to middle C) for the first fifty-seven bars of the piece and moves mainly between *piano* and *pianissimo*. With a speech-like quality, the cello takes on the role of the *kamancha*. At bar 19, an additional voice is added to the solo line, with the cello introducing a pedal/drone to the melody.

Subsection B begins at bar 29. Here, 'time' begins, with the prepared piano adding a pulse to the work by hitting the keys with felt sticks. The cello line is still free, and the player need only loosely follow the fully notated score. The piano and cello draw energy from each other and progressively escalate in intensity. At bar 44, (*expressivo*) the piano provokes a response from the cello, firstly by shifting the key (moving the pulsation from a low G up to a D), and then by building fervency through an increase in metre (the piano moves from pulsing crotchets to quavers in bar 45). The cello responds with rising motion.

A new subsection (B.1), *animato*, runs from bars 49–65, with further developments. The slightly hesitant introduction is over, and one could say in the context of the proposed narrative that the labour and struggle of the journey begins. The narrow intervals of the earlier cello line gradually become wider, magnifying the howling of the instrument. The rhythm is still very loose, functioning as a generator of excitement rather than a rhythmical foundation.

Bars 66–83 comprise subsection B.2. Here the cello line becomes even more unrestrained and extemporaneous, while the piano part becomes increasingly sparse, only contributing occasionally to add depth. As the cello line lingers, enjoying the

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colours and melodic possibilities of the instrument, it seems that the journey is entering a new stage, one of reflection and rest.

Then subsection B.3 begins, *sotto voce, doloroso* ('lower the voice for emphasis', 'mournful'). In this section, which runs from bars 84–97, there is a foreshadowing of ecstasy, with the cello hinting at the *arioso* theme while at the opposite (lower) end of the instrument's register (the *arioso* section being in the uppermost register). Again, the listener is offered a brief rest from the odyssey and a glimpse of what is to come.

Subsection C (bars 98-115), *calmato, contenu* ('calmed down, contained'), presents the listener with a new mood and texture. Now the energy that has been gradually escalating is held back, and a period of calm sets in, as the cello line plays regular *pizzicato* quavers and the piano joins in with quavers on the off-beat. Though this material is new, it contains pithy reminders of previous events. The calm created by the pulse is interrupted every two to three bars by short outbursts reminiscent of the *sotto voce, doloroso* section (for example, from bars 103–4 and again at bars 107–8). Here the composer has introduced a new technique: looking back rather than ahead. Philosophically, one could suggest that, in the long and arduous trek one faces when striving to reach ecstasy or enlightenment, there are times of calm. In these moments, as is the aim of the Islamic faith, one has found a moment of 'equilibrium'[233] and consequently experiences a spiritual union with Allah.

A progressive process of intensification takes place over the next 85 measures (subsections C.1 and D: bars 116–201) as the journey toward nirvana nears it culmination. Effort and vigour multiply, and both performers are physically, spiritually, and emotionally pushed to their limits.

The accumulation and release of intensity in music is very important in the *mugham* tradition. As in the Qawwali tradition (the Sufi music of India and Pakistan) it is believed that 'music must above all express and convey intensification . . . [and] .

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[233]Frithjof Schuon, *Understanding Islam* (London: George Allen & Unwin LTD, 1963), 15.

. . repetition with its concomitants expresses and conveys intensification'.[234] Both of these musical traditions achieve intensification through repetition, rhythmical accentuation, and gradual acceleration.

Throughout this section, I have suggested that the structure of *Habil Sayagi* is formed around humankind's progressive trek toward enlightenment, starting with a single idea that gradually expands in intensity and energy until culminating at its destination. It is during the development section which follows that the composer draws on traditional techniques of intensification to achieve this effect, driving the cello to its maximum potential as well as a place of arrival.

Below I have explored the techniques used by Ali-Zadeh to achieve such a masterful accumulation of intensity during subsections C.1 and D.

Table 2.5. Process of Intensification

Bars	Process of Intensification
C.1 **116–31**	*animato* – alternating between different rhythmical patterns; repetition
132–36	Running cello passage; strong rhythmic accentuation; prepared piano
137–51	*agitato* – gradual acceleration; semiquavers dominate; changing time signatures; strong rhythmic accentuation; repetition of same fret
152	Brief pause interrupts flow
153–54	a tempo and semiquavers resume; gradual acceleration
155–61	rhythmic accentuation; acceleration; melodic *declamando* outburst signalling an arrival/break in proceedings
D **162–79**	*con fuoco, dramatico* – short refrain: pulse regular, rhythmical and dance-like; intensification resumes; prepared piano thumps out unmeasured, growling chords
180–98	*glissando* lines; septuplets runs; cello playing multiple lines; rhythmical accentuation on every beat; bar lines disappear
199–201	*presto fuero* – cello *fff* at the top of the register; continuous low rumbling chord in the piano part

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[234]Qureshi, *Sufi Music of India and Pakistan*, 216.

2.5.2.2. Section two

After the almost painfully long and demanding first section, culmination is finally reached at bar 202, entering into section two: *arioso amoroso estatico* ('airy', 'lovingly', 'ecstatic'), an idea found in many religious traditions: 'The ideal perfection, called "Baqa" by Sufis, is termed "Najat" in Islam, "'Nirvana" in Buddhism, "Salvation" in Christianity, and "Mukhti" in Hinduism.'[235] Unlike the loud, dramatic musical climaxes frequently found in traditional Western classical music, this is a soft climax, representing an arrival, the end of life's travails, a place where one experiences a 'blowing out' (the literal meaning of *nirvana*) of all desire, hatred, ignorance, and suffering. It also offers a world where pleasure is available without thrusting desire, where tenderness and vulnerability are virtues rather than flaws.

Section two encompasses bars 202–9, though it lasts for longer than the number of measures indicates as Ali-Zadeh has left this part unmeasured – instead writing a free melodic passage. As the cello indulges in an arabesque-like melody at the top of the register, the piano keeps a regular pulse, carefully following the melodic line and the cellist's inclinations.

The repetitiveness of this new theme implies the use of a certain musical rhetoric by the composer, adding emphasis and weight to the feelings of culmination, peace, and arrival. Like the stories found in the Old Testament of David playing the harp to calm the 'evil spirit' afflicting King Solomon, through the persuasive powers of a melodic line Ali-Zadeh transports the listener to a new place, in which previous struggles are forgotten and a moment of complete enlightenment takes over.

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[235]Inayat Khan, *A Sufi Message of Spiritual Liberty* (London: 1914), available at http://www.sacred-texts.com/isl/msl/msl.htm (accessed January 11, 2012). The term *nirvana* has become part of Western culture to refer to a heavenly or blissful state; however, this is not its original meaning. The Buddha taught that human existence is characterised by various forms of suffering (birth, aging, sickness, and death), which are experienced over the course of many lifetimes in the cycle of rebirth, called *samsara* (literally 'wandering'). Seeking a state beyond suffering, he determined that its cause is negative actions and the negative emotions that motivate them, and that they must be destroyed. If these causes can be eradicated, they will have no effect, resulting in the cessation of suffering. This cessation is nirvana. Nirvana was not regarded as a place, therefore, but as a state of absence, notably the absence of suffering. Today, however, the term has been adopted into the vocabulary of various religions to refer to the place humans go after death.

This serene tranquillity is fleeting, and at bar 204 the part enters into a cadenza, indicated *spiccato* and *quasi niente* ('almost nothing'), consisting of a running semi-quaver passage that accelerates as it develops. The arrival section concludes swiftly in comparison to its ascent. One could suggest that this is because in traditional Islamic culture, to carry on in that pleasurable zone which is semiotically and structurally female[236] would be an act of intolerable transgression.

2.5.2.3.   Section three

After a return to the improvisatory opening mood, the piece enters section three: a dance-like period. Lasting from bars 210–45, the cello erupts into a pulsating and rhythmically inspired dance in duple time, and the piano takes on the role of the *tar*, producing energetic rhythms by striking the wooden body of the instrument. On the surface, the sudden segue into a dance passage at this stage in the work can seem musically unexpected, but in fact the concept of 'dance' has deeper philosophical roots. It is possible that, directly after arriving at nirvana on the spiritual journey of the piece, Ali-Zadeh has entered into a time of spiritual and physical ecstasy where one can dance, set free from the weight of life.

The idea that 'dance' embodies spiritual freedom and offers nourishment for the soul is not a new one. In many world religions, including Christianity, Jainism, Islam (Sufism), and Buddhism, disciplines of asceticism[237] are practiced amongst fervent followers, and dance is an important element of this lifestyle to help find peace for the soul.[238] Horst Hutter makes the connection between asceticism and dance clear: 'Dance is suggested as an ascetic technique to counteract the dividualism of Christian souls. It aims to integrate the Dionysian chaos at the bottom of Christian souls by making Apollo and Dionysus [the "good" and "evil" parts of a person,

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[236] Ali-Zadeh has built this soft climax section around the feminine *Bayati-Shiraz* fret, incorporating many of the musical nuances, and by association, themes, connected with the particular *mugham*.

[237]*Asceticism* describes a lifestyle characterised by abstinence from various sorts of worldly pleasures, often with the aim of pursuing religious and spiritual goals.

[238]The founders and earliest practitioners of these religions lived extremely austere lifestyles, refraining from sensual pleasures and the accumulation of material wealth. This is to be understood not as an eschewal of the enjoyment of life, but recognition that spiritual and religious goals are impeded by such indulgence.

neither of which will cease to exist] dance with one another.'[239] Friedrich Nietzsche also believed that dance represented freedom for the soul: 'Man now expresses himself through song and dance as the member of a higher community; he has forgotten how to walk, how to speak, and is on the brink of taking wing as he dances . . . He feels himself to be godlike and strides with the same elation and ecstasy as the gods he has seen in his dreams.'[240] Similarly, in the Western classical music tradition (which also influenced Ali-Zadeh), composers such as Alexander Scriabin[241] and Richard Strauss[242] have used dance themes to communicate freedom and arrival. *Habil Sayagi*, I would suggest, represents a combination of these ideas, with Ali-Zadeh conveying this general essence of dance: the relief and joy at having reached the destination (in the nirvana section of section two) is euphoric, and this leads to a dance, conveying joy, freedom, and true peace for the soul.

Ali-Zadeh was surely influenced by the themes that are associated with dance in her own culture also. The dervish brotherhoods in Persian and Turkish traditions believe that dance is part of a continual quest for union with Allah, which is not done with ease.[243] As one scholar writes, in these groups, 'dancing is not rising to your feet painlessly like a speck of dust blown in the wind. Dancing is when you rise above both worlds, tearing your heart to pieces and giving up your soul.'[244] These wandering Sufis express their love to God through dance. It does not represent a weightless and effortless freedom but an outpouring of one's soul and the ultimate form of worship. In some respects, Ali-Zadeh seems to have injected this concept and atmosphere into

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[239]Horst Hutter, *Shaping the Future: Nietzsche's New Regime of the Soul and Its Ascetic Practices* (Lanham, MD: Lexington Books, 2006), 25.

[240]Frederick Nietzsche, *The Birth of Tragedy and The Genealogy of Morals*, trans. Francis Golffing (New York: Anchor Books, 1956), 23–24.

[241]Examples of Scriabin using dance to represent spiritual freedom can be heard in, among others: *The Poem of Ecstasy* (*Le Poème de l'extase*) Op. 54 (1905–1908); Symphony No. 3 in C minor, Op. 43, entitled *Le Divin Poème* (*The Divine Poem*) (1904); Piano Sonata No. 4, Op. 30; and Piano Sonata No. 5, Op. 53.

[242]Inspired by Nietzsche's work, Strauss wrote *Thus Spoke Zarathustra*, Op. 30 (1896), dividing the work into nine sections and naming the sections after selected chapters of the book. Fittingly, he chose to represent the moment when Zarathustra returns to society, jubilant, complete, and whole, with a waltz. Dance expresses release, an arrival at a better place.

[243]A *dervish* is someone treading a Sufi Muslim ascetic path, known for extreme poverty and austerity. As wondering Sufis, dervishes express their devotion to God in a mystical dance. In a worship ceremony called the *Sema*, dervishes perform this customary dance in attempt to reach the source of all perfection. This is sought through abandoning one's *nafs* (egos) or personal desires, by listening to the music, focusing on God, and spinning one's body in repetitive circles (Raymond Lifchez, *The Dervish Lodge* [Berkeley: University of California Press: 1992], 255–56).

[244]Lifchez, *Dervish Lodge*, 255–56.

the dance section in *Habil Sayagi* – it is not a free and weightless dance interlude but rather difficult and awkward to play, and the exhausted cellist must draw on his/her base energy reserves in order to succeed at this section.

2.5.2.4. Section four

Bar 246 begins the final section of the work, the coda. Here, the composer brings the music to a standstill; retaining the model language of frets she combines notes from the *Bayati-Shiraz* and *Chargoi* modes, presenting heavy clusters of sound, in both the cello and prepared piano parts. The tonal centre here rests on the A-note. The piano part plays two octave A-notes, the cello a continuous A pedal along with a melodic line that moves around F-sharp, G-sharp, A, and B-flat and is played simultaneously on the adjoining string. Here and throughout the work, the A-note has played a vital role in the harmonic language, and could be described as the tonic or the modal home, or in the *mugham* tradition, a *maye*.

Maye, central to *mugham* composition, has several meanings. Hajibeyov calls *maye* a tonic; a tonic zone which is identified with the central section in the composition; and finally, a modal home, the place of departure and eventual return, the background for the journeys into different modal areas of the *mugham*.[245] Rena Mamedova describes *maye* as the stable element of the *mugham* composition. In her essay 'The role of the *maye* in the formation of *mugham* composition', she refers to *maye* as 'the base of all (musical) development, the anticipation of the end, and the centre of the composition.'[246]

In *Habil Sayagi*, the central section represents the turbulent journey of life. The *maye* (A) has already been prominent in the work: tonic-like in role, it is used as a recurring pedal note from bar 72 onwards, and it becomes even more prominent from bar 159, as the music moves through a *crescendo* into its climax, with both parts continuing to centre themselves around A. In the *Arioso*, the *maye* is the tonic zone,

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[245] Hajibeyov, *The Principles of Azerbaijani Folk Music*, 56; 150.
[246] Mammadova, *Muzykalno-esteticheskie osobennosti azerbaidzhanskih mugamov* (Musical and aesthetic characteristics of Azerbaijanian *mughams*), 124.

with the melodic line consisting of ornaments dancing around the A-note (for example, repetitions of A, G-sharp, F-sharp, A, and A, C-sharp, B-flat, A). For the cadenza (bar 204), the *maze* creates the tonic pedal that the notes pivot off. In the Dance section, it is the foundation of the rhythmic *gosha nagara* (drum) and the dancing melodic line. Then finally, in the coda Ali-Zadeh arrives at the conclusion with cluster chords based around the *maye*, with A representing the modal home, the eventual return and conclusion to the journey.

2.5.3.   The spiritual and the physical

Both the performance and theoretical areas of my research have indicated that in *Habil Sayagi*, Ali-Zadeh is taking the listener (and the player) on a journey. However, this is not only a spiritual journey; it also requires a physical commitment. The score demands emotional energy to take the listener on this lengthy, winding journey, in addition to physical stamina to endure to the end. Long, repetitive sections (such as the passage in the 'intensification process') not only press the performer to physical limits but also can create a nearly trance-like, meditative state, resulting in the whole 'self' contributing to, or being caught up in, the performance event.

In Islam, the spiritual and the physical are indissoluble, and similarly it is believed that the heart, the soul, and the self all combine to make the one person. Consequently, spiritual discipline and physical discipline are united on the path toward Allah and heaven,[247] with the journey demanding the whole person – both spiritual faith and physical obedience to the law. Sadullah Khan explains: 'the "soul" and the "self" are often used interchangeably. . . . The "soul", most often referred to in the Qur'an as *ruh* (17:85) (78:38), is that force within each human being which is the essence of existence without which the physical body is rendered lifeless.'[248] According to the Islamic faith, if one makes one's spirit (*ruh*) strong, then it is possible to get on the path leading to Allah. In the same way, if one physically

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[247]Frithjof Schuon explains, 'Islam is a religion of certainty, equilibrium and prayer. . . . And thus we meet the triad traditional in Islam, that of *el-iman* (the "Faith"), *el-islam* (the "Law", literally, "submission") and *el-ihsan* (the "Way", literally, "virtue")' (*Understanding Islam* [London: George Allen & Unwin LTD, 1963], 15).
[248]Sadullah Khan, 'The Soul, the Self, the Heart, Spirituality and Goodness' (2002)*, DigiCog Media, *http://www.icoi.net/khutbah/the_self_soul* (a*ccessed August 15, 2013).*

follows the moral guidelines of the religion, fighting one's earthly, physical desires and instead aligning one's 'will' with God's, one will be led to Allah.

A further explanation of the joining of spiritual and physical is provided by Frithjof Schuon, who explains that finding equilibrium and union with God is the essence of Islam. He speaks of Islam having two dimensions: 'the "horizontal" dimension of the will, and the "vertical" dimension of the intelligence',[249] labelling the former 'equilibrium' and the latter 'union'. Equilibrium is achieved through physically honouring, worshiping, and following Allah. Without equilibrium, one does not find the centre, and 'apart from the centre no ascent and no union is possible'.[250] Thus physical acts of worship for example prostrating and ritualised prayer are commonly practised.

A comparison can be made between these physical, repetitive acts of worship and what occurs throughout the development section of *Habil Sayagi* (subsections C.1 and D: bars 116–201). The cellist plays similar cells over and over again, most notably in the *agitato* section from 137 to 155, moving both up and down, either in stepwise motion or jumping in small intervals, and between octaves. A repetitive, driving pulse is created, and it seems that akin to 'the rhythm which in Islam is realised ritually through the canonical prayers following the sun's progress',[251] the player is ritually striving for equilibrium, repeating similar motions over and over again in an attempt to align the self physically (and consequently spiritually) with Allah.

2.5.4. Physical love and poetry

In addition to symbolising a 'physical' love and search for God, *Habil Sayagi* could similarly represent a physical love between man and woman. The intertwining of physical and spiritual love reveals itself in the *mugham* poetic tradition, and though this idea is nowhere made explicit, it has been suggested that at times *mugham* music

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[249]Schuon, *Understanding Islam*, 29.
[250]Ibid., 29–30.
[251]Ibid., 30.

expresses the beauty and spirituality involved in a journey toward sexual climax. The way in which Ali-Zadeh has constructed the climax in *Habil Sayagi* could also be interpreted sexually: the long development section gradually climbs in intensity, then erupts in ultimate fulfilment in the following 'soft' climax.

The link between poetry and *mugham* is another aspect worth mentioning. Though a secular art, much of the poetry used in *mugham* is about divine love and linked to Sufism (and Islam). Similarly to Sufism, *mugham* seeks to ascend from a lower level of awareness to a transcendental union with God; and like the music of the sufi, *mugham* is a spiritual search for God.[252]

The form of the poetry often used in *mugham* descended from the Islamic style of poetry, called *ghazal*.[253] Evidence of this lineage is seen in the semantic composition and rhythmical intonation of *ghazal*, which is fully compatible with the spirit of *mugham*'s rhetorical declamations. Found in much Islamic literature, this genre of lyric poem is generally short and graceful in form.[254]

Physical love is often the theme of poetry used in *mugham* performance. Additionally, love for God is at times in Islamic faith related to the physical love between a man and a woman. Although sexuality is well hidden within Islamic culture, it is not ignored in the literature. The following selection from the famous Sufi poet and theologian Rumi demonstrates how love for God, wonder at the world, and physical love can all be connected or seen as one. The poet speaks of how the different types of pleasure found in the world can be found within humanity.

Like This[255]

If anyone asks you

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[252] Qureshi, *Sufi Music of India and Pakistan*, 1.
[253] Traditionally invoking melancholy love, longing, and metaphysical questions, *ghazals* are often sung by Iranian, Indian, and Pakistani musicians.
[254] Kathleen Kuiper, 'Ghazal,' Encyclopaedia of Britannica, http://www.britannica.com/EBchecked/topic/232525/ghazal (accessed December 1, 2012).
[255] Rumi, 'Like This', trans. Coleman Barks, in *My Favorite Rumi*, ed. Jason Espada, A Buddhist Library (1995): 85, http://www.abuddhistlibrary.com/Buddhism/H%20-%20World%20Religions%20and%20Poetry/Poetry/Rumi/My%20Favorite%20Rumi/My%20Favorite%20Rumi.pdf (accessed April 27, 2011).

how the perfect satisfaction
of all our sexual wanting
will look, lift your face
and say

Like this.

When someone mentions the gracefulness
of the night sky, climb up on the roof
and dance and say

Like this?

If anyone wants to know what 'spirit' is,
or what 'God's fragrance' means,
lean your head toward him or her.
Keep your face there close.

Like this.

When someone quotes the old poetic image
about clouds gradually uncovering the moon,
slowly loosen knot by knot the strings
of your robe.

Like this?

If anyone wonders how Jesus raised the dead,
don't try to explain the miracle.
Kiss me on the lips.

Like this. Like this.

To summarise the intermingling themes of this poem: in the first stanza Rumi speaks of people finding sexual satisfaction within themselves; in the second he compares the earth's grace to dance; in the third he indicates that characteristics of God can be found in humanity; in the fourth he sexualises the actions of the clouds and the moon; and in the fifth he espouses that Jesus' miracles are better understood through a kiss. This narrative does not portray physical sexuality as immoral and something that should be hidden; instead, it juxtaposes humanity's physical love with the beauty and essence of God and his creation.

In another poem, Rumi speaks of the beauty and desirability of a woman as a gift from God, and of physical love as synonymous with the spirit, bringing meaning to life.

Fragments, Ecstasies[256]

a woman is God shining
through subtle veils

haughty spirit astride
the elegant mare
of her body

loving her
you love spirit
not a corpse

spirit is for lovers
the corpse is for necrophiles

heart's ease, laughter
meaningfulness, love . . .

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[256]Rumi, 'Fragments, Ecstasies', trans. Daniel Liebert, in Espada, *My Favorite Rumi*, 16.

It is widely assumed by many, especially in the West, that women hold a subordinate position within the Islam faith. Though there are strong arguments to support this assumption, the following poem paints a very different picture. Here Rumi speaks of the wisdom and value of a woman, advising men not only to desire her inwardly but to respect and honour her outwardly as well.

The Love of Woman[257]

If you rule your wife outwardly,

        yet inwardly you are ruled by her whom you desire,

This is characteristic of Man:

        in other animals love is lacking, and that shows their inferiority.

 The Prophet said that woman prevails over the wise,

        while ignorant men prevail over her;

for in them the fierceness of the animal is immanent.

Love and tenderness are human qualities,

        anger and lust are animal qualities.

Woman is a ray of God: she is not the earthly beloved.

She is creative: you might say she is not created.

Although *Habil Sayagi* is not based on a specific poem or folktale, like many of Ali-Zadeh's subsequent works (e.g., *Ask Havasi* [1998], *Dervish* [2000], *Counteractions* [2002], *Sehnsucht* [2004]), the piece does resound with poetic and religious themes. As a Muslim, Ali-Zadeh has said that she wants to use her music to express the beauty and openness of Islam, aspects which have been neglected by many, especially in the West.

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[257]Rumi, 'The Love of Woman', trans. Reynold Nicholson, in *Rumi: Poet and Mystic* (England: One World, 1998), 44.

2.6. The Performer's Perspective: The Physicality of Performing *Habil Sayagi*

> The composer achieves nothing without executants: these must be well-disposed toward the author, then they must feel in their hearts all that he has notated; they must come together, rehearse, investigate, finally study the mind of the author, then execute his works (Luigi Boccherini, letter, 8 July 1799, to Marie-Joseph Chenier).[258]

Habil Sayagi is intriguing for more than its innovations in style, form, and genre. Among its many notable qualities is an astonishing repetitiveness, an affection for extended passages with virtually no melodic line, and an unusually rich variety of alternative techniques and sound effects created on both the cello and prepared piano. These give Ali-Zadeh an unmistakable profile both to the ear and under the hand. Certain characteristics of the music are best explained through the invisible, embodied experience of playing it. I have never played a music before that seems to so invite and dwell upon nuances of the physical experience: the smallest variations of position, weight, pressure, friction, and muscular distribution have profound structural and effectual consequences.

During this final section of my case study, I will invert the established order of musicological thinking and put the performer's point of view at the forefront, exploring the physical experience of performing this work. By methodically singling out certain passages, I will explore the various physical, technical, stylistic, and mental skills that are required of the performer in order to execute this work as it is intended to be executed, and consequent issues that may arise.

2.6.1. The nature of the music

When confronted with the necessity of doing artistic justice to any work, the performer must engage in a brief preliminary assessment of what (s)he is about to do, an assessment of who-what-when. Up until this point, the case study has been discussing such issues in depth. This information describes 'the nature of the music', but to the performer 'the nature of the music' also refers to the physical. On this level

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[258]Le Guin, *Boccherini's Body*, 1.

one must ask: *What do I need to do in order to play this? Where should I put my hands? How should I move them? How is my instrument tuned or altered? What extended techniques are involved?* In terms of physical movement, or the act of playing the instrument, the performer must investigate physical requirements. *Are their specific demands particular to this work?* Yes. *What are they?* Extended techniques; endurance for the long and intense running passages; the execution of double lines, drone notes, unusual left-hand positions and hand twisting; *mugham*-inspired instrumental solos and ornamentations; attention to balance issues that arise with both the multiple voices that the cello is required to play and the prepared piano. How does the cellist meet these demands?

What the performer is likely first to note specifically in assessing the score for *Habil Sayagi* is that it is awkward and unusual: the piece starts on the lowest note on the cello (the open low C-string) at a *pianissimo* dynamic and is marked *cupo, quasi niente*. Already the execution is tricky, as the C-string requires extra weight from the right arm in order to sound, and yet if too much weight is applied, the *pp* effect will not be achieved. In addition to this, the tempo marking is very slow (crotchet = 44), so extreme bow control is needed. The sound the composer is asking the cellist to imitate is the mournful 'bowy' or 'woody' sound of the *kamanche*. This instrument is unfamiliar enough that most cellists will probably have to find a sound (s)he has not used before. The cellist may want to experiment with using an almost *flautando*-like bow stroke (fast and light), mixed with some *sul-ponticello* effects, to create this woody sound.

Out of this relatively surprising starting point comes the introduction, section A (bars 1–49), in which the cellist needs to create a feeling of improvisation and freedom within the constraints of fully and meticulously notated score. A certain amount of rhythmical freedom must be allowed for, and experimented with, by the performer. (S)he needs to push and pull the internal rhythms within the cells, at times taking extra time, but then making up for it later on. This stretching is necessary throughout the piece, though a specific example is in bar 15, where the performer must initially speed up and then slow down within the one bar. Ali-Zadeh has attempted to relay this effect through her notation: writing a full bar of semi-quavers,

she has divided the three beats into quintuplets and asked for an acceleration during the first and second beats, followed by a *ritenuto* in the third beat.

Figure 2.5. Improvisatory feel, bar 15
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The sound the performer should endeavour to create is a free, rolling effect, as if the line is emerging out of itself. It should be continuous on the sound spectrum and come across as completely natural.

A number of notations indicate how Ali-Zadeh intends the work to be played. Indications (such as in figure 2.5) to slow down and speed up, at times within a single beat, occur frequently, and though the composer has done her utmost to instruct the performer as to how to produce such stylistic effects, notation has its limitations. Another instance of the limitations of Western notation in a folk tradition such as *mugham* can be seen in bars 66–70. Ali-Zadeh offers guidance through the notation, dividing the demi-semiquavers into quintuplets and sextuplets to create a feeling of stretching and pulling the tempo; however, the cellist must be flexible and free (to an extent) with the rhythm in order to create a natural and improvisatory effect.
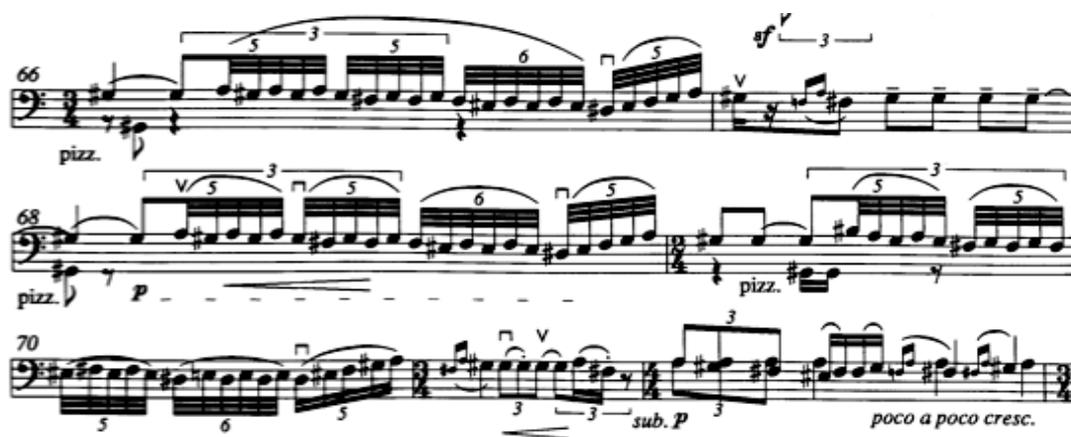
Figure 2.6. Stretching and pulling the tempo, bars 66–70
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This discussion brings to light various issues related to the accurate notation of specific folk techniques. One of the biggest challenges for composers attempting to incorporate folk elements into their music is to write out improvisatory and various *rubato* effects, in order that the performer can interpret the composer's intention and accurately express the folk style while still sounding confident and free. In the first part of the extended bar 203 in *Habil Sayagi*, the cellist is presented with a classic example of the composer attempting to write out a *glissando* effect so that it sounds improvised, free, and in the correct style.

Figure 2.7. Notation of *glissando* effect, bar 203
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In *mugham*, the player will often produce a *glissando*-like effect between two neighbouring notes, varying the speed at will. As is shown in figure 2.7, Ali-Zadeh has attempted to notate this effect, employing several different devices such as: *accel. e ritard.*; sloping lines between notes; and demi-semiquavers and semiquavers to show the changing pace, a technique that comes naturally to the native player. If the Western performer were to try to reproduce the exact notation Ali-Zadeh has written out, it would sound stiff and rigid, not at all 'in the style' of *mugham*.[259]

Musical notation (a mnemonic convenience for teaching Western music) in the context of music traditions such as *mugham* can neither convey the intricacy of metre-free timing, nor the precision of microtones, nor the incredible density of grace notes, slides, and trills, nor the subtle differences in emphasis that are at the heart of the *mugham* tradition. Despite the globalisation of music and the merging of folk and classical styles, the majority of performers trained in the Western classical music tradition have virtually no education or exposure to Eastern folk traditions and, for

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[259] Ethnomusicologists commonly employ transcription, acknowledging that it often violates the very essence of oral and especially improvised music. Azerbaijani *mugham* resists transcription. The transcription of *mugham* performances by contemporary Azerbaijani scholars implies the Westernisation of Azerbaijani culture. Musicologists who transcribe *mughams* for their analysis acknowledge the approximation of any notated examples.

example, would not know the differences between the notation and the actual sound of *mugham* music. This lack of information colours the quality and authenticity of a performance in a number of areas, including the interpretation of ornamentation, articulation, rhythm, dynamics, and even analysis of musical structure. And so the question should be asked: Does a performer need to have an understanding of the music and its cultural codes in order to accurately relay the intent? This question is a foundational one in the context of *Habil Sayagi*, which is presented to the player as a standard Western score, containing notation used in the majority of contemporary repertoire available. On completion of my research into this particular work, I maintain that a performer must have some knowledge of the *mugham* tradition in order to play it convincingly, and it is my hope that this thesis has supported this point.

This exploration leads nicely into the issue of improvisation. Improvisation, or in this case, an *ad lib*–like interpretation as the score is fully notated, is intrinsic to the nature of *mugham* and crucial in the context of Ali-Zadeh's work. The aim in performance in general is to make music sound natural and free-flowing, but this is especially true for *Habil Sayagi*, a work inspired largely by a free and improvised tradition. Though the score does not demand any improvisation in a literal sense (i.e., it does not require 'in the moment' composition or a spontaneous response to other musicians), the work should sound confident and improvised, as if it is the performer's native musical language. In order to achieve this expression, the performer must initially analyse the notation with great care, following the instructions given by the composer, and then 'move away from the score' and in a sense absorb the music, hopefully resulting in a certain freedom for both the performer and the audience. This 'absorption' cannot be achieved, I believe, unless the cellist possesses some knowledge of the *mugham* style, requiring some background research or more importantly listening by the performer, in order to obtain a feel for the intricate nuances of the style. A place where this free and improvisatory 'feel' is required in the score is in the *arioso* section (bars 202–9). Though the composer has notated the pitches and rhythms, the performer is free to interpret and execute the melody as (s)he deems appropriate.

This incorporation of metre-free melodies, such as that heard in the *arioso* section, is in line with the overall feeling of freedom that Ali-Zadeh is attempting to create in *Habil Sayagi*. Metre-free melodies have no time signature, which means there is no steady rhythm or beat. They also have a flexible tempo, which can speed up and slow down at will, and which allow the musician a measure of latitude to create patterns that are irregular and asymmetrical. With no steady rhythm to inform the musician as to when to play a given note, a specific, non-metrical syntax must be relied upon in order to be able to play the notes in the appropriate moment.

Again, the *arioso* section of Habil Sayagi provides an example of all of the above: it is metre-free, with no time signature and a flexible tempo, and thus the cellist is faced with a situation in which a knowledge of the frets and specific performance traditions for each would significantly benefit his/her artistic interpretation – especially in terms of pacing and structuring the melodies, knowing which notes need emphasis, and how the *glissandi* should be played. Ali-Zadeh has attempted to convey how this melody would be played in the *mugham* style with Western notation, using indications such as: *gliss., ten., accel,* and *accel. e ritard*. She has also employed phrasing marks, such as *legato* slurs, to communicate melodic nuances. In the *mugham* tradition, a melody is formed of small phrases, like a musical cell or block, that build to create the whole phrase, and thus each idea should be 'finished' or complete within itself before joining onto the next idea. This is subtly different from a Western piece, in which the phrasing tends to be quite long, and a melodic idea typically develops and leads into the subsequent musical idea. If Ali-Zadeh's indications here are followed carefully, the cellist can come relatively close to a culturally accurate interpretation. However, in order to convey a convincing *mugham* 'feel', the performer needs to absorb the information given by the score and then individually interpret it, bringing the melody to life. I found the Kronos Quartet's recording of Ali-Zadeh's *Mugham Sayagi* (1993)[260] a very helpful listening source when learning this section: the first violin plays this same melody, almost note for

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[260] Kronos Quartet, *Mugham Sayagi: Music of Franghiz Ali-Zadeh* (Nonesuch, 2005). Adhering with *mugham* traditions, Ali-Zadeh used the musical material from *Habil Sayagi* (*dastgah*) to write this work for string quartet in 1993. While some sections vary, many of the same melodies and themes heard in *Habil Sayagi* also feature in *Mugham Sayagi*, though arranged for string quartet. This is particularly clear from the *arioso* section onwards.

note. The violinist David Harrington's interpretation convincingly imitates the *mugham* style.

The traditional form of *mugham* involves written sections and instrumental interludes that are improvised around a particular fret. It is clear that Ali-Zadeh has incorporated this effect in her work. The fixed, metrical sections must be distinguished from those that are *ad-libitum* and free (or improvised in a traditional *mugham*), and this necessitates a balancing act for the performer. Presented with both physical and mental challenges, the performer needs to intuit when to sound loose, improvised, and soloistic versus when to sound controlled, rhythmic, and orderly. Effortlessly, (s)he must instantaneously alternate between the two states: from controlled and regular body movements and bowing, and tight rhythm, to energetic outbursts which demand generous use of the bow and irregular rhythms, and which communicate virtuosic freedom. Examples of improvisatory/*ad-lib* and free outbursts can be heard in the section from bar 65 to the *sotto voce* section at bar 84 [Track 3]. Then, through the *calmato, contenu* section starting at bar 98, there is an example of a fixed section, in which the cello part is steady and rhythmic, creating the pulse for the music [Track 5].

Further challenges arise when examining drone and octave notes. The octave is an important feature in Eastern music, along with the incorporation of drone notes and the occurrence of two lines being produced by a single instrument simultaneously. This additional physical challenge becomes clear to the performer early on in the work with the incorporation of drone and octave notes.

The *kamancha*'s first and third strings are tuned to one octave, while the second and fourth strings are tuned to another octave which can be either a fourth interval or a fifth interval apart from the first and third strings (depending on which *mugham* is being played). There are a few other, more exotic tunings, but they always include and emphasise the primacy of the octave. As a result, the *kamancha* player will often play two lines: the lyrical theme and a drone note, often an octave below. The opening of the *Shur Mugham*, referred to previously in this chapter, demonstrates this characteristic feature in *mugham* performance, with various drone notes resonating throughout the majority of the piece [Track 10].

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Drones are essentially written-out resonators, ways of increasing the harmonious vibrations coming out of the instrument, but they will only function in this way if the performer is conscious of and deft with the balance of friction and release in the right hand. In terms of sensation, playing two strings at once will offer increased resistance to the right hand and arm. If the performer gets the resistance right, it will result in a warm, bright, carrying sound.

In adherence with imitating the *kamancha*, the cellist is asked to create this drone effect throughout *Habil Sayagi*. Extreme muscular balance is required, because it is easy for the drone note to drown out the moving passage being played at the same time on the adjoining string, which will result in a loud, unclear mess. Ali-Zadeh introduces this pedal technique to the cellist in its simplest form at bar 19, presenting it as an open A-string on the last quaver beat. Though initially this seems to be a straightforward second voice to produce, the cellist is quickly confronted with the balancing issues mentioned above. The melodic voice occurs around fourth position on the D-string *pp*, and the gentle sound created in this register and dynamic are greatly contrasted – and potentially drowned out – by the bright, open A-string it is competing against. A drone note is incorporated fairly consistently into the cello part from the *sotto voce* starting at bar 29, where the cello is asked to play a low G pedal below the melody line, through bar 44, where the pedal note changes to a D, until bar 131. Aside from this section, the drone predominately appears as A-notes in various octaves, presented as a bowed or plucked secondary voice. In terms of physically producing this effect, I have found that thinking of the drone note as being *flautando* (not a clear sound) helps, as you can focus the weight of your arm on the adjoining string where the melody is being produced.

As the cellist explores more of the score it will become evident that on many occasions two lines are required to be produced at once, especially during the instrumental interludes where the cello becomes a duo of voices (e.g., bars 66–71). From bars 72–98, a drone occurs on an A, initially bowed and accompanying the melody. At the *sotto voce – doloroso* (bars 84–97), it is plucked repetitively with the left hand, becoming more of an interruption to the melodic line. This double voicing also occurs throughout the following *calmato, contenu* from bar 98, where the player

is alternating between *pizzicato* and *arco* and all the while playing two lines simultaneously.

Parts of this section present technical dilemmas for the player. For example, from bars 98–100, Ali-Zadeh has requested that the G-sharp pedal in the low voice be played with the bow, while the top voice is plucked simultaneously, yet the way in which she has voiced the notes causes this combination to be all but impossible. After some experimentation, I found that wrapping one's fingers around the bow in a grip-like hold frees up the index finger to *pizzicato* the note on the A-string while bowing the note on the G-string. Because of the awkwardness of this execution, it is exceedingly difficult to produce much more than a *piano* dynamic, which the pianist must take into account.[261] The player must be physically very flexible in the left hand in order to achieve the complicated fingerings needed to produce two lines at once. Contact between finger and string must be firm and even, and weight should be accessed from the shoulders, down the arm, and into the fingers to avoid left-hand injuries. A lightning-fast right arm is essential when alternating between bowing and plucking, and agile fingers are a must.

The second line often appears in the form of a plucked voice. Complicated double-stopping accompanied by left-hand *pizzicato* also manifests itself at bars 115–21, where again the performer must display extreme flexibility and speed in the left hand in order to execute the written notation.

As the performer delves further into the score, it will be noted that the main body of the work consists of a steady buildup of intensity to the soft-climax section at bar 202. From bar 122 through the following six pages of music, the score predominantly consists of accelerated passages that require a great deal of physical output from the performer. If not paced correctly, the performer may cause damage to his/her shoulders, arms, or hands through the buildup of tension in the body, or be unable to see the piece through to its conclusion. *Habil Sayagi* should properly be an exercise in tension and release for the body: awkward left-hand fingerings, positions, rotations, and *pizzicato* require arm weight as well as pressure applied through the

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[261]Cellist Alexander Ivashkin suggested in an informal discussion regarding the work that another option is to play both of the voices *pizzicato* in these sections (bars 98–102, 105–7, 109, 112).

fingers which needs to be quickly released once the notes are played, with the hand entirely relaxed. The tremendous amount of physical energy required for sections such as these should be channelled through the arms and hands into the instrument, and then at any opportunity all tension should be discharged (often in mid-air), and energy and relaxation regained for the muscles.

During the 'intensification' section, small bows executed with a relaxed arm are necessary; not only will this aid in preserving energy, but it will also enable faster playing. The right elbow should be slightly raised so that the distances in string crossings are smaller. There are also many instances where, in a group of four semiquavers, one note is played in a high (or low) octave, and then the remaining three are at the other end of the range (as occurs in the section from bars 122–29).

Figure 2.8. Crossing the octaves, bars 122–29
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It is vital here to use 'smooth bows' that move 'through the string' as opposed to bouncing between strings. Furthermore, the elbow must guide the string changes, accurately adjusting its level with extreme speed to allow for the rapid string changes. The main aim of the left hand is to create a context in which it can move as swiftly, fluidly, and accurately as possible. The best way to achieve this scenario is to keep the left hand relaxed and to condense movement. This can be achieved both by limiting the height to which one raises each finger between notes, and also by rotating the

hand slightly to the left – so that instead of making contact with the fingerboard square-on, it connects on a slight angle (similar to the direction of the string), and thus the hand is able to travel up and down the strings without altering its angle.

The performer may also pay attention to the rhythm throughout. There are two levels to the rhythm: the continuous drive of the pulse present throughout, and the smaller-scale nuances of rhythm between larger 'signposts' in the opening section. The rhythm throughout must be pulsating and energetic, as is characteristic in the *mugham* tradition. The pulse is especially necessary throughout the middle section, which demands a steady, rhythmic drive that dictates the overall direction of the music.

In the *mugham* trio, rhythmic drive is created largely by a *gaval* (or a similar percussive instrument), but also essential is the way in which the other instruments emphasise the strong beats in each bar (typically the first and third beat, as can be seen in *Habil Sayagi* during the *agitato* section starting at bar 137). Repetitive and pulsating, the performer must use both the left hand and bow arm to retain complete control over the rhythmic pulse created by the accents, and must also keep the pulse steady and driving.

Accents also appear in the score at seemingly random points throughout these running passages, usually to bring out an important upper voice. An example is bar 151, where the last semiquaver of the first beat and the first of the second beat are accented (occurring again between the third and fourth beats). The accented notes spring up an octave above the other notes in the running passage, creating a temporary sense of syncopation. The cellist should make a conscious effort to produce these powerfully, as they help build momentum throughout the passage and create a pulse-like effect that is a common rhythmical feature in *mugham* music. As in the execution of most accents, sudden bursts of energy need to be forced through both arms, a physical motion which should be supported and applied by the whole body. Again, once the tension has been activated and the accent played, the body should immediately release all tension and relax the muscles.

Wild *glissando* passages from the low to the high register of the instrument stand out in the score and capture the attention of the inquiring cellist. There are three such passages throughout the development section, each instance elevating the level of intensity and register, until on the third occasion the *glissando* is used at the peak of the climax; with the left hand soaring to the highest B-flat on the cello, it leads the work into the soft climax (bars 180–84, 196–98, 201).

The performer's instinct upon seeing passages like these is to pour in the utmost energy, to use fast, long bows, and to dart the hand from one end of the instrument to the other. In fact, the opposite motion is needed. Relatively small, controlled bows should be used by the right hand, as the left hand systematically moves between positions. Developing muscle memory is very important, so the cellist should practise these sections slowly, shifting the left hand before the right with painstaking precision. It is vital to start the *glissando* with the left hand almost immediately, as it is the most important feature.

There are a number of passages during this middle development section of the piece which consist of rapidly running semiquaver passages that, because of the accompanying drone note on the open A-string, need to be played high up on the D-string (see examples in bars 190–92, 198, 201). This combination raises two technical challenges: (1) the player needs to angle and balance the bow so that the notes being played on the D-string are not drowned out by the higher, more resonant, open A-string, and (2) players are (generally) less comfortable with the notes produced high up on the D-string, so they may find it difficult to execute the semiquavers at such a fast tempo.

At this point, having been physically pushed to the very limits, the cellist pauses on a high B-flat, followed by the descending A (marked *fff*) which ushers the work into the *arioso* section: the soft climax (bar 202). Now that both the listener and performer have become accustomed to this style of music, they will no longer be asking, what are you going to show me, but will rather be focused on the question, where now? The motivation behind this second question is different for the performer than for the audience, and the entrance into the *arioso* section makes this distinction clear. To the listener, the long intensification section has likely raised the pulse and

ignited some excitement. The audience may be enthralled, watching the cellist and pianist negotiate the complex score on each instrument; they may be intrigued by the sounds created on the prepared piano. But for the performer, this transition involves a mixture of relief (from leaving behind the physical intensity and difficulties of section two) and a questioning of how successfully to enact such an abrupt switch, both physically and emotionally, into the soft, free, and beautiful melody that Ali-Zadeh introduces at the *arioso* [Track 25].

What has happened to the sense of momentum? Both hands have been summarily arrested; a much slower bow speed and fingering is required in order to sustain the feeling of stillness. The section offers the left hand a much-needed respite from the fast-paced vigour of the previous section. The performer will be inclined to move far too quickly through this passage, when in fact, starkly contrasting from the preceding section, the music must nearly come to a standstill. In a way, this atmosphere grows out of physical calmness, since making such a sound involves a greater submission to gravity and less effort by the arm and shoulder muscles. The performer must mentally and physically exhale. This is indeed a reversal from earlier in the piece.

An element I have not yet discussed is vibrato. This technique is necessary in the *arioso* section. In *mugham*, performers play sustained notes with a slow, almost wailing vibrato. The execution of vibrato in *mugham* is not fixed but fluctuates in speed in a wave-like fashion. (This is comparable to the way notes in a flexible tempo accelerate ad decelerate.) At times the vibrato is rapid, but then it suddenly subsides to a barely perceptible rise and fall of pitch around the centre tone.

Discussions regarding the specific use and physical production of vibrato have been occurring for hundreds of years in the Western art music tradition. As far back as 1787, Leopold Mozart tells us in his violin treatise that

> tremolo [his word for vibrato] is an ornament that springs from nature itself, and not only a good instrumentalist but also a skilled singer can make it an appropriate adornment for a long note. Nature itself is the teacher for this: when we strike a loose string or a bell sharply, we then hear a certain wave-

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like beating of the tone we have struck, and we call this shuddering aftersound tremolo.[262]

As with singing, every instrumental 'voice', however produced, will have its unique stamp. Ali-Zadeh's exploration of the cellist's *bel canto* and capacity to imitate the sound and vibrato techniques of another instrument (the *kamancha*) comprises the most individually stylised part of the work. Track 7 contains examples of both the unusual and traditional ways in which vibrato could be used throughout the *arioso* section, the part of this piece which best demonstrates the use of vibrato in the *mugham* tradition.

The distinctive use of vibrato in this tradition includes folk influences from the *ashiq* tradition (see footnote 177) in addition to religious influences such as the *azan*, the Islamic call to prayer (see 2.2). These features have combined to create an entirely distinctive and original vibrato technique, and have filtered into the melodic lines found in *mugham*, influencing the nuances of the music.

A culturally faithful performance of *Habil Sayagi* would benefit greatly from the use of this technique – for example, in the opening section of the piece, the player can experiment with varying vibrato speeds on the minim and dotted minim notes which are part of the melodic line, thus creating an 'arabesque'-sounding effect. This technique should also be employed throughout the *arioso* section on the long minim notes. The danger here is to overembellish the effect, resulting in a feeling of seasickness. Hence the performer must be selective in the application of vibrato.

Ornamentation, such as grace notes and trills, are an integral part of *mugham* and another defining feature of the style that Ali-Zadeh has adopted for her work. The *arioso* section in particular presents the performer with various ornamentations to confront. The performer must produce the grace notes like bursts of energy, released at intervals during the development of the melody, which are included to elevate the intensity of the music and the experience for the listener. A classic example of this is evident part way into bar 202, where the composer repeats the same melodic pattern

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[262]Leopold Mozart, *Gründliche Violinschule* (1787; facsimile reprint, Leipaig: Deutscher Verlag für Musik, 1966), 243, cited in Le Guin, *Boccherini's Body*, 276–77.

(going from a high A to the neighbouring B-flat) six times, heightening the intensity with a C-sharp grace note erupting between the two notes.

Figure 2.9. Grace notes creating bursts of energy, from bar 202
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The cellist must carefully distribute the grace notes in order to achieve the desired effect, pushing and pulling the internal rhythms around the grace note but always connecting it to the note directly following.

As the work moves out of the *arioso* and the following cadenza, the performer might expect the piece draw to an end, but instead Ali-Zadeh initiates a 'dance' section, a time to enjoy nirvana and accompanying freedom.

One can hardly avoid the issues of 'dance' and 'movement' in a performance when discussing this work. The Western distain of theatricalisation and visualisation in instrumental performance runs deep, a legacy of the German idealism that developed during the 1700s and of the powerful notion of absolute music that emerged from it. Even more than physical sensation, the notion of visual effect as intrinsic to the instrumental work is likely to seem indulgent. Yet the fact is that all experienced performers develop considerable awareness of how (s)he appears in performance, even if only to restrain themselves from excessive gestural movement. It is also a fact that in the *mugham* tradition instrumental music and dance go hand in hand, a tradition tracing back to ancient Sufi influences, where dance was a form of worship (refer to 2.5.2.3).

In this dance section in particular in *Habil Sayagi*, dance and movement play a special role. In order to produce the rhythmical and melodic nuances characteristic of the tradition, it helps to allow your body to dance, to physically feel the music's movement. An example of this is in bars 227–28: the arabesque sway of the melody,

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coloured by grace notes, demands that the whole body feel the internal rhythms and move with the line in order to bring the melody to life.

This section alternates between the dance and the familiar running passages heard in the middle development section of the work. From a physical perspective, this section subtly discriminates between the acts of returning and of retreating – for the hand's enactment, moments of euphoria, nirvana, and dance, and then a return to the labour. Earthly paradise is similarly unstable and short-lived. In this case its disintegration comes at bar 216, where the semiquaver sections reappear and the toil of life is reinvoked. The rapid veering from the playful dance melody back to the running passages is represented by anxious and unstable gestures, both physically and to the ear. Being thus recalled to 'reality' is an uneasy sensation: the quick changes are challenging to execute – lengthy leaps between the registers on the cello; sweeping *glissandi* from one end of the instrument to another; fast moves between themes; rhythmic changes; bowing changes. The fretful instability is evident to the ear, a familiar theme amongst unstable motions darting back between two ideas, that of the dance and of the journey.

Again, complicated accents appear in order to emphasise particular beats, demanding focused energy from both hands. The bow arm is also faced with the challenge of alternating quickly between *sul tasto, sul ponticello*, and *col legno* techniques throughout this section, demanding lightning-fast changes and responses from the player.

An unusual approach to a B-flat note is requested in bar 230, and then again in bars 241–42, where the note is written in the shape of a hollow diamond.

Figure 2.10. Unusual technique, bars 241–42
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In most contemporary scores, this would be a part of the notation for an artificial harmonic which typically consists of two notes in chordal position. The bottom one is notated in the usual round shape and should be played as a fixed pitch, while the other note is a fourth above in the diamond form (in which the note should only be touched by the finger, and the string should not make contact with the fingerboard). In this case, however, *only* the diamond note is present, so one can either assume that the finger should play the B-flat without allowing the string to make contact with the fingerboard, or (as I heard in other recordings), play these notes an octave higher, right at the top of the A-string. Either way, in order for the note to sound, one should use light, fast bows.

I offer here a summary of the performer's experience in *Habil Sayagi*. An awkward beginning proves to be the beginning of a fairly free and improvisatory introduction, in which the performer must gain ownership over the melody within the constraints of age-old *mugham* tradition. Then, musically simple but rhythmically intricate passages appear, and the performer must straddle the line between the composer's notational requests with the need to create an improvisatory feel. Drone notes are introduced to the melodic passages, invitations to explore the pleasure in the resonances and the cello's ability to create multiple lines. Complex left- and right-hand *pizzicato* recurs, challenging the flexibility of both hands and presenting issues that result from attempting to produce clear-sounding notes. Physical endurance seems to almost overshadow the technical difficulties that arise during the buildup in section two, as the performer must keep complete control over the physical movements and the rhythmic drive of the pulse throughout the extended passage. The *arioso* then offers the performer the chance to explore different vibrato, *glissando*, and *rubato* techniques, as (s)he looks to create a lyrical, metre-free, arabesque melody. *Mugham*'s modal effects of pathos are set apart through their vocalistic execution, evoking a sense of arrival, nirvana. Traditional and familiar Western techniques are called upon in the short cadenza, followed by the final dance section, which demands that the cellist alternate among a free dance-like approach, the pulsating drive of the running passages from section two, and the wild *glissando*-like effects preceding the climax. Finally comes the coda, the catharsis of the final exertion.

2.6.2. Additional thoughts and considerations

The incorporation of Middle Eastern music traditions into a work such as *Habil Sayagi* bring elements to the repertoire not found in traditional Western pieces, presenting a bona fide integration of Eastern musical traditions into the Western cello repertoire.

In the context of Elisabeth's Le Guin's idea of 'carnal musicology,'[263] *Habil Sayagi* is valuable because it evokes the physiognomy of the personal, demanding certain physical actions in order to produce the desired musical effect. One cannot approach this work in the same way as one would approach, for example, Elgar's *Cello Concerto in E minor*; rather, the performer must physically enter into a new style, releasing the body into the culture in which the work in centred.

One might call into question the subjectivity of this whole section: The Performer's Perspective. Clearly the assessments made here are experiences of 'the performer', and clearly that performer is me; the detailed assessments of physical experiences in playing these pages of music derive directly from my experiences. To present just one example: Would it not be possible to construe the middle section of this work as a battle rather than a journey toward enlightenment? Since Ali-Zadeh has chosen to incorporate the *Chargoi* fret, which traditionally represents war, this would be a very natural conclusion. Could the gradual buildup of intensity, the rising demands on both hands, the expansion in range, and the increasingly wild notation point to the possibility of an intense battle? Of course they could. The prerogative I have taken in musically interpreting the middle section the way I have would go unquestioned in performance, and this is one of the true liberties belonging to the performer.

But authentic cultural interpretation should also be the domain of the performer, and this task is ever more in demand for the contemporary cellist. Le Guin writes in *Boccherini's Body*: 'I propose performance and analysis as two faces of

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[263]I am borrowing the term *carnal musicology* from Le Guin, *Boccherini's Body: An Essay in Carnal Musicology*, to describe a new approach to musicology that explores the physical aspects of playing a piece of music.

interpretation, as act which is both art and science.'[264] In the case of *Habil Sayagi*, a widening knowledge of both the art and science of the *mugham* tradition is needed for the performer to develop a culturally genuine understanding of the work and communicate it to the listener. *Habil Sayagi* is one of the most important works written in this new, folk-influenced tradition. In light of the piece's originality and distinctive technical demands, all of which give it a place of pride in the contemporary cello repertoire, it is worth putting in the work needed to grasp its cultural background – an effort which I hope I have demonstrated in this chapter is essential in order for the performer to do the work justice.

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[264]Le Guin, *Boccherini's Body*, 26.

Chapter Three

The Cello and Electronics:

A Case Study on *Hearing Voices* (2011) for Solo Cello and Electronics,

by Michael Cryne

3.1. Preliminary Assessment[265]

Hearing Voices (2011) for solo cello and electronics, by Michael Cryne,[266] is a ten-minute work that combines an electrically modified cello with prepared electronic presets. The piece requires that the audio output from the electric or amplified cello be fed into a live sequencer, where it is processed and modified by various effects.

The title of the piece refers to the fact that it is inspired by documented experiences of schizophrenic hallucinations.[267] As described by the composer:

> This piece plays with the sound of the cello, modifying it and altering it in a variety of ways, so that the listener becomes unsure of what is the cello, and what is the electronic sound. While it's not a literal re-creation of the experience of an auditory hallucination, in which a person 'hears voices' speaking to them, the piece is inspired by the nature of this experience.[268]

The work is formed around two fundamental elements: the 'Subject', introduced in bar 3 and then appearing again in a varied form in bar 11, and the 'Voices',[269] which are first heard in bar 6 and are created by the cello signal passing through various effect chains. The composer initially states the elements separately,

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[265]This term refers to the background research which I propose a performer should engage in when confronted with a new work. See 2.6.1 for further explanation.

[266]Michael Cryne was born in London in 1981. He is working toward a PhD in composition at Royal Holloway College, University of London.

[267]According to Dr. Thomas Insel, 'In its most common form, schizophrenia presents with paranoid delusions and auditory hallucinations late in adolescence or in early adulthood.' Auditory hallucinations are the most common type of hallucination in schizophrenia. A patient with auditory hallucinations hears voices that are not from normal auditory processes, which can incite panic (Thomas R. Insel, M.D., 'Rethinking Schizophrenia', *Nature* 468 [2010]: 187-93).

[268]Cryne, 'Performance Notes', in *Hearing Voices* score (2011). This score is not published, so throughout this case study I will be referencing a copy sent to me directly by the composer as a PDF.

[269]Cryne labelled and referred to the 'Subject' and 'Voices' as such in our written communication, interviews, and rehearsals; I will follow his lead throughout this chapter.

and then makes them interact, each affecting the other until they become almost indistinguishable by the end of the piece.

Hearing Voices presents the cellist with several new – or, perhaps more accurately, altered – playing techniques that at times require the player to modify his/her approach to playing, listening, and performing the music. The composer creates these extended techniques[270] by unifying the cello sounds and the electronic effects, enabling the cello to create a palette of atypical sounds and textures. The major aspects for the discussion of this piece will include the origins of and influences on the composer's style; the practical challenges of playing with electronics; the new and unusual musical colours in this electro-acoustic combination; how electronics have affected certain standard cello techniques, such as *sul ponticello*, *sul tasto*, various bow-pressure techniques, microtones, and harmonics; and finally, how the cellist should approach playing the work.

3.1.1.   An exploration of the style

In *Hearing Voices*, Cryne draws on ideas and compositional techniques from styles of music which elevate timbre to the forefront of construction, form, and the compositional process, such as spectralism and sonorism. Cryne says he is influenced by 'all those people who started looking at instrumental sound as noise, as music as something other than motifs, melodies, harmonies and rhythm'.[271] When speaking more specifically about *Hearing Voices*, the experiments of Hugues Dufort (1943–), Gérard Grisey (1946–), and Tristan Murail (1947–) with spectral music came up,[272] as well as the second generation of figures in the spectral genre, such as Jonathan Harvey (1939–2012) and Kaija Saariaho (1952–).

The influence of the spectral movement on the construction of *Hearing Voices* is especially relevant in regards to the treatment and elevation of timbre. Spectralism

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[270]I offer a definition of 'extended techniques' in section 1.1; in this case study, the term includes various established techniques, such as *sul ponticello*, *sul tasto*, pressure techniques, microtones, and harmonics, which are affected and expanded when the cello signal is passed through various effect chains.

[271]Cryne, email interview, February 7, 2012.

[272]Ibid.

makes timbre the central element of discourse, honouring it with a primary role in the perception of the formal shape of the music.[273] Composer Gérard Grisey explains: 'Spectralism is not a system. It's not a system like serial music or even tonal music. It's an attitude. It considers sounds, not as dead objects that you can easily and arbitrarily permutate in all directions, but as being like living objects with a birth, lifetime and death.'[274] Cryne says that for him, 'the "substance" or most crucial aspect of Spectralism is an awareness of sound itself. Whether this be dissolving a complex tone into its harmonic partials, or using a fast Fourier transform to modify a tone – it is precedence given to timbre.'[275]

This awareness and elevation of timbre is clear in *Hearing Voices*. Cryne confirmed in our discussions that he used systems such as the fast Fourier transform[276] and the spectrum analyser at times in the compositional process to determine aggregate frequency. A quartertone section occurring at bar 6 offers an example: Cryne was seeking complete pitch indeterminacy around a given frequency range, so he ran the quarter tone section through a spectrum analyser in order to ensure that one pitch wasn't emphasised over the others.[277] There are also many instances in the work where the material becomes 'pure timbre . . . as the sound is processed through the various effect plugins'.[278]

Despite this approach to timbre and sound production, Cryne does not classify *Hearing Voices* as a spectral piece. He says that the difference between this work and many spectral pieces is that, while in a spectral piece the composer singles out specific timbral elements of sound, analyses them (for example, their frequency), and uses specially designed tools to manipulate them, he prefers to take a more 'phenomenological approach . . . treating sound as an encounter, rather than

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[273]Joshua Fineberg, 'Spectral Music', *Contemporary Music Review* 19, no. 2 (2000): 3.
[274] David Bünder, 'GérardGrisey,' The David Bundler Pages, http://www.angelfire.com/music2/davidbundler/grisey.html (accessed July 20, 2013). From an interview with Gérard Grisey published in *20th Century Music*, vol. 3, no. 3 (1996).
[275]Cryne, email interview, August 16, 2012.
[276]The fast Fourier transform is a mathematical analysis system which can be used to provide graphs that illustrate details about the timbral structure of sound.
[277]Cryne, email interview, August 16, 2012.
[278]Ibid.

analysed'.[279] However, this perspective on the compositional process does pay tribute to the work and developments of Harvey[280] and Saariaho,[281] as Cryne confirms:

> Both Harvey and Saariaho were influenced by the work of the spectralists, and have greatly influenced my own work, in two distinct ways. The first is the 'soundworld' that these composers have crafted, especially in their electro-acoustic work. The second is in their relationship to extra-musical material.[282]

3.2. The Application of Electronics

3.2.1.   The performance system

Hearing Voices fits into group two of David Neubert's three primary electronic categories[283] (refer to 1.2.1): the work requires real-time interaction with the effects, which are activated via foot pedals. Rather than the electronics being an independent element, the sound is generated by the cello signal passing through various chains. The equipment required to play the piece includes an acoustic cello with pickup or an electric cello,[284] a computer (probably a laptop) that runs Ableton

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[279]Ibid.

[280]Jonathan Harvey is known for integrating electronically generated sound with live music in service of a mystical quality, with many (especially non-Western) philosophical influences. His style could be described variously as contemporary classical, spectral, avant-garde, experimental, and English, a conglomeration that Cryne seems to have emulated in certain ways. A list of Harvey's important additions to the cello repertoire can be found in Appendix 3.

[281]Kaija Saariaho's work in the 1980s and 1990s is marked by its emphasis on timbre, colour, and the use of electronics alongside traditional instruments. *Hearing Voices* displays clear influence from two of her major cello pieces in particular: *Spins and Spells* (1997) and *Petals* (1988) for cello and live electronics. Cryne spoke specifically about the influence of *Petals* on the construction and realization of *Hearing Voices* during our rehearsals in February 2012. A list of Saariaho's important additions to the cello repertoire can be found in Appendix 3.

[282]Cryne, 'Commentary on Hearing Voices', email message, October 9, 2012.

[283]David Neubert, 'Electronic Bowed String Works: Some Observations on Trends and Developments in the Instrumental/Electronic Medium', *Perspectives of New Music* 21, no. 1/2 (1982–83), http://www.jstor.org/stable/832892 (accessed May 4, 2012).

[284]I experimented with playing the work both ways: with a pickup attached to my acoustic cello and with an electric cello. I found that the sound produced by the pickup attached to the acoustic cello was by far superior to that made by the electric cello. Though developments in the production of electric cellos have improved them immensely in recent years, they still cannot compete with an acoustic instrument in terms of the sound produced. Furthermore, the quality of sound produced by the pickup attached to a cello has reached new levels with the development of the Headway Cello Band Pickup. The Headway Strap wraps around the lower bout of the cello, is fastened in the rear with Velcro strips, and is plugged in with a standard three-quarters-inch patch cable. The 'smoothed' pickup produces a warm tone, reduces treble, and cuts down on body noise. The strap produces a strong passive signal –

Live, with Max for Live installed,[285] a soundcard with MIDI and audio inputs and outputs, a MIDI foot controller to trigger effect presets or 'clips',[286] a MIDI keyboard with sustain pedal and expression pedal connected, a mixer, two speakers, and audio/MIDI/power cables as required. Cryne includes the following advised stage layout in the score.

Suggested setup:

Figure 3.1. Signal flow and setup diagram[287]

[287]Cryne, *Hearing Voices* score (2011). All of the examples from the score shown in this thesis are reproduced by permission of the composer, Michael Cryne.

In accordance with the diagram shown in figure 3.1, the signal from the amplified or electric cello feeds into a piece of software called Ableton Live, which is then modified by various effects to alter the sound. The performer can trigger the effects at any time throughout the piece, in any sequence.[288] As Ableton Live allows effect presets to be selected in real time, the need for a click track or external synchronisation is eliminated, enabling the performance to evolve more organically by freeing the performer from the constraints and concerns associated with staying in time with a click track.

Ideally, the cellist plays the primary role in activating and managing the electronics in the work. (There are circumstances when this is not possible or the performer may not feel comfortable to do so, see 3.5.) Cryne has used 'rehearsal marks' (two of which are represented in figure 3.2 by the letters C and B) to cue the cellist to press the foot pedal and trigger the effects preset.
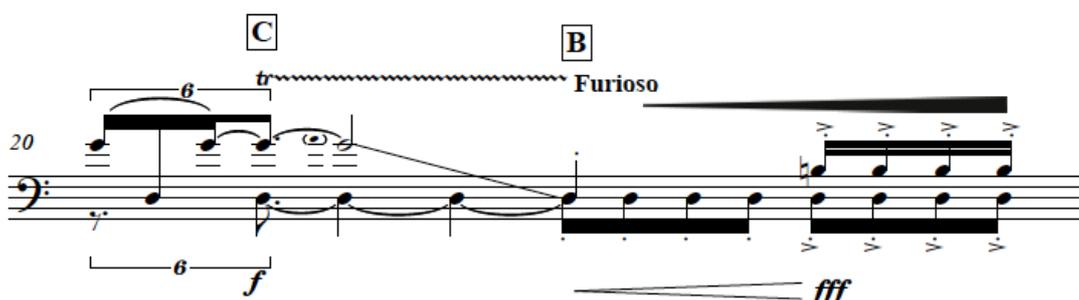
Figure 3.2. 'Clip' cues

In addition to triggering clips, the cellist employs an expression pedal assigned to control the level of a feedback loop. A sustain pedal executes a grain freeze effect.[289] Figure 3.3 demonstrates how the pedals are integrated into the score.

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[288] Full flexibility in sequence is really only feasible if the player chooses to have an electronic performer control the triggers rather than doing it themselves, as an electronic performer can move between audio clips by pressing a key on the computer keyboard. While some scores allow for the cellist to coordinate the acts of playing and controlling a computer simultaneously, *Hearing Voices* does not fall into that category.

[289] A feedback loop is generated by feeding an audio signal back on itself. Grain freeze, or granulation, is the process of taking a section of audio and repeating it continuously, as though it were 'frozen'.

Figure 3.3. Use of pedals in the score

While cuing the pedals, the cellist must also navigate through the technically challenging score. The passage starting at bar 9 (fig. 3.3) is a useful representation of how this balancing act materializes in the music. The composer instructs the cellist to 'gradually increase feedback pedal to 100%; over a five- to ten-second time period; then, at bar 14, the cellist must 'gradually reduce feedback pedal to 0%' throughout the duration of the bar. Half way through bar 12, the performer must also cue the preset pedal (rehearsal mark E). While both of the performer's feet are busy carrying out these instructions, the hands are confronted by many technical challenges: bar 11 consists of a melody created by artificial harmonics, *glissandi*, and subdivisions of a beat into five. Then, in the following bar, the left hand executes a long *glissando* and *trill* from the lowest C-sharp up to the E-flat on the D string. At the same time, the bow hand increases and decreases the weight/pressure on the string, which then moves into a multivoiced melody played on two strings (the A and D), with the upper

voice still trilling and the right hand fluctuating between *sul ponticello, sul tasto,* and normal bowing.

The inclusion of electronics in a section such as this greatly extends the cellist's expressive resources, broadening the range of activities required from the cellist during a performance of an electro-acoustic work.[290] While this greatly enhances the performer's expressive abilities by augmenting the range of sounds (s)he can create on their instrument, the electronic element increases the physical demands and responsibilities placed on the cellist. One might think that the addition of the effects (and accompanying sounds) could aid the performer – by means of camouflaging some playing discrepancies and lessening the need to produce precise and accurate notes (I have in mind areas such as the nuances of bow articulation, contact with the strings, vibrato, and intonation). However, as is demonstrated in the above fig. 3.3, the performer's role can become substantially more challenging. The physical mechanics required for execution are greatly increased – in addition to playing a complex and technically challenging score, the cellist must contend with three foot pedals that often require activation during complex playing passages, all the while monitoring the sounds resulting from the collaboration of the cello and effect presets and adjusting as necessary. In addition to this, (s)he must find a way to create musical fluidity and integrate the electronic devices into their performance.

3.2.2. Timbral effects: the sound spectrum

The timbral range of any acoustic instrument is greatly expanded when the sounds it produces are processed through electronic effects, with the smallest of gestures being amplified, enhanced, and distorted. As I have established, Cryne has created a sort of timbral unity in his work by generating the sounds from the cello itself in real time. This unity also comes from using various techniques (such as *sul ponticello, sul tasto, glissando,* and pressure techniques) to imitate some of the effects created by the electronics, a technique that was pioneered by Penderecki in the 1950s (see 1.1.2).

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[290] Elliot Schwartz and Daniel Godfrey, 'Multi-media and Total Theatre', in *Music Since 1945: Issues, Materials, and Literature,* 136-163. Refer to 1.2.3.2 for further discussion.

The degree to which an instrument's natural sound is altered by electronics can be placed on a spectrum, ranging from basic amplification all the way to unfamiliar sounds resembling noise more than tonal music as such. As previously validated by Emmerson, electronic composers characteristically move between the clarity of original sound and sound effects.[291] In accordance, the soundscape in *Hearing Voices* moves along this spectrum throughout, with the electronic sound clearly identifiable as generating from a cello at points, and at other times moving away from this tonal character towards something more noise-like and distorted in character. Fig. 3.4 demonstrates this fluctuation nicely, with bow strength used to shift the sound along the spectrum.

Figure 3.4. Movement along the sound spectrum

This effect is aided by various mechanisms: the performer applies over-pressure techniques with the bow to produce an oscillation between the cello sound and the noise-like character, and the signal is processed with a quartertone delay effect, further altering the cello sound. These means, coupled with the microtonal writing, generate a distorted, quasi-harmonic texture, creating the sense that there are multiple strings and several 'voices' going on simultaneously. This sensation that Cryne has created musically evokes an auditory hallucination (see 3.3.3).

Cryne employs this particular effect, or textural 'sensation', throughout the work.[292] Another example can be seen below, where Cryne applies a delay effect and uses a repeated low D in the cello line to imitate the delay effect. He establishes a firmer timbral unity between the cello and electronics as the cello takes on some

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[291] Simon Emmerson, 'Acoustic/electro-acoustic: The relationship with instruments', *Journal of New Music Research* 27, no 1-2 (1998): 151.
[292] When writing *Hearing Voices*, Cryne did not aim to write a 'direct, lived experience of a schizophrenic episode . . . but rather a completely musical response to that experience'. He attempted to use various textures to create the 'sensation' (Cryne, 'Commentary on Hearing Voices').

qualitative properties of the electronic effects, and the line between the instrumental and electronic content becomes increasingly blurred [Track 26, bars 12-16].
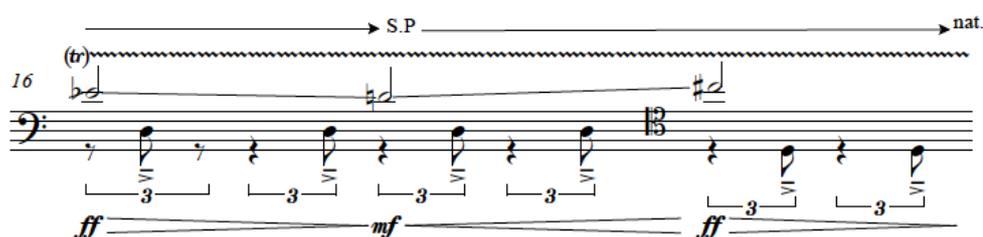
Figure 3.5. Imitation between the cello and effects

As figure 3.5 and the sound sample demonstrate, the addition of the electronics greatly enhances the cello's timbral range, with the sound moving along a range from pure cello to pure timbral effects. Rather than presenting the two separate elements side-by-side, Cryne has merged them – sometimes using the effect presets to enhance the cello's natural sound, while at other times employing the cello's resources to imitate the electronic effects, ultimately creating a unified sound between the two components. These examples demonstrate a continuation and development of early electronic composers quest to create a true timbral integration and unity between the cello and electronic instruments.

3.3. The Work

3.3.1. Structure

The structure of *Hearing Voices* does not strictly follow any preestablished musical form, but it most closely resembles a rondo pattern (ABACADA). In this framework, section A comprises tranquil, still moments (bars 11 and 19, and halfway through bar 77) which sporadically interrupt the frantic sounds of the Voices created by the cello passing through various effect chains.

Figure 3.6. Section A

In some instances, these interruptions ('A') only last a few bars, but they stand out because of their diatonic musical character and the simplicity of the sound, which contrasts with the busy sounds present elsewhere. In this framework, sections B and C represent the other material in the work, and section D is the coda. This framework is a rather loose, and unlike a typical Baroque rondo pattern, *Hearing Voices* does not conclude with the material from section A (though, the coda, also tranquil in nature, could be viewed as extended version of A). On a broader level, the work is in three distinct sections: an introduction, a middle section, which is the longest of the three, and a conclusion.

The clearest way to describe the structure is to draw attention to the interaction of two conflicting materials: the Subject (first presented in bar 3), which tends to be fixed and measured, and the Voices (introduced in bar 6), which are more flexible and free.[293]

3.3.2. The 'Subject'

The Subject is predominantly tonal, featuring frequent use of the cello's open strings and natural harmonics. This is demonstrated in bar 11 (refer to fig. 3.3), where C, E, and C all come from the natural harmonic series of C (the 4th and 5th partial tones/harmonics). First introduced in bar 3 (fig. 3.7), the Subject reappears at the sections starting at bars 11, 19, 22, 39, and 98 (Cryne classifies the previously mentioned 'section A' as part of the Subject material). The motif is introduced early in the work and is used to orient the listener before the timbral palette develops and

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[293]These ideas regarding the structure of the work were discussed with the composer during our interviews (Cryne, interview, August 16, 2012).

causes disorientation; this orientation is achieved through pitch stability (the *pizzicato* low C is used as the pitch centre) and repetition.
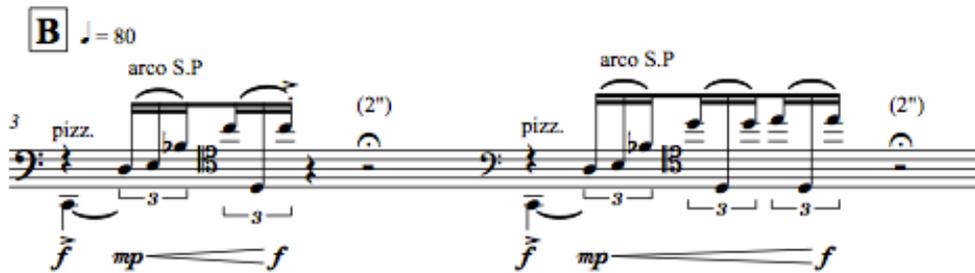
Figure 3.7. The Subject

Cryne uses consonant intervals and basic development techniques – including rotation, inversions, and retrograde – to modify, alter, and distort the Subject as it recurs throughout the work. However, the material keeps its basic shape as the piece progresses, behaving as an anchor point for the listener as it segments the more unstructured Voices. An example of this basic development can be seen at bar 19, where Cryne has employed fragmentation and extension to alter and distort the Subject while the material stays relatively intact.

Figure 3.8. Use of basic development techniques

The Subject material is constantly interrupted by the intrusion of the Voices (see bar 6, fig. 3.4), thus preventing a natural A to B journey through clearly recognisable modification of the material. The Subject does, however, take on different forms: there are three instances (starting at bars 22, 39, and 74) where it takes on a more dancelike and rhythmic character, and it seems that sanity is taking hold.

Figure 3.9. The Subject material taking on different forms

Interplay between the musical ideas occurs throughout *Hearing Voices*, and although the musical ideas do not significantly change one another, as the work progresses they learn to 'accommodate' one another, blending throughout so that by the conclusion they almost sound like one idea. Cryne explains: 'Rather than a "working-out" of the material, I wanted to dissolve the clarity of the central musical idea, allowing it to surface and be submerged amid a denser texture, gradually moving towards a peaceful, resting state.'[294]

In the following two examples clear dissolution of the central motif is evident, as the Voices and the Subject begin to merge.
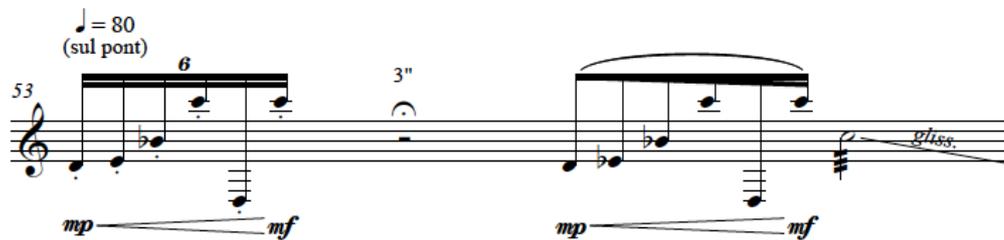
Figure 3.10. Dissolution of the Subject
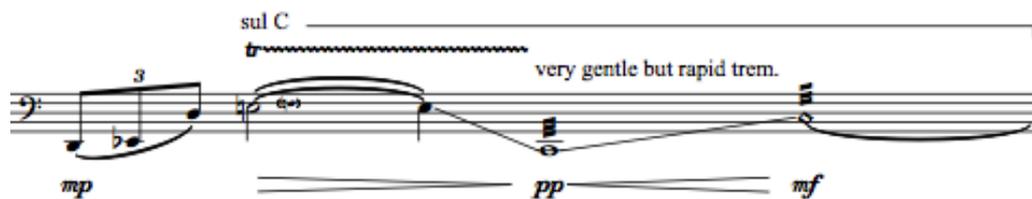
Figure 3.11. Further dissolution of the Subject (bar 62)

At bar 83, the Subject takes on a slightly different character, becoming 'heavy, labourious' (fig. 3.12). In earlier parts of the piece, Cryne explores different ways of

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[294]Cryne, 'Commentary on Hearing Voices'.

writing for the cello as well as various alternative timbres, but here he returns to a more traditional style of cello writing: the deep, lyrical, and soulful voice for which the instrument is known. However, the Voices still infiltrate the idea.

Figure 3.12. 'Heavy, laborious' Subject

Cryne hints at traditional writing several times before the style reaches it culmination at bar 98. Half way through bar 62, a glimpse emerges in the bar's first triplets; another appears at bar 83 but is quickly interrupted by the Voices. At bar 95 a bit more appears, this time high and sweeping. Finally, at bar 98, the theme is fully realised, with Cryne allowing the instrument to indulge in a melody that utilises the cello's renowned qualities of lyricism.
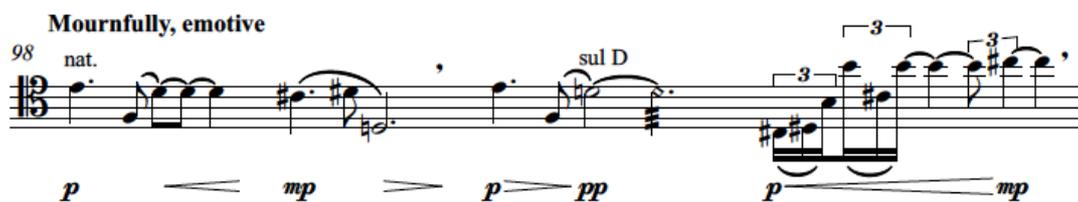
Figure 3.13. The theme fully realised

One can only speculate as to why the composer chose to return the instrument to such familiar ground amongst so many timbral explorations. From a programmatic perspective, it's possible that the composer is alluding to periodic 'resolution' of the hallucinations. Alternatively (or simultaneously), in our interview Cryne spoke of his admiration for British composer Harrison Birtwistle (1934–), referring to Birtwistle's ideas on the importance of a tonal base for the listener: 'I always refer back to Birtwistle's contention that tonality prevented a listener from becoming "lost". The journey of tonality seemed to be much more universal than the journey of logical

coherence alone.'[295] Thus it seems reasonable to posit that Cryne introduces this more traditional style of cello writing in order to give both the listener and performer an 'anchor point', something familiar to latch onto in order to create a moment of clarity amongst the tonal disturbance – a nostalgic memory for both the cellist and listener, a reminder of the cello's more traditional voice.

3.3.3. The Voices: the means for creating a flexible contrast

The Voices material is created through the combination of the cello and electronic presets. In contrast to the organised, tonal, and 'sane' Subject material, the Voices are quite flexible, highly affected, atonal, and chromatic. Certain pitches (or pitch sets) have been chosen because they respond well to the electronic effects. It is irrational to try to identify this particular material with any specific mode; rather, it should be approached from a sonic perspective and perhaps is best understood as a musical translation of its title: the haunting voices that can infiltrate the mind of a schizophrenic during an auditory hallucination.

The Voices appear in several different forms, all of which take shape when the cello is fed through the live sequencer, each time creating a slightly varied and processed sound (figs. 3.14, 3.15, 3.16). In each circumstance, however, an echoing and distorted effect is created, giving the impression of multiple voices speaking simultaneously, at various levels of urgency (refer to sound samples).

Figure 3.14. The Voices [Track 27, bars 6-8]

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[295]Cryne, interview, August 16, 2012. In earlier correspondence, Cryne said that he also admires Birtwistle's attempts to create 'visceral experiences' when writing music, something Cryne tries to emulate in his own composition (Cryne, interview, February 7, 2012).

Figure 3.15. The Voices [Track 28, bar 21]
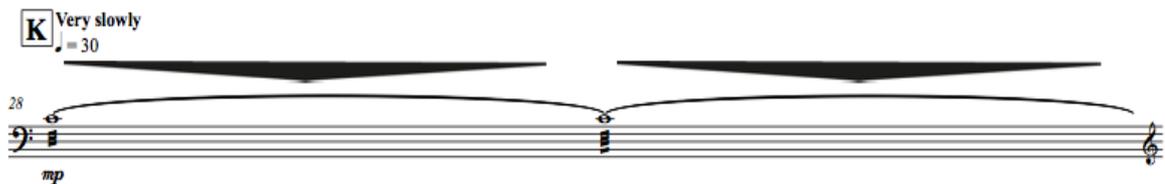
Figure 3.16. The Voices [Track 29, bar 28]

As previously mentioned, Cryne has been influenced by the work of Jonathan Harvey in two ways: by the 'soundworld' that Harvey creates and his 'relationship to extra-musical material.'[296] Cryne clearly was inspired by the works of Harvey's which combine the cello and live electronics, as well as the techniques he used to create striking textures and timbres for these two instruments. However, of particular interest when discussing *Hearing Voices* is the way Cryne has constructed a philosophical or narrative element in this electronic work, based upon his perception of what it would be like to experience an auditory hallucination. He has created an auditory response to or equivalent of this experience.

Cryne asserts that *Hearing Voices* is not a representational work; rather, 'it is of the world, informed by and inhabiting an experience. . . . What I am interested in in *Hearing Voices* is not representing the direct, lived experience of a schizophrenic episode . . . but rather a completely musical response to that experience.'[297] However, despite these assertions, one can correlate the musical character of the Voices material with the documented experience of a hallucination. In fact, Cryne wrote in his commentary that the philosophical/narrative ideas (for example, the title of the piece) aided his compositional decisions on several levels, from aesthetic to structural,

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[296]Cryne, 'Commentary on Hearing Voices'.
[297]Cryne, 'Commentary on Hearing Voices'.

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'determining the overall soundscape of the work, as well as the instrumentation and many of the choices made with the electronics.'[298]

Hallucinations are one of schizophrenia's symptoms, and can involve hearing, seeing, feeling, and smelling things that are not there. In the context of *Hearing Voices*, the most relevant symptom of schizophrenia is clearly hallucination of the auditory sort – in which 'voices' that are not real can be heard, creating confusion as to what is real and what is not, sometimes resulting in panic.[299]

Whether intentional or not, the Voices material in *Hearing Voices* creates this sensation of panic and confusion, and knowledge of the piece's conception may assist the player in recreating the musical equivalent of the experience of auditory hallucination – largely by encouraging the cellist to fully explore and project this concept. A sensation of multiple strings, or several 'voices' happening simultaneously, is created each time the Voices material appears (this is especially true when the Voices material appears in the form shown in fig. 3.14). This sensation, along with confusion as to which sounds originate from the cello and which are effects (see 1.2.3.4) – or, in a representational context, what is 'real' and what is not – are the main characteristics of this theme.

The Voices mutate throughout, interplaying (and interfering) with the Subject. At times, the blend preserves the distinction of each part (see fig. 3.10), while elsewhere the two almost converge into each other 'very much in the way that the consciousness is affected by the voices that they hear.'[300] This entangling increases as the work develops.

The relationship between these two musical elements is symbolic of the composer's programmatic ideas of a hallucinatory experience. In our interview, Cryne stated: 'I envisaged a trajectory – from my research into schizophrenia, I understand that many people come to an accommodation with their "voices", and wanted this

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[298]Ibid.
[299]Thomas R. Insel, M.D. 'Rethinking Schizophrenia', *Nature* 468 (2010): 187-93.
[300]Cryne, interview, February 7, 2012.

accommodation to be the end point.'[301] The final section of the work, beginning at bar 98, demonstrates this final 'accommodation', revisiting each musical element (the Subject, 'A,' and the Voices) while simultaneously blending them together and, in a sense, giving up the battle.

3.3.4. Melody, rhythm, and metre

Hearing Voices has two particular points of interest for cellists specialising in contemporary music. The first is that the elevation of timbre requires the performer to approach the work in a manner different from the usual performing mode. Traditionally, elements such as form, time, rhythm, and melody dictate the construction of a work and tend to follow specified rules that performers are trained to decipher, understand, interpret, and ultimately perform. However, when the most important consideration is timbre, some of these rules and traditions are dropped or transformed, and the performer must adapt. In *Hearing Voices*, the musical lines do not necessarily lead to cadence points, themes are not developed and transformed in the same way, clear keys are not necessarily used, and modulation to relative keys often does not occur. Hence, the performer must explore and employ new ways of creating musical interest for the listener in performance (see, 3.4). This conclusion brings us to the second especially noteworthy element of the work: the electronic component. Without the electronic effects, *Hearing Voices* would not be such a notable piece in the cello repertoire, as the electronic effects are responsible for creating the sonic and narrative interest.[302] In addition, they play a substantial role in forming the musical elements – form, rhythm, melody, harmony, and timbre – all of which affect the way in which the cellist should approach and understand the music.

The melodic construction in *Hearing Voices* is directly altered by the electronic component. In general, the melodies emerge out of the more fixed and controlled Subject material, appearing as fragments that come to the fore only to be subsumed once again into the overall texture. As a consequence, the cellist must focus

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[301]Cryne, interview, August 16, 2012.

[302] This is not always the case; Saariaho's *Spins and Spells* (1996), for example, can be played with or without electronics.

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less on how to create interest within a melodic line than on listening to the sounds coming out of the speakers, working to blend with and shape the electronic sounds produced, ultimately discovering and defining how (s)he fits into the soundscape being created. By doing this, (s)he is taking the first steps in learning how to play *together with*, rather than just alongside the electronics (as recommended by Bullock, Coccioli, Dooley, and Michailidis).

Time is divided into precise frames. While the rhythm is written using traditional notation (such as crotchets and quavers), in some instances, duration is indicated by time in seconds rather than in strict accordance with the indicated note value or subdivisions of the larger metric context, thus allowing/indicating flexibility for the unpredictable sounds created by the live electronics. Instead of using traditionally calculated bar lines, Cryne divides each line into phrase groupings, labelling the start of each new line with a bar number that is reflective of how many phrases appear throughout a line. As the example below demonstrates (fig. 3.17), the top line is labelled bar 98 and the following line bar 102, with the musical material on the first line consisting of four phrases that could easily be divided into bars. In this example, the first line would have consisted of a bar made up of four crotchets, followed by a bar of five, a bar of seven, and finally one of four.

Figure 3.17. Freedom in a melodic line

This loose grouping of the notes prevents the composer from having to write a different time signature at the start of each bar. It also aids the performer in interpreting the melodic line, giving guidance as to how the notes relate to one

another, and should be played while simultaneously offering a certain freedom from the constraints of the notational bar lines.

The work exhibits clear tempos, ranging from a crotchet equals 30 to a crotchet equals 80. Generally speaking, the Subject is played at a steady crotchet equals 80 (occurring at bars 3, 19, and 39), while the Voices are at a crotchet equals 30 (bars 11, 28, 33, halfway though 77, and finally at the coda from bar 105). There are exceptions, however, for as the work develops and the two musical elements become intertwined, the tempo starts to fluctuate between the confines of the two speeds.

There are also instances in which the Voices become more urgent and chromatic, adopting faster tempos, while concurrently the electronic component is increased and thus intensified (bars 6 and 30 provide useful examples). At these moments, one could posit that the rhythm is contributing to the narrative of the work: occasionally it seems free, but if the rhythms (or 'voices') indulge in liberty for too long, they fall into anarchy and seem to begin to usurp control of the mind. Thus they must return to the steady metre periodically in order to redefine their freedom in concrete terms.

The rhythm in *Hearing Voices* is a combination of proportional (though without the constraints of a fixed metre, as a result of Cryne's choice to omit bar lines) and 'free' rhythm.[303] The Subject features precise, proportional, rhythmic notation (initially heard at bar 3 and developed throughout the piece), while the Voices material has free rhythm created mostly by the timbral responses produced by the cello/electronics combination (evident from the beginning, at bar 1). The Voices do not appear to follow any rhythmic pattern, but rather seem to have a life of their own, as they resonate for a loosely prescribed length of time.

This rhythmic formation makes sense from a spectral perspective, since in this framework tone colour, pitch, and timbre are vital in shaping the rhythmical character of a piece. 'Spectral composers do not consider sounds as lifeless blocks to be placed

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[303]'The absence of barlines is indicative of a certain rhythmic freedom throughout the piece.' Cryne, 'Performance Notes'.

in a musical context, but rather musical events with their own evolutions over time that must be taken into account.'[304] Spectralist composer Gérard Grisey refers to 'the integration of time as the very object of form' in spectral music, with the natural evolution of the musical events shaping the overall form.'[305] As such, the rhythmic organisation for Cryne's Voices material is flexible, based on relative duration and affected notes rather than the subdivisions of a fixed metre.

The electronic element in this work adds another layer to this idea of so-called free rhythm, largely because Cryne often allows the effects to ring out as long as the sound dictates. There is a prime example in the first bar of the piece, where Cryne has written a crotchet rest with a fermata above it and (4") above that. The performer must wait for the 'envelope' of sound to be fully realised before moving on, and as this process is repeated, the overtones begin to form the work's rhythmic structure [Track 29, bars 1-2].

On occasion the cellist controls the duration and intensity of the effects with foot pedals, and the performer must at those times have a vision in mind to guide the development of the work. A useful example is found in bar 9, in which the cellist is instructed to gradually increase the feedback pedal to 100% – though the score suggests doing so in approximately five seconds, the timing and pacing is controlled by the performer (refer to fig. 3.3).

This free approach to rhythm and metre may seem unconventional and consequently be unsettling for the cellist, who is likely to be accustomed to something more 'measured' and prescribed. One needs a flexible mindset, along with a willingness to take ownership of the music's evolution and the overall structure of the work.

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[304] Christopher Gainey, 'Turning Sound into Music: Attitudes of Spectralism' (PhD diss., University of Iowa, 2009), 18.
[305] Gérard Grisey, 'Did You Say Spectral?' *Contemporary Music Review* 19 (2000): 2.

3.4. The Performer's Perspective: Playing the Cello with Electronics

The fusing of the electronics with the cello's natural timbre clearly affects how the cellist will play the music and approach various techniques. In *Hearing Voices*, Cryne has taken advantage of how well the cello responds to effect plugins, taking several standard playing techniques (such as natural and artificial harmonics; *trills*; harmonic *glissandi*, *sul ponticello*, *sul tasto*, bow pressure techniques, including overpressure and distortion; the combination of *trills*, *tremolo*, *glissando*, and double voicing; and overtones, quartertones, and chromaticism) and combining them with electronic effects (such as reverb, distortion, and echoing effects) to create haunting and mysterious sounds. At times, the results are so unlike what is traditionally produced by the cello that the various techniques are barely recognisable as such.

My intention is not to suggest that these are new techniques; rather, it is to explore how Cryne has taken standard techniques and combined them with electronic effects to 'extend' the sounds they can produce. The unusual application of these established techniques challenges the performer to approach the instrument in a different light in order to use the electronics to their full effect.

3.4.1. *Sul ponticello* and *sul tasto* in a new context

Playing *sul ponticello* and *sul tasto* broadens the timbral possibilities on the cello, and when combined with distortion and reverb effects, these are extended even further, heightening the presence of the overtones and creating previously unavailable sounds. Cryne utilises both techniques in *Hearing Voices*, sometimes alternating quickly between the two and at other times combining them with alternative techniques.

Sul ponticello instructs the cellist to play near the bridge, which diminishes the intensity of the lower harmonics in favour of the higher and produces many high overtones, resulting in a quality that is nasal, and metallic, yet also haunting and mysterious. At the extreme, the fundamental pitch nearly disappears, and when

combined with the effect presets, the result is even more intense, heightening the ethereal and mysterious quality and almost completely losing the fundamental pitch.

Cryne has employed this technique repeatedly in the Voices musical material to conjure up the image of the so-called voices that one might hear during a hallucination. One example of this nasal, metallic, echoing effect is in the passage starting at bar 6 (see fig. 3.4), with the effects and cello line collaborating to create a disturbing, haunting feel [Track 27, bars 6-8].

Sul tasto, on the other hand, involves playing near or over the cello's fingerboard, reducing the higher harmonics and overtones and creating a thin and ethereal sound quality. At the extreme, the sound weakens and loses its core, and again, the electronics heighten this effect. Cryne has at points used *sul tasto* to make the Voices mysterious and quiet, but elsewhere *sul tasto* evolves into something quite different: initially timid and restrained in the *sul tasto*, the Voices shift and become brighter and more confident, transforming into *sul ponticello*. An example is in the first bar, where the initial note is tight and lifeless before blossoming into the more resonant and overtone-full *sul ponticello* note [Track 29, bars 1-2].

Cryne often moves quickly between *sul tasto* and *sul ponticello* bow positions, creating contrast between the colours. In the example below (fig. 3.18), Cryne told me that he was trying to add another level to the Voices, a feeling of 'dark reasoning' or 'mad stability.'[306] The indicated movement between *sul tasto* and *sul ponticello*, in conjunction with an almost robotic and steady execution of the rhythm by the performer, achieves Cryne's goal (another example is in bar 66).

Figure 3.18. Quick movement between *sul tasto* and *sul ponticello*

[306]Cryne explained his intention behind these passages during one of our first rehearsals.

At figure C (fig. 3.19), Cryne couples *sul ponticello* with an increase and then decrease in bow pressure, as indicated in the figure below (the elongated triangle represents an increase in bow strength to maximum and then a return to normal). The combination of these two techniques works to heighten the *sul ponticello* effect, making it sound increasingly thin and metallic.
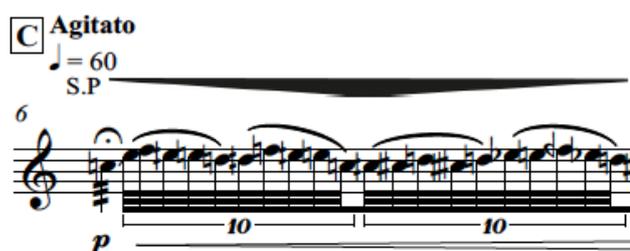
Figure 3.19. *Sul ponticello* combined with changing bow pressure

The composer uses arrows (fig. 3.18) to indicate the timing of the transition between one technique and another, at some times from *sul tasto* to *sul ponticello*, at others from natural bowing ('Nat.') to *sul ponticello* (or vice versa), and also to indicate the increase or reduction of the feedback pedal.

Sul tasto and *sul ponticello* are employed in *Hearing Voices* from the outset, appearing in the opening bar and presenting the performer with the first technical challenge of the piece. Tremendous physical control, in addition to careful positioning of the bow at its tip, is required before the cellist even starts playing, not to mention the need for the correct angle and positioning on the string.
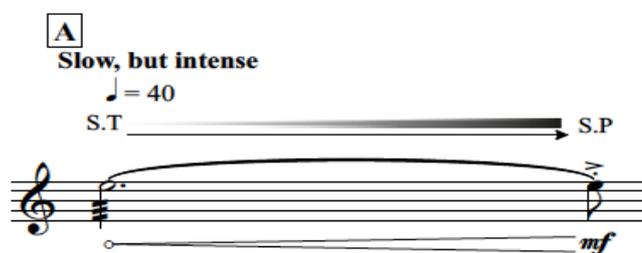
Figure 3.20. The opening

As the works opens (fig. 3.20), Cryne directs the cellist to begin *sul tasto* and then gradually move the bow to *sul ponticello* during the duration of the first note (the

open circle at the tip of the *crescendo* sign indicates that the performer should start from nothing, and the arrow and the gradient moving from light to dark indicate *flautando* becoming normal).[307] The player must carefully negotiate a number of things: bow positioning, the timing of the bow movement from *sul tasto* to *sul ponticello*, and the bow pressure needed to both change the bow stroke (from a fast and light *flautando* stroke to a more focused *sul ponticello*) and create the *crescendo* effect.

This is the first appearance of the Voices musical element. Appearing out of nothing and gradually moving the bow from *sul tasto* to *sul ponticello*, all the while playing *tremolo*, the haunting character of Voices is revealed, intensified by the echoing of the reverb pedal ringing on beyond the note played. In bar two, there is a similar effect, though here Cryne adds a *glissando* up to 'the highest possible note' (indicated by an open circle placed above a triangle-shaped note), thus magnifying the effect.

Timbre is one of the main concerns in *Hearing Voices* and, like many contemporary composers, Cryne has employed *sul ponticello* and *sul tasto* because they add a variety sounds to the textural palette, creating colours that are even more extreme when processed through the various effect chains. An experienced cellist will most likely be accustomed with playing these two techniques (*sul ponticello* even more than *sul tasto*) as they are standard in many types of music. However, if the performer has played few contemporary scores, or ones with effect pedals, the sound created may seem rather unpleasing to the ear, as it is not pure, clean, and even. If so, the cellist may need to consciously try to adjust his/her perspective on the music that (s)he is being instructed to create. The initial inclination may be to shy away from the harsh or unmelodious sounds produced by the instrument – but it is helpful to recall that the composer has asked for these textures and may not be looking to create lyrical sounds.

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[307]The Oxford Music Online defines *flautando* as 'an instruction to produce a soft flute-like tone. It requires string players to draw the bow lightly and fairly rapidly across the string with a point of contact near to or over the fingerboard. A more precise term for such an effect is *sul* tasto' (David D. Boyden and Robin Stowell, 'Flautando', in *Oxford Music Online*, Oxford University Press, http://www.oxfordmusiconline.com/subscriber/article/grove/music/09789?q=flautando&search=quick &pos=1&_start=1#firsthit [accessed October 22, 2012]).

3.4.2. Pressure techniques

Another common characteristic in many new compositions is the creative use of the nonstandard timbres that can be produced on string instruments. Two main areas of exploration are tone distortion (commonly known as overpressure) and nonpitched sounds, such as scratch tone and air-noise**.**

Overpressure distortion is a technique in which the cellist obstructs the vibration of the string, moving with tension and pressure into the string. When applied correctly, distorted, rough, and sometimes unpleasant sounds result.[308]

It is common amongst string players to think that *sul tasto* is the opposite of *sul ponticello*, and in terms of the contact point on the string this is true. However, when describing sound production, it is overpressure that is the opposite of *sul ponticello*. With overpressure the cellist adds weight so the string is caught underneath the bow hair, interrupting the wave of moving string and distorting the sound, whereas with *sul ponticello* the cellist lessens the pressure and adds bow speed, creating a slipping motion with the bow. The cellist will discover on experimentation that the distortion levels change depending on the contact point with the string, and that the most successful distorted sound (that is, containing the least amount of pitch) can be created by placing the bow high up the fingerboard.[309]

The most successful and effective overpressure sound is generally made on the A string, and fortunately for the cellist performing *Hearing Voices*, Cryne has written all of the overpressure passages on the A string except one (bars 12-14).[310] The composer's use of overpressure in the piece presents the cellist with something not

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[308]Overpressure is often indicated simply by 'Overpressure' or 'Heavy Pressure'. It is sometimes abbreviated 'OP', 'mOP' (*molto* overpressure), or 'pOP' (*poco* overpressure). Transitions from normal pressure to overpressure are often indicated by dotted lines or arrows.

[309]*Flautando* can also be thought of as a pressure technique, an extreme version of which is 'air noise', a technique that requires one or more fingers to be placed lightly on the string; when accompanied by light bow pressure it results in a soft, airy sound with an almost indistinguishable pitch. For more information and practice resources for these and additional modern techniques go to Russell Rolen's 'Modern Cello Techniques' website: http://www.moderncellotechniques.com/.

[310]Saariaho devised a graphic indication in the form of black wedge shapes to show how much relative pressure should be applied, with the thinnest part of the wedge representing normal or near-normal pressure and the thickest part of the wedge representing the greatest pressure, leaving almost no tone. Cryne has employed Saariaho's symbol in *Hearing Voices* (see fig. 3.19 and 3.21).

unlike an etude for the technique, generally requiring quick alternation between normal and overpressure strokes.

When learning to play an overpressure stroke, the cellist should start by drawing the bow normally and then progressively add weight into the string until the pitch almost completely disappears, and then the reverse. On a physical level, overpressure is essentially an exercise in body tension. To create the pitchless, distorted effect, the cellist must draw weight from the back down the arm and into the hand, which should be tensed and gripping the bow. The result should be that the bow adheres to the string. It is critical that the cellist release the tension as soon at the passage is over to avoid injury.

Cryne's use of the overpressure technique appears typical when looking at the score. However, when the composer adds distortion and reverb, the effects are heightened and the sound moves down the sound spectrum until the fundamental cello 'sound' almost evaporates (refer to 3.2.2). The following bar provides a simple yet effective example [Track 30, bar 28].
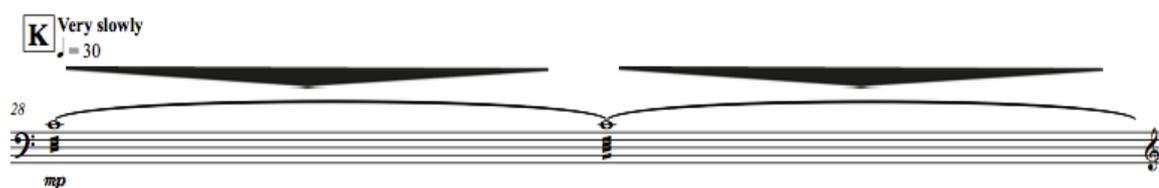
Figure 3.21. Overpressure bow stroke combined with electronic effects

As this example and sound sample demonstrate, when the overpressure bow stroke is applied in conjunction with the electronics, this single note produces multiple colours as well as a thick and unusual texture. Similarly to *sul ponticello* and *sul tasto*, if only a little pressure is applied then fewer overtones are created and the sound is tight and thin, however, when more pressure is applied the sound becomes increasingly dense and overtone-rich. The overpressure sounds may sound even more unfamiliar (and disturbing) to the cellist than those created by the *sul ponticello* and *sul tasto* effects. Cellists are traditionally trained to strive to create the most full and resonant sound possible, in contrast to the nasal, metallic, and thin sounds that result from overpressure. Again, open-mindedness and a broadened appreciation of sound

and music are necessary on the part of the cellist.

3.4.3. Microtones in a new context

While the use of microtones in Western music is a relatively recent and experimental phenomenon, they have been part of various Eastern musical styles for centuries – for example, in the music of Iran (Persia) and that of the Arab world[311] (as is evident in the modes used in *Habil Sayagi* by Franghiz Ali-Zadeh, discussed in Chapter Two). For many cellists, playing microtones (especially with electronics) is a relatively new and little-practised technique.

There are many different microtonal systems, each dividing the tonal spectrum according to a specified logic. Notation of microtones has not been completely standardised, so many symbols have been used in the past. Most composers use some kind of alteration on the sharp, flat, and natural signs as shown below.

Figure 3.22. Early microtone notation

Like many contemporary composers today, Cryne incorporates microtones into *Hearing Voices* to create certain colours and effects, rather than to contribute to harmonic language,[312] and the addition of the electronics intensifies these colours. In this work, multiple overtones and high echoing lines are created by combining microtonal passages with a microtonal pitch-shifting effect, an example of which is found in bar 6 (see fig. 3.19). Cryne discovered that certain frequency ranges responded well to certain registers on the cello when processed with a quartertone

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[311]For further reading refer to Habib Hassan Touma, *The Music of the Arabs*, trans. Laurie Schwartz (Oregon: Amadeus Press, 1996).

[312] Cryne, interview, August 16, 2012.

delay effect, so the majority of the microtonal writing in *Hearing Voices* is written in the higher register of the instrument.[313]

Microtones raise some technical challenges for the performer, and the addition of electronics adds further issues that deserve consideration. Microtonal passages, such as that in fig. 3.19, can be very awkward to negotiate and on first glance might seem impossible to play. My initial approach to such a passage is to 'fake' it; rather than playing each individual note, I would 'rhythmically' *glissando* on one finger, approximating the pitch. (Based on the approaches of other cellists I know, I think this would be a common approach.) However, such a choice does not always line up with a composer's intentions. In the case of *Hearing Voices*, Cryne expressed that he thought it was important to play the specified notes, as he had matched the notational material with the pitch-shifting effect in order to create a microtonal modulation which would only be achieved if the performer honoured the notes on the score.[314] This complicates the cellist's conception of ensemble playing, as it demands a true interaction between the performer and the electronics. Here, the cellist must take the electronic element into consideration to achieve the composer's vision.

My experience of playing this work also challenged my preconceived idea that the electronic component would blur the sound, obscuring individual notes and negating the need for absolute accuracy. What came to light throughout the process of learning *Hearing Voices* was that, if anything, *greater* accuracy is needed when playing microtones with electronics, as every sound is heightened and amplified, and a mistimed or out-of-tune note can greatly influence the harmonic result.

The first step along the path to success with microtones is learning to hear and feel the distance between the intervals. This takes time and practice, because it is easy to become disoriented from the centre of pitch. Aside from practising alternative chromatic exercises,[315] it is helpful for the player to first learn the section an octave lower than written to orientate the ears. Obviously, the intervals will be closer when the player returns to the higher octave, but this requires only a (relatively) minor

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[313]Ibid.

[314]Cryne and I discussed these issues during our rehearsals for the work.

[315] Practical guidance and useful exercises to assist the cellist in playing microtones can be found on Russell Rolen's 'Modern Cello Techniques' website.

adjustment. The demi-semiquavers in the microtonal passages in *Hearing Voices*, such as those in bar 6, need to be played at crotchet equals 60 (i.e., very fast). In order to reach such a speed, I recommend carefully fingering each note. Learn the notes, learn the bowing, and practise various microtonal intervals.

Following these physical steps, the cellist must try to imagine the overall effect the composer intended to create and soundscape which (s)he desires to share with his/her listeners. Putting aside all technical challenges, I recommend the cellist try to play as fast as physically possible, letting the energy of the bowings carry the left hand, consciously trying to create what has been imagined.

Similar microtonal passages occur in other sections of the work – for example, bar 15, and then at bar 30; these also require accurate note playing and should be approached in the same fashion described above.

3.4.4. Harmonics and artificial harmonics in a new context

In conjunction with his use of microtones, Cryne has incorporated harmonics into *Hearing Voices* for their colouristic potential: as part of the overtone row, they create many extra notes and overtones, adding texture and character.[316] These extra tones are exaggerated even further when electronic effects are added. Cryne explained the sonic result, saying, 'because they're "simpler" tones, the sound can be processed to a higher degree. . . . By using harmonics, the degree of the effect can be much greater, without generating lots of "noise."'[317]

Cryne has put this idea into practice throughout his work. An example is halfway through bar 50 (fig. 3.24), where he has written two high natural harmonics a fifth apart, high up on the A and D strings (the high A harmonic at the top of the fingerboard on the A string, and the equivalent D harmonic a fifth down on the

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[316] When a cellist bows a note on the instrument, the fundamental string frequency produces overtones. When writing for the cello with electronics, composers can exploit and explore the overtones created by the harmonics. *Hearing Voices* presents a good example, with Cryne's Subject illustrated by the natural harmonic series; the work also features open strings and natural harmonics throughout.
[317] Cryne, interview, August 16, 2012.

neighbouring D string), and processed the chord so that the overtones produced create a resonant and haunting sound when paired up with the reverb effect [Track 31].[318]
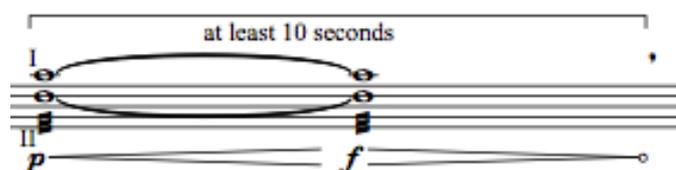
Figure 3.23. The use of natural harmonics

Cryne uses harmonics with arresting effect on several occasions, alternating between a stopped note and a natural harmonic in quick succession.

Figure 3.24. Alternating between natural harmonics and stopped notes

Composers have been incorporating this technique for over half a century, and it can be heard in the music of composers such as George Crumb, who adopted it as part of his rhetoric and employed it extensively in the 1960s (*Voice of the Whale* [1971] is a good example) and Gubaidulina, who categorised the technique as part of her musical philosophy. She used it as a 'musical-instrumental symbol'[319] to express the way in which the soul leads to the body and vice versa, with the pressed note (the physical) representing the body and the ethereal sound of the harmonic note (the spiritual) representing the soul[320] (also see, 1.1.2.1).

In order to successfully alternate between natural harmonics and stopped notes, the performer must carefully increase and decrease the bow pressure and bow speed to ensure each note rings: for a stopped note, less bow speed and more pressure;

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[318]Natural harmonics are produced by touching the string lightly with a single finger at the appropriate nodal point.
[319]Kurtz, *Sofia Gubaldulina*, 154.
[320]Ibid.

for a harmonic, a quick increase in bow speed and a decrease in bow pressure. The left hand needs to be very deliberate, precise, and rhythmic as it alternates between stopping the note and lightly touching the string for the harmonic. Though this can appear to be quite a straightforward action, it is deceivingly awkward to execute.[321]

3.4.4.1.   Artificial harmonics[322]

The concept of artificial harmonics is the same as that of open harmonics; however, the player creates a new fundamental string length, over which a new set of nodes will arise. In order to succeed, the cellist must stop the string firmly; otherwise the harmonic will not speak clearly if at all.

While overtone content of artificial harmonics is reduced compared with natural harmonics due to the dampening effect of the stopping finger, the intonation of artificial harmonics is more flexible than that of natural harmonics, and the cellist can compensate for the mistuning of harmonics or adjust to a required pitch by shifting the stopping finger. In addition, vibrato-like gestures and *glissandi* are easily produced.[323]

Cryne has mainly used artificial harmonics in *Hearing Voices*, largely because of the greater pitch choice they offer.[324] Parts of Cryne's Subject material are represented by the harmonic series. This is demonstrated nicely when the Subject is introduced as artificial harmonics in bar 11: the notes C, E, and C belong in the natural harmonic series of C as the fourth and fifth partials.

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[321]Other examples of this use of harmonics can be seen throughout the work – for example, in bar 61 and the second half of bar 63, Cryne alternates between the fixed note and open harmonic to create different overtones.

[322]Artificial harmonics are harmonics that have a stopped string pitch in the base rather than the open string. One finger (usually the left hand thumb or index finger) stops the string, and a free finger (of the left hand) touches the string at a relative distance to the stopped string pitch.

[323]For further reading regarding harmonics see Ellen Fallowfield, 'Cello Map: A Handbook of Cello Technique for Performers and Composers' (PhD diss., University of Birmingham, 2009).

[324]Ibid.

Figure 3.25. Subject using the fourth and fifth partials of the natural harmonic series in C

Similarly to the stopped string, bowed harmonics become more overtone-rich and louder as bowing pressure and bow speed is increased. Cryne has experimented with this in the above material (fig. 3.26). Setting the tempo at crotchet equals 30 (i.e., very slow) and writing a *crescendo* from *pp* to *mf* for each separate note, the dramatic increase in volume, bow speed, and bow pressure, along with the consequent increase in overtones, reacts beautifully with the designed effects. The effects amplify the resulting sounds, creating a haunted, ethereal 'voice.' This theme occurs on several occasions throughout the work (at bar 18 though it has been transposed and again at bar 78), so the player may wish to add vibrato to the harmonic to vary the sound within or between the repetitions.

One can produce a narrow vibrato in harmonics by oscillating the finger in the usual way. Vibrato-like fluctuations in pitch are also created by increasing and decreasing the pressure of the touching finger, or shifting the touching finger toward and away from the bridge. The resulting small variations in pitch are more readily produced on the lower harmonics.

3.4.4.2.   The combination of natural and artificial harmonics

The final section of *Hearing Voices* is predominantly made up of harmonics explored in their various forms. Labelled 'Peaceful, still, tempo quite free', the harmonics, accompanied by the electronic effects, combine to create an eerie and otherworldly exiting statement.

At bar 105 (fig. 3.27) is an example of a standard artificial harmonic. The

performer must place the thumb firmly (and accurately, for intonation) on the indicated note while lightly resting the third finger a fourth above. The bow is placed not too close to the bridge and is drawn relatively lightly and quickly along the string.
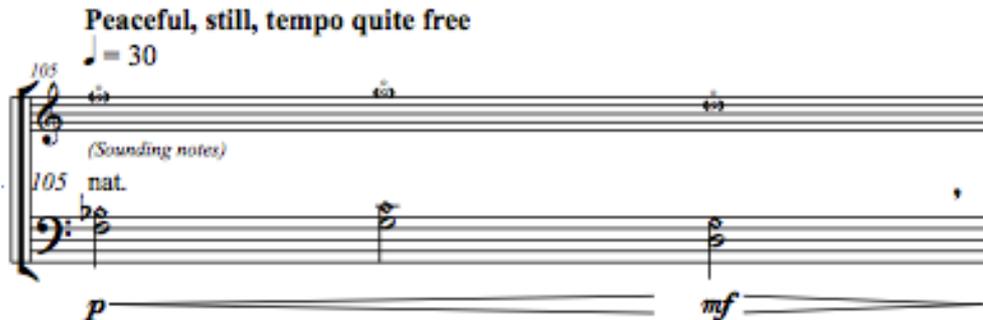
Figure 3.26. Use of the standard artificial harmonic

Halfway through bar 112, Cryne incorporates double-stopped tremolo fifth harmonics. Here a fast and light bow stroke should be applied equally to both strings in order for the notes to sound.
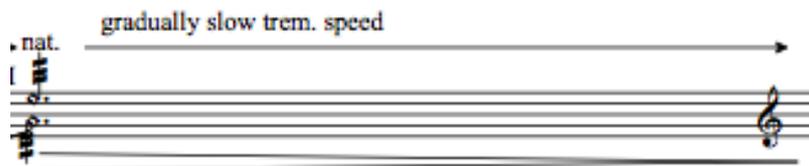
Figure 3.27. Double-stopped, tremolo, and fifth harmonics

Finally, in the last two bars (the most physically awkward of all) artificial harmonics are written on the low C string, ranging from nothing to *pp* to *mf* and alternating between *sul ponticello* and natural bowing. Immense control is needed, along with an almost-painful thumb pressure to stop the note, as well as a firm, steady, and fast-paced bow in order to give the note its voice.
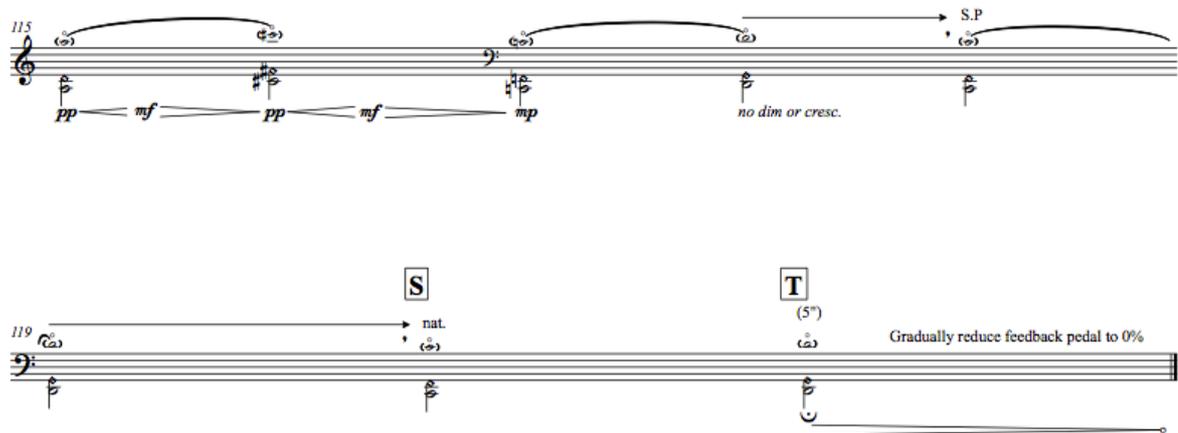
Figure 3.28. Various uses of artificial harmonics

As stated previously, Cryne's intention was for this closing passage to represent an 'accommodation' of the 'voices' in the mind of a person experiencing a schizophrenic hallucination,[325] and these various forms of the artificial harmonics have been explored and conjoined with reverb and distortion effects to create such an atmosphere. The tempo marking is the slowest of the piece crotchet equals 30 and the rhythm is continuous, ranging from minims (usually tied) to semibreves. While there is no sight of the Subject material in the coda, the Voices seem more controlled and measured, which is in line with the character of the Subject.

The performer will find that the echoing effect created by the reverb and distortion effects give this otherwise simple notation a thick and resonating texture. The line and sound effects need time and space to ring out, so the performer should not be afraid to move gradually from one note to the next. One could suggest that, like the text, the performer is also finding an 'accommodation' and peace with the electronics.

3.5. Additional thoughts

Hearing Voices represents a style of music that has been developing since the 1950s, encapsulating two important developments in Western composition: the development of the electronic music medium and its correlated collaboration with

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[325]Cryne, interview, August 16, 2012.

acoustic instruments, and the elevation of timbre in the compositional process.

The work represents a shift that has occurred in electronic music towards a homogeneous blend between the traditional acoustic instrument and the electronic medium. In *Hearing Voices*, Cryne has achieved this unity successfully by presenting it in four main ways: first, through the mutual imitation of the timbral qualities of each medium; second, through the development and alteration of cello techniques that are enhanced by the electronic effects; third, through the handing over of some of the control of the electronic sound production to the performer, allowing for greater flexibility in a performance; and, finally, through the capability to process the effects in real time.

The live processing of the instrumental sounds is a relatively new and important development in the electronic medium. In some works, the electronic component plays an accompanying role – for example, in Carl Vine's *Inner World* for cello and tape, or David Lang's *World to Come*, where the accompanying cello parts are prerecorded. In *Hearing Voices*, however, an interactive relationship is created between the electronics and cello by feeding the cello into a live sequencer, and processing and modifying the sounds with the various effect presets in real-time. Rather than the two media being controlled independently – the performer controlling the acoustic instrument, and the sound diffuser controlling the electronics – they merge to create a unified soundscape. This enables the sound structure of each medium to blend more successfully with the other, by means of the tonal and timbral relationships. Though Cryne has designed the work so the cellist can have control over the triggering and intensity of the electronics throughout, as with most electronic works, the addition of a sound engineer (who can assist with the effects in live performance if necessary, and help with balancing levels) is advised, if not mandatory.

As with *Habil Sayagi*, certain qualities and nuances of the music can only be truly experienced by playing the piece. As soon as the cellist activates the electronics a feeling of transportation into a new sound world will occur. The sheer volume that the instrument suddenly becomes capable of creating will most likely enthral the performer, injecting an adrenaline rush usually associated with a loud rock concert. In

addition, every physical action and connection between the body and the instrument becomes heightened, with the electronics amplifying every sound made, assaulting the senses. In some respects, the electronic effects make the cellist's job easier, as there is less need for arduous work to produce a clean and pure sound; this is clearly not the aim in this style of writing. On other levels, however, the cellist's job is greatly complicated, as the feet must 'play' the pedals at the same time as the fingers negotiate the complex score, on top of the need for the cellist to maintain constant awareness of the resonating sounds created by the effects and echoing from the speakers. Additionally, the electronic elements can work in unexpected ways, forcing the cellist to adjust his/her mode of playing in real-time. Unexpected onsets of feedback have been a common occurrence in many of my performances of *Hearing Voices*, and while advancements in technology may help ultimately eliminate this problem, in the meantime one must simply react as best (s)he can, changing string or lessening bow pressure in order to minimise the feedback.

The electronic element of this work brings forth other considerations, many of which have been broached in Chapter One and are summed up again in my final conclusion (for instance, issues relating to space, performance venue, sound diffusion, and theatre). There are some additional issues, however, that come to light when performing *Hearing Voices*.

There is often a knowledge gap between the composer and performer in the performance of a piece such as *Hearing Voices*, with regard to the electronic processes and demands. Cryne was aware of this discrepancy in knowledge, and aimed to address it. Rather than writing a work that had an electronic performer controlling all the electronic components, he carefully designed his program so the cellist could, largely, manage the electronics with two foot pedals, a MIDI foot controller, and a laptop with the necessary software. Despite Cryne's efforts, some cellists may still find the prospect of having to set up and control the electronic feed daunting and consequently avoid playing such a work. Others may ask the sound engineer to take an active role in the performance process, having them control the electronics (for example, pacing, dynamics, and intensity), rather than only monitoring the sound quality and balancing the levels. It is to be hoped that this will change over time, as this medium becomes more established and the electronic,

physical, and technical requirements become standard in the cellist's array of techniques and skills.

When working with live electronics, the performer must be constantly monitoring developments in technology, as with the fast pace of development in computer hardware and software the setup for a work with live electronics is constantly changing. A performer may have the correct and up-to-date programmes needed to play a piece with live electronics one year, only to find that when (s)he goes to perform it the following year the program no longer works. This creates a barrier to performing these pieces. Prolific and established composers, such as Saariaho, allow for this, employing teams to constantly monitor and upgrade their programmes; this is not financially feasible for the majority of composers and means that, in most cases, the performer needs to be able to directly contact the composer (assuming he or she is still alive) and get the updated versions from them. Cryne acknowledges this in his performance instructions, advising cellists to contact him directly for the live set and patches. If the composer is deceased, I foresee that it would become difficult to continue performing their music. The ramifications this may have for the continued performance of some of the music in this medium could be the cessation of its active performing when the creator dies. The legacy of such pieces may end up being in the archived recordings and videoed performances of the works.

Additional problems can arise if a composer changes the way in which (s)he wants a piece to be performed, possibly due to the upgraded software, improved electronic devices available on the market, or changes in performance venue that call for a different approach. The first time I performed *Hearing Voices*, I controlled two expression foot pedals and triggered the effects, however, when I performed it the following year, Cryne had decided that the volume pedal was too hard to control with a foot pedal because the then current versions lacked the ability to control sensitivity with accuracy. He suggested I have the electronic engineer do this from the main board. This altered my physical role in the performance as I no longer needed to execute the dynamic markings written for the foot pedal. While this alleviated the need to use my foot and enabled a more controlled and intricate dynamic range, it forced me to relinquish the control over the pacing of *crescendi* and *decrescendi* to the sound engineer.

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I took Cryne's advice for that particular performance, however, in all my subsequent performances I have resumed use of the volume pedal, substituting my power over micro dynamics for more overall control. One of my criticisms of playing works in the electro-acoustic medium in Chapter One is the sense of disempowerment the cellist can feel in his/her relationship with the electronics. Additionally, I cited Moore's ideas regarding 'control intimacy' – the lack of control over the performance situation, causing the cellist to have less *agency* when it comes to certain variables (such as dynamics, pacing, sound quality, sound direction, and tempo).[326] Cryne had addressed some elements of these problems by designing a computer programme for *Hearing Voices* that enabled the cellist to control have over the dynamics, pacing, and the intensity of the effects through the use of foot pedals; it seemed counterproductive to me to surrender this control.

One of the most important outcomes of the collaboration between the cello and electronics is the extension in the instrument's range of available sounds. As the instrument begins to imitate its electronic partner and establish a common timbre, new sounds and ways of playing the cello have developed, ultimately resulting in an extended and unified instrument rather than presenting a fusion between two mediums.

The implications of these developments are huge and largely beyond the scope of this research. However, it is important to note that while we are already in this position of an extended and unified instrument, there are still a number of ways in which the medium can be improved. In particular, is the relationship between the cellist and the electronics. The cellist needs to become more comfortable and skilled in controlling the various electronic devices so they, ultimately, become a natural extension to his/her technique and playing resources. This would result in a more unified sound between the natural cello sound and the electronic effects. The medium also needs to allow for greater 'control intimacy',[327] and more in-the-moment control over the electronics and sound diffusion. This could be achieved in one of two ways: (1) by developing the technology so the performer can have more/complete control

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[326] Richard F. Moore, 'The Dysfunctions of MIDI', *Computer Music Journal*, 5, no. 4 (1988), 19-28.
[327] Ibid.

over sound production and sound diffusion, or (2) by encouraging a stronger collaboration with a sound engineer; one where they are acknowledged as the ensemble partner and carry equal responsibility in a performance. In this scenario, multiple rehearsals should take place and the electronic performer should closely follow and monitor the score, adjusting levels and dynamics as necessary.

The continued presence of the cello in the electro-acoustic medium, and the continued composing of new additions to the cello repertoire, relies not only on the composer, but also the cellist, the sound engineer, and those working on developing new technologies. A true collaboration and joint effort needs to take place between all parties as they join together to create a new and exciting form of expression for the cello.

Conclusion

The aim of this thesis has been to understand better the developments in solo cello playing since the 1950s and how the practical application of techniques from non-Western and electro-acoustic musics have affected the role of the cellist and resulted in new contributions to the repertoire. A significant stimulus for these recent changes in the cello repertoire (and consequently cello playing) has been composers increased interest in the sonic potential of the instrument, which has led to their holding up timbre and texture as the primary elements in a composition. This focus has resulted in the expansion of the instrument into new musical contexts, in addition to many new approaches to playing the cello and performance.

Early on in the research process it became clear that the analysis of developments in cello playing should focus on three main areas: new repertoire, new techniques, and new performance issues. Isolating these ideas further, I could see that the extension of the cellist's role has three components: (1) extended (physical) techniques, (2) extended participation from the cellist in the compositional and performance processes, and (3) extended knowledge, specifically about new genres and styles of writing for the instrument – for example, the additional knowledge one needs to play a piece in the electronic medium or one containing various non-Western influences.

Extended Physical Techniques

The most obvious extension to the cellist's role is the physical extension of technique. Recent extensions are characterised by the employment of the whole body of the instrument and the performer as a tool and medium for sonic experimentation.

Many extensions relate to the use of the bow: bowing on the bridge, behind the bridge, on the tailpiece, on the fingerboard on the opposite side of the left hand, and bowing right at the tip or frog of the bow; creating pitches with the bow; playing with the wood of the bow; an assortment of new pressure techniques, including

applying extra pressure while bowing, hard and distorted accents, decreasing the speed of the bow until it nearly ceases, and irregular bow vibrato and *tremolo*; and finally the application of items other than the bow to the string, such as thimbles, glass rods, plectrums, thin sticks, the curved bow, and the use of two bows at once (such as Francis-Marie Uitti's two-bow technique).

Natural harmonics, alongside artificial harmonics, have been rigorously explored and consequently moved into the sphere of extended technique: from very high natural string harmonics, well beyond the ninth partial; to complex double stops in high registers; to touching harmonic nodes on the wood of the bow itself while bowing; and to awkward artificial harmonic passages – at times requiring different intervals (such as fourth or fifth) between the placed and touching finger, which are also at times exceedingly high up the register. There has also been exploration of harmonics with natural *glissandi*, investigation of the tones and effects available in the harmonic series, and the manipulation of the *glissandi* in order to imitate sounds and nuances found in folk traditions.

Percussive techniques, such as tapping and plucking, have been applied with great effect, with the body of the cello used as a resonant wooden drum, achieving many distinctive sounds and employed to imitate instruments from various music traditions. New *pizzicato* techniques have been devised: fast passages, strummed passages, snapped *pizzicato*, and left-hand *pizzicato* while a separate line is played with the bow on another string.

Extended techniques have also been utilised, and adapted, in new mediums. The integration of technology into cello performance initially saw techniques added to aid in blending the acoustic and electronic media, and to create sounds such as screeching, beeping, blips, and drones to imitate electronics. More recently, new sound worlds have been explored by combining an electrically modified cello with prepared electronic presets. In this context, many of the techniques mentioned above (such as pressure techniques, *glissandi*, and harmonics) are extended even further as the cellist learns to make small adjustments to accommodate and enhance the electronic ensemble partner. In various non-Western-influenced works, standard techniques such as *glissandi*, vibrato, harmonics, and ornamentations have been

adapted and stretched to evoke musical sounds from various folk traditions, at times creating traditional melodies melded with modern cello technique.

Extended Participation

The cellist's role in the composition and performance process has also been extended in recent years, with the line between composer and performer becoming increasingly blurred. These changes range from graphically notated works, in which (relatively ambiguous) patterns, symbols, or pictures call for a musical response from the performer; or prescriptive notation, where pictures describe the player's actions or methods of creating sounds, shifting the focus from the composer and the text to the musician and the performative process, and elevating the production and the mechanical properties of sound above the valued above the sound itself. Some pieces require the cellist to take part in the formation of a work, often while on stage; and in the electronic medium, there are works which require real-time interaction between the cellist, the instrument, and the electronics. Improvisation has also become a popular tool for composers, further blurring the boundaries of authorship and increasing the cellist's input, at times effectively transforming the performer into a composer. Finally, the physical activities required from the cellist during a performance have been extended to include things such as acting, playing additional instruments, and singing while on stage.

Extended Knowledge

The expansion of technological developments and the effects of globalisation on culture, and consequently music, since the 1950s has greatly increased the volume of knowledge and expertise required from the cellist. Of course, a player has always needed substantial knowledge when performing any repertoire; however, whereas musical styles and compositional conventions generally used to develop into an integral language over a period of years, the proliferation today of individual approaches to composition challenges the cellist to understand and assimilate new languages in rapid succession. Composers have had almost unlimited access to new

ideas in order to learn from other people and cultures, and to create whatever they can imagine, challenging traditional ideas of musical structure, technique, and performance. New notations, new technical requirements, and new approaches to performance are constantly questioning and re-creating the very essence of music.

Evidence indicates that the definition of virtuosity (a term that is traditionally associated with displays of technical prowess) has been extended to include a 'virtuosity of knowledge',[328] resulting in a broader definition of what makes a technically accomplished cellist. Since musical traditions from all cultures and ages have become a source for the composer, the performer must in turn grasp at least basic knowledge of the musical nuances of the particular styles integrated into each work. A new kind of virtuosity is needed, one that elevates knowledge, education, and cultural awareness, and moves in tandem with contemporary composers along with the ever-changing and expanding world.

While this research has demonstrated that the role of the cellist has undergone significant changes in recent years, the nature of the role remains fundamentally the same in some ways. In the nineteenth century, German philosopher Georg Wilhelm Friedrich Hegel (1770–1831) wrote of living in the spirit of one's time: 'no man can surpass his own time, for the spirit of his time is also his own spirit.'[329] Hegel called this *zeitgeist* ('spirit of the age' or 'spirit of the time'), and, in *zeitgeist* fashion, the innovative cellist has always been called to live in the spirit of his/her own time.

At the present time, both composer and performer have access to abundant influences from multiple cultures, musical styles, and traditions. Technological advancements have resulted in instantaneous global communication, and musicians now have ready access to music broadcast or recorded from all over the world. Though these advancements have stimulated unprecedented changes in the music written for the cellist, in *zeitgeist* spirit, it is important to recognise that the acts of interpretation and composition have always been socially and culturally located, and these developments are simply in harmony with one's time and location. Therefore, it

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[328]This idea is borrowed from Luciano Berio, who proposed that virtuosity encompassed a 'virtuosity of knowledge' (Joanna Wyld,'Notes-Upon-Notes' (2005), http://www.notes-upon-notes.com/pdf/Berio.pdf [accessed May 2, 2012]).
[329]Glenn Alexander Magee, *The Hegel Dictionary* (New York: Continuum, 2010), 262.

is the responsibility of the performer to explore and build an understanding of the contemporary variety of music, immersing him/herself in the new sound worlds around him/her, taking each work as an individual piece of art requiring a specific methodology of research, interpretation, and technique.

The personal approach: two case studies

The fairly recent development of performance studies, or practice-led research, has been revelatory to me as a performer, providing 'a link between the creative process of performing and the critical process of analyzing performances.'[330] The two case studies are a product of this. My primary intention was to gain a better understanding of new cello repertoire that displays influence from non-Western or electronic music traditions, and to provide insights and information that may aid other cellists. Hence, much of the text is written for performers from the 'performer's perspective'.

The autobiographical nature of the research, along with my having been in direct contact with each composer, carrying out personal interviews with them both, and working and collaborating with Michael Cryne during the conception of *Hearing Voices* has, I hope, resulted in some findings that will be of use and interest to other performers.

The first case study presents an important contribution to the cello repertoire that successfully demonstrates how non-Western techniques have been blended with our Western understanding of cello playing. An important aim of this research has been to show that the cellist needs to approach playing and technique differently when performing such pieces, and be active in finding out about the history behind the various music traditions that inspire each work. The performer needs to develop an understanding of the composer in order to be able appropriately to interpret his/her music. This can, and should, be a primary form of knowledge about a performed work of art.

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[330] Richard Schechner, 'Performativity', in *Performance Studies: An Introduction* (London: Routledge, 2006), 10.

The preliminary assessment carried out of *Habil Sayagi* further convinced me of this, as, while I was researching the history of Azerbaijani culture and music (*mugham*) I was simultaneously learning the work on the cello, and the extent to which my interpretation changed as my knowledge increased was immense.[331] Though the title of the work ('In the Style of Habil') indicates that the composer is making reference to the *kamancha* player's style of playing, I did not fully comprehend how fundamental this was to the work and the inspiration behind it. In *Habil Sayagi*, Ali-Zadeh transports the cello into a whole new music tradition (many of these ideas were discussed and confirmed in our personal interview): from the form and structure, to the tonal language and the meanings behind each fret; to the driving drum-like pulse that needs to be consistent throughout, the *rallentandos* and subtle pushing and pulling of the rhythms, various *glissandi*, speeds and breadth of vibrato, and delicate emphasis of the grace notes — all of these called for careful manipulation and adherence to *mugham* traditions, which in turn demanded here, and in similar constructions, that I approach each technique slightly differently from the manner to which I was accustomed.

The extent of how much the research had altered my interpretation was emphasised again when I began rehearsing with my pianist. Despite being a very accomplished pianist and contemporary composer, she demonstrated a lack of conviction in her playing which, I believe, was because she had never played, or heard, *mugham*. While I was able to give some background to the *mugham* tradition, how the music sounded, and make suggestions regarding approach to certain techniques and interpretation, in my opinion, a fully convincing performance was not achieved. This was largely due to time constrictions, both in terms of available rehearsal time, and also a lack of time invested by the pianist – time which would have enabled her to learn about, and immerse herself in, the cultural traditions of *Mugham*.

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[331] It is important to reiterate that this research is practice-led, so many of the ideas and observations are subjective, made from the perspective of one Western-trained cellist. This, of course, leaves the findings open for criticism and rebuttal.

While it would be problematic, and impractical, to suggest that the Western cellist/musician must seek to immerse him/herself into each and every culture and cultural tradition that influences the pieces (s)he plays, a different approach to instrumental study would be advantageous. With the immense variety of repertoire being written for the cello today, with such a mix of cultural and musical influences, students studying performance need to be offered classes that expose them to various styles of playing and music traditions, and be given the opportunity to practically apply the new techniques. Without this, it is difficult for the player to understand or give a convincing performance of new music, which can result in feeding many of the misconceptions held by musicians and audiences towards new music today.

Hearing Voices presented a very different playing and research scenario. The electronic-acoustic element instantly raised multiple issues with regard to how one should physically approach and play the work, new approaches to, and considerations for performance, the application and extension of techniques, and interpretation. In addition, I was involved with the work from its conception. I met with the composer on several occasions to discuss various preliminary issues, such as the philosophical ideas behind the piece, the way in which the cello and the electronics could collaborate both on a musical level and on a practical level (the use and incorporation of effect pedals, amplification — pick-ups versus electric cello etc.), and how the music could be practically realised. This included discussions regarding techniques that were best suited to, and possible on, the cello, and how far I was prepared to veer away from traditional playing techniques.

Three main issues stood out during this practice-led research project. Firstly, the situation allowed me to work closely with the composer and have an input into the techniques used, and formation of the work. When rehearsals began, Cryne requested that I give feedback with regard to passages that I didn't think worked on the cello (possibly because they were technically awkward), which he would then adjust if he thought it was necessary. This increased participation gave me a sense of ownership over the work, which in turn increased my levels of enthusiasm and input.

The second issue that came to the fore was that of learning the language of electronics: what equipment was involved, how it worked, what each effect preset did,

how each one altered or enhanced the sounds made by my instrument, how and when I needed to activate each effect, and how to physically do this while playing the cello. This necessitated that I learn a new language of music. I was surprised at the lack of information available to assist me in doing this, and as a consequence, the composer had to carry out much of the teaching in this scenario. Fortunately, I had previously experimented with the electric cello and effect pedals in a popular music context, so had some foundations of knowledge; without this, the situation would have been quite overwhelming.

Finally, how was exploration of the electronics going to affect my playing? Each live electronic piece has a different sound palette, which is created by the effect presets designed by the composer, so first, I needed to consider the sound world I was looking to create in *Hearing Voices*. Following this, I explored how playing with the effects was different to playing without them, how specific techniques needed to be altered to create the desired sound effects, and ultimately, how the unique combination with electronics was going to affect the performance process. All of these questions were broached and explored throughout the case study. While the results are subjective to my personal experience, I hope they raise some awareness for the inquisitive cellist.

A New Playing Methodology

This proliferation of original scores written for the cello sometimes requires new approaches from the cellist, a new playing methodology. The following section provides some suggestions as to what this may entail and explores new situations which may arise.

Before attempting to play a new piece of music, the cellist should perform background research, a cultural exploration. While this is necessary when playing music from any time (though cultural background may be common knowledge when playing an established piece in the repertoire, as it is likely to have been integrated into musical education), nowadays the *Zeitgeist* requires that many types of knowledge are acquired. Research needs to be done into socio-political and gender

issues, commercial values of music, and the practicalities of the performance – all of these much more than in previous periods. The performer can make use of technological advancements in information sharing and gather much of this information online from interviews, articles, and publications on the composer and his/her music, in addition to live recordings and videos of performances.

Thought should also be given to logistical performance details at this early stage, as these are no longer standardised: what kind of venue best suits the piece (e.g., concert hall, recital room, pub, art gallery, hospice, hospital, shopping mall, the park, and so on)? Are extra people required to assist in the performance (e.g., sound engineers, video engineers)? What sound world or musical experience is the composer looking to create? And how does the cellist hope to translate this to his/her audience? In addition, giving non-classical performances of classical music in alternative venues is becoming increasingly popular, as classical musicians and composers look to cross cultural and social boundaries. This raises other issues the cellist should consider: what image should be projected (should aesthetics blend in with the environment or highlight the diversity)? Should performance techniques be altered, perhaps becoming more theatrical to create interest, or possibly playing faster and louder in order to hold an audience's attention? What is the listening context – will the cellist's playing be audible (is additional amplification necessary)? And is the performance meant to be the focus – i.e., is it background or foreground music (will the audience be sitting silently and listening, or is it expected that they will continue socialising – for example, in a pub setting)?

In addition to these considerations, the cellist needs to map out how to approach and play the piece physically: the details of the score/text, where the hands need to be, and how the body will physically interact with the instrument. For the bow arm, the performer should be experimenting with bow strokes, bow speeds, and the weight applied by the bow to the string. For the left hand, the cellist should test varying vibratos, in addition to determining which part of the skin should touch the string to create the desired sonic result, how much pressure should be applied by the finger on the string, and how specific techniques should be played and altered (e.g., exploring the various effects possible with *glissando* and vibrato when the approach is slightly atypical).

When presented with a score incorporating extended techniques, the cellist must at times experiment with and teach him/herself new techniques and skills. This was something I experienced with both of the pieces in the case studies. Surprised by the lack of information available to assist me when physically learning and building an interpretation of the pieces, I relied heavily on my own experimentation, research, and (particularly for *Hearing Voices*) information and guidance from the composer throughout the process. I hope my thesis will be of use to future performers in their orientation to this new style of cello performance.

The codification of extended techniques

This research begs one to question where the dividing line between 'standard' and 'extended' techniques lies, especially in relation to cello education. The exploration of new sounds and approaches to writing music by composers since 1950 has resulted in an unprecedented range of new techniques and methods of playing the cello. Some techniques are only required in the particular piece for which they were devised, while others will be adopted by many composers and slowly become a 'standard' in the vocabulary. In the electronic medium, constant technological innovations and developments can quickly render a work, or a technique, obsolete; or the death of the composer can result in a work not being playable anymore as (s)he is no longer able to monitor, and provide, software upgrades. As stated in Chapter One, the threshold between extended and traditional techniques is both fickle and fluid, so how should it be determined what ought to be incorporated into the 'standard' technique and hence taught to the younger generation of cellists?

It would be an unrealistic task to codify every new technique and approach to playing the cello. Generally speaking, techniques that stand the test of time, and are adopted and employed by multiple composers, do eventually become part of the standard technique. Therefore, the educator's job is to equip the student with the tools and skills needed to enable him/her to decipher, interpret, and practically apply techniques and approaches from various different music traditions. Technique works on a moving scale, so one of the most important skills the tutor can pass on to a

student (apart from a solid technique), is a curiosity for the new, and the flexibility, adaptability, and willingness to explore and experiment with new ideas and approaches to playing his/her instrument.

Though the exploratory and groundbreaking nature of some modern repertoire requires the cellist to take on the role of innovator and explorer, it would be beneficial if some of these new approaches to playing and extensions to technique were normalised and included in young players' education, becoming a part of the practice routine. Scales that are formed of microtones and the harmonic series should be played. More studies need to be written that incorporate different approaches to pitch, different *scordaturas*, pressure techniques, and the various apparatus added to and played with the instrument, such as thimbles and pedals. Classes exploring how to play with pedals and various effects should be taught, experimenting with how to capture the nuances of a variety of musical traditions and styles. But the responsibility is not entirely on the educator: the player needs to take responsibility for learning the new techniques required for each piece, at times designing his/her own exercises to develop the skills needed. Ultimately, it is the cellist's responsibility to assess and modify his/her own playing, keeping an open mind towards new strategies or techniques in order to achieve optimum results, and to independently develop an interpretation of a particular piece.

Final Thoughts

I will conclude by attempting to summarise the findings of my research. A growing interest in the exploration of sound, timbre, form, and the performative possibilities on an instrument, which first appeared in the early twentieth century, initiated a trend in writing for the instrument that would ultimately reinvent traditional cello playing, while simultaneously pushing the performer to continually adapt his/her relationship to the instrument along with their perspective as a cellist. As timbre and texture became primary foci in the compositional process in a section of the repertoire, developments in electronic music spread beyond its medium, inspiring many composers to explore the sonic potential of the cello and to create new aesthetics for the instrument using both electronic and acoustic means. The new

sounds and styles of music that consequently appeared in the repertoire challenged the cellist to lay aside preconceived ideas of what is *correct* or *accurate* playing, and instead allow him/herself to be open to performing the unusual, the unconventional, or the non-Western. Performers are being challenged to widen their scope to encompass many other cultures and traditions that can and do contribute an almost infinite source of inspiration. Consequently, the cellist's task has been extended widely, as (s)he is challenged to seek understanding of whatever style of music is written in order to fulfil his/her role as messenger between composer and audience.

The idea of performing music in a culturally accurate or *bona fide* manner, with a sense of incorporating very different kinds of performance practice, has been of interest since the nineteenth century, and was more completely established in the twentieth. This resulted in the creation of a modern early music revival that continues today. In many ways, my research into non-Western influences on the repertoire, and how the cellist should approach such music, is a derivative of these ideas. Both expand the cello into new musical contexts and challenge the player to reconsider the nature of his/her instrument, and his/her relationship to the instrument (for example, in terms of technique and approaches to performance).

In some respects, this research has raised as many questions as it has answered, and there are some clear shortcomings. First, the changes, developments, variety, and volume of music being written for the cello are shifting so rapidly that it is virtually impossible to write a current text on new developments and how this repertoire should be approached by the cellist; almost instantaneously a new technique or approach to composition is developed and the research lags behind. Second, as I have pointed out throughout this thesis, the research is itself subjective. One of my main methods of research was autobiographical, and clearly many of the assessments have been made from my experiences as a player and my interpretation of specific works. This is characteristic of practice-led research, and even more applicable in my case, as my topic is based on recent events, and so information from historical findings, established literature, and recordings is limited.

Although the demands on the cellist have undergone unprecedented changes in recent years, the effects of these changes, and consequent extensions and

adaptations to playing the instrument, have not yet been fully documented and analysed. This is a topic that deserves and demands further research. It is my hope that this text will prove one of many which will fill such gaps in the literature.

Interview with Franghiz Ali-Zadeh:

***Habil Sayagi* (1979) for Cello and Piano**

Received (via email) on January 17th, 2011, trans., Anastasiya Filippochkina

Could you explain how you have drawn on the emotional content of *mugham* in *Habil Sayagi*?

I imagine that the main idea of a *Mugham*-movement is from simple – to complex, from one repetitive sound, to parallel complex sounds (multiple polyphonic sounds/parts), from the lowest notes of a dark colour to brilliant-high overflowing passages, from the simple recitative in the beginning – to virtuoso passages at the limit of the vocal cords. All of these principles create a certain emotional atmosphere of "overcoming" the struggle, striving toward the light, struggles and result in floating, purification, nirvana.

Did you draw on the dramaturgical organisation of *mugham* in this work? How?

The dramaturgical of *Mugham* is very close to B. Asafyev's statement 'about the formation of form,' saying that it can be completely attributed (or relates) to the drama of *Mugham*. Every given moment in *Mugham*, means nothing, but takes on great importance in the context of the whole, the entire composition.

Could you explain how the model and melodic features of *mugham* have been incorporated in the work?

The main foundation/building blocks for *dastgah* is the fret of each *Mugham*, which is unique and not similar to any other system of modes (major, minor, Greek). These are the modes and structural basis of my compositions. The intonational brightness of *Mugham* frets – *Rast, Shur, Segah, Chargoi, Bayati-Shiraz, Shyushter, Humayun* – immediately differs from the melodic structure familiar to 'European ears.' The intonation content is contained in the 'Mode' of the *Mugham*. There, when using the modes, it is impossible to be out of the intonation 'capacity' of certain *mugham* frets.

Were specific modes/frets used?

What is different about my compositions is the combination within a single musical stream of several *mugham* modes and a broad system of modulation from one mode into another. First – '*Shur*', then in the dramatic episode – '*Chargoi*,' in the lyrical Arioso '*Byastya-Nigar*,' and so on.

How closely do you follow traditional *mugham* formula and the form of *gushes* in the work?

In this composition, instead of the major-minor system, I 'speak' the language of *mugham* modes. But it is clearly not a traditional *mugham*, which has its own clear system of '*gushes*', partitions, and free composition, developing the laws of the composers will.

Do you use *gushes* to create certain theme-images?

Sometimes the themes coincide with the intonation of certain systems, but, basically, my melody in built on the principle of 'seriality' of the four sounds.

The cello part for *Habil Sayagi* is fully notated, though both a solid understanding of the musical style and artistic interpretation seems to be needed in order to perform the piece convincingly. Do you believe it is necessary for the performer to have an understanding of *mugham* in order to give a convincing performance of the work?

I try to notate the cello part as precisely as possible. It is enough for the performer to execute all the instructions on the score, to get close to an adequate interpretation. But, if the performer is familiar with the art of *mugham*, understands it, then, naturally, his performance will be even more convincing. We do not require performers of Bach's 'Passion' to have an understanding of the theological foundations of Christianity. However, if the performer is familiar with them, their interpretation will be more impressive.

In *Habil Sayagi* you ask that the cello imitate the playing of Alyiev Habil and his *kamancha*. Is the Western cellist required to analyse Habils' playing in order to gain some knowledge of how the *kamancha* is played?

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The answer is the same as in the previous question. To know, to hear, and to imitate the voice/sound of Habil's *kamancha* would be idea, but if you precisely perform the score, then, you can still achieve the effect, 'reproducing' his manner of playing.

Are there specific aspects of Alyiev Habil's style you would like the cellist to imitate? Did you have a particular *mugham*/piece in mind?
In my composition, most of all there is a desire 'to sound' in the manner of a performer on the *kamancha*, by the means of a virtuoso European instrument with unlimited range and technical capabilities. Also to make this music really come to life, bright and shiny to demonstrate the abilities of a virtuosic performer.

You have transported the cello into *mugham* styled pieces in both *Habil Sayagi* and your later work, *Dervish*. Do you believe the cello is especially malleable and fitting for playing music in the *mugham* tradition, and imitating and collaborating with Azerbajani instruments?
Yes, the cello is ideally suited for this role.

Two Interviews with Michael Cryne:

Hearing Voices **(2011) for Solo Cello and Electronics**

March 29th, 2012

Could you explain your ideas about 'non-narrative' coherence and how these are applicable in *Hearing Voices*?

Yes, although I want to talk about this in relation to another piece, which is a more complete realisation of this principle. The piece uses the Japanese Noh theatrical structure of Jo-Ha-Kyu as the underpinning of the work. Broadly, this principle is an increase in intensity throughout, rather than a traditional western 'arc' shape. I often use 'narrative' principles like this as the logical framework of a piece. This level of coherence is what I refer to as 'top-level' coherence, or 'macro-coherence'. There is a direction, a binding structure to the work that helps me make compositional decisions on a micro level.

Non-narrative coherence is a principal I often use at a micro level. Indeed, 'micro-coherence' is the term I use for it. I often use techniques such as reverse variation (see Henri Duttileux for much use of this technique) which varies the musical material before it has been fully introduced. Indeed, in the piece I refer to above (as yet untitled), the entire first movement uses this technique (alongside some others, such as rotation) to create the first movement. This is one type of 'non-narrative coherence'.

An interesting diversion here is the impossibility of true 'non-narrative coherence' in the linear work. Music, being a temporal art, must be listened to from start to finish (even if the listener is free to choose at what point they enter the music, there will still be a start and end point for them) and therefore true 'non-narrative coherence', at least as far as the listened experience, can never, in fact be possible. The listener will hear the full material (stated in full at the opening of the second movement) as being narratively attached to the preceding fragmentation, even though the musical material was the first composed. The order of composition makes no difference to the listener whatsoever.

Could you explain the coherence of this particular musical 'journey'?

This is a different type of non-narrative coherence. *Hearing Voices* moves from musical material as ordered building blocks in a Beethovenian sense, to being loosely collected 'scraps' of material. I've broadly used two programmatic concepts in this piece. The first is the 'subject' – the material here tends to be (as at b3) less chaotic than much of the material. There's no true 'development' of this material, although the fact that it repeats amid the rather chaotic soundworld does provide an 'anchor point'. I've chosen more consonant intervals for these fragments, and used some basic development techniques (look at the relationship between b3 and b19 for example, I've used fragmentation and extension here, it's quite conventional writing actually if you just look at these bars). The second is the 'voices'. As you're by now aware, this uses noise and effects to great use, and the piece reaches sound sculpture at points. As the piece moves on, the 'subject' material (b3.) is modified, altered and distorted. I've taken the broad thrust from a very vivid description of hearing voices, which I'd like to remain confidential (for obvious reasons). The voices alter, interfere with the subject, despite lucidity at some points (see b53 for an example of this). While I didn't keep a detailed list of exactly which alteration process I was using at which point (sorry about that), I have used rather conventional techniques to achieve this end, from simple repetition to transposition, extension, diminution etc. In that respect, there is a 'narrative' coherence at micro level. There is also a 'narrative' coherence at macro-level. As I've said before, the title and the experiential aspect is vital to understanding this work. However, for me, there's also 'non-narrative' coherence at work here; the 'narrative' development of the subject material is constantly interrupted by the jarring intrusion of the 'voices' (b6 for example). This prevents a clear A-B journey through clearly recognisable modification of material, or –non-narrative coherence as I term it.

How have you structured/formed the work? What harmonic language have you used?

Broadly, the subject material is 'tonal' (although it has no functionality in the way traditional tonal music does) and the voices material is extremely atonal, although the natural harmonic series is used heavily. Certain pitches or pitch sets have been chosen because they respond well to the electronic effect being applied. Once we're into

'voices' material, all bets are off, and it's better to approach this work from a sonic perspective, rather than trying to identify any specific modes etc.

The programmatic element for me is huge. The audience and listener will gain much from knowing that the piece is an 'inhabitation' of an auditory hallucination. This makes some traditionalists very uncomfortable – it's 'extra-musical' material. But because the material is so abstract – the melodic content is so unmemorable (despite one or two fragments) that knowing what the 'macro-level' musical journey is will greatly enhance the listening experience.

The piece is an 'experience' piece. While there's interplay between musical ideas, one never really affects the other – timbral quality is the primary concern here, not any motivic interaction or developmental trajectory. It's what I refer to as 'non-narrative' coherence. You're not necessarily (as the listener) directed to make any connection between materials. In fact, I've chosen the most oppositional materials I possibly could – the piece begins with microtonal, intensely rapid patterns. These are the 'voices'. The 'subject' is illustrated by the natural harmonic series – those open strings and natural harmonics which feature so heavily. There is interplay between the two differing patterns, in fact I'd say one becomes the other and vice versa – very much in the way that the consciousness is affected by the voices they hear.

Have there been any major influences in the development of your musical style and more specifically, *Hearing Voices*?
Harvey is massive for me, as is Saariaho (Spins and spells by Saariaho, as well as Petals.) In fact, petals (and Saariaho's work generally) has been more influential on this piece than most. I'm also heavily influenced by Takemitsu and his soundworld, although you wouldn't spot that from this piece alone. Gerard Grisey, Tristain Murail and the rest of the spectralists have been influential in my development as well. Mind you, on the other side of that coin, I've always wanted to create visceral experiences, very much like Harrison Birtwistle – I don't believe that music has to make you feel comfortable. For me, Birtwistle comes alive when he stops being overly intellectual and lets his musical instinct fly – rather than his arcane logic puzzles which hold little aural interest (they're interesting to study, like the principles of serialism, but they add very little to the actual listened experience, in my opinion).

How closely does the cellist need to follow the score? Are there times when the 'effect' is more important than following the precise notation? In the difficult chromatic sections is 'faking' allowed?

Broadly, no. I've spent a long time matching the effects to the material. As you discovered, the quarter tones exist for a reason (there is quarter tone modulation going on in the effects). Because the performer is interacting with the electronics, going too far off-piste will result in wildly unpredictable results. In order to bridge this gap (the material is hard, there's no doubt about that) we've worked instead to analyse what's possible, and what's impossible. I've been happy to modify and alter, as this gives me proper control alongside the electronic effects.

Do you think a different performance criteria is required of the cellist with this piece, specifically when playing with electronics and pedals?

Of course, it takes a little familiarity to get to grips with pressing a pedal at a rehearsal mark, but I would argue this isn't massively beyond most cellists. Monitoring might be something we want to investigate further – it's extremely hard playing consistently with the swirl of electronics around you, as we've discovered, a more effective monitoring solution might be wise.

Do you believe a different understanding of the instrument, and knowledge of the style is necessary in order to perform the work accurately?

Yes and no. This work contains some incredibly difficult writing, and, in your own words, 'it's the apparently easy bits that are actually really difficult'. This work is at the edge of technique, much of the time. I imagine it's beyond 90% of cellists. However, as to style, I'm not sure. The music is, after all, on the page, there's no unconventional notation as such, and the effects are all done for the player. What I do think is important is to have an understanding of the context of the work, the 'explanatory note' aspect, if you will. Your quite wonderful teacher, who I was worried may be a little sceptical, came to life once she had fully inhabited the programmatic element of this work. Surprisingly to me, I think this work would be wonderfully performed by cellists more used to the core repertoire. It's a highly expressive piece. I'd hate for only 'contemporary specialists' to take on this piece. Of

course it's challenging, and I still feel it's beyond most players, but nevertheless not beyond any skilled player.

In order to perform the work, the performer needs to have access to a lot of additional equipment, for example, a computer, soundcard, pick up, pedals and Ableton live, do you think this will put off the 'average' cello player?
Yes. It's a limitation. It's a lot of kit.

Can the work be performed without the help of a sound engineer?
I don't think so, not at this stage. It obviously depends on the player, but I think the addition of a sound engineer (who can assist with the effects in live performance as well, and balance levels etc) is pretty much mandatory when performing most electronic works.

The work was originally written for cello and dancer, how/did this concept influence the way in which the work written?
Broadly, not much. The original concept was to develop a work about being alone, and response to another person. You can see where I got the idea of hearing voices from, I'm sure. But I only spoke to the choreographer once, so I quickly dropped the idea of a dance piece. I think a dance piece would need to have much more rhythm to it.

Follow up interview: August 15th, 2012

You said that the programmatic element is the most important to you and the 'extra-musical', can you explain this a little further?
This is an interesting way I've put it. 'Most important', might actually be better expressed as 'primary', or 'first'. That is, it was the programmatic element that came before any single musical consideration at all. Hearing Voices was originally conceived as a dance work, and it was this subject matter that came before any musical ideas at all.

However, the programmatic element was always at the forefront of how I was writing. While the piece goes 'beyond programme music' (more on this later), there are

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definitely programmatic elements to the piece, and the understanding of the piece (I believe) will be enhanced by a listener being aware of the programmatic elements.

I'm extremely interested in this relationship between non-musical stimulus and the process of composition, where the composer has structured a piece around, say, an extra-musical narrative (Symphonie Fantastique is a good example of this type of writing). However, in contemporary music, there exists a layer of abstraction, due to the more abstract nature of contemporary musical material. So while a programmatic element definitely exists, and indeed Hearing Voices is programmatic to a high degree, it isn't programme music in the same way as a Strauss tone-poem is, for example.

The way I have used my external stimulus here then, is on two levels. Firstly, 'top-level' aesthetic – the age-old musical considerations that a composer goes through when planning any piece, i.e, 'Do I want to write a fast piece, a slow piece, a happy piece or a sad piece?' These elemental concerns, which we still tell our students to address when beginning their first tentative exercises in composition, are still pertinent questions at any level. The nature of the external stimulus came before any specific musical decisions, therefore, I would argue that the programmatic/external element was fundamental, and therefore, at least of equal importance to any specific musical decision.

The second level is that of structure. I've always felt a tension when writing my music, between abstraction and clarity. This is hardly unique to me as a composer; it exists for every composer, especially one working in a post-tonal idiom. I always refer back to Birtwistle's contention that tonality prevented a listener from becoming 'lost', the journey of tonality seemed to be much more universal than the journey of logical coherence alone. While I don't accept this in its entirety (I think a lot of what passes for engaged listening in much tonal music is nothing of the sort), I still broadly accept the contention that there are unique challenges that working with abstract material presents. The most significant of these for me is large-scale structure. As a trained composer, I'm well aware of the plethora of musical techniques that exist, from simple devices like pitch rotation, to more complex structural devices like canons etc. However, when working in 'free' form, with abstract material, I often felt

lost. I therefore began to use extra-musical stimuli to provide a macro-structure, at which point micro-level decisions became a lot easier.

Using Hearing Voices as an example, I decided on two functional elements of music. One, broadly representing a 'subject' (b3 & b11), and a second element representing 'voices' (b6). Structurally, the piece then felt extremely easy to construct, with these two elements interacting with each other, each being affected by the other. I envisaged a trajectory – from my research into Schizophrenia, I understand that many people come to an accommodation with their 'voices', and wanted this accommodation to be the end point.

So, in essence, I find constructing music around an extra-musical element in this way, with the non-musical element providing a loose structure, or backbone, incredibly useful. It provides a balance between logic and rigour (I use rotation, inversions, retrograde etc a great deal) and instinct, the desire to let the next musical element emerge from what has come before, in a quasi-improvisatory way.

Would you say this is a common characteristic of music written in the spectral style (an interest in the 'extra-musical' material)?
This one is easy. No, not at all. In fact, I'd be reluctant to characterise *Hearing Voices* as a spectral piece. I'm definitely influenced by Spectralism (more anon), but *Hearing Voices* isn't (on the whole) a spectral piece, at all.

What aspect of the spectralist style would you say has influenced you the most?
At the risk of using wikipedia, "The Istanbul Spectral Music Conference of 2003 suggested a redefinition of the term "spectral music" to encompass any music that foregrounds timbre as an important element of structure or musical language". This is definitely the aspect of spectral music that has influenced me the most. A lot of the music I'm currently writing is extremely abstract – much of the musical material within *Hearing Voices* becomes pure timbre at points, as the sound is processed through the various effects plugins.

While I salute the spectralists desire to 'pin down' timbral elements of sound, I find the phenomenological approach much more satisfying - treating sound as

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encountered, rather than analysed, although I do use tools such as a spectrum analyser sometimes, to determine aggregate frequency (at b6, for example, I wanted complete pitch indeterminacy around a given frequency range. I ran this quarter tone section through a spectrum analyser, to make sure one pitch wasn't being over-emphasised over the others).

What would you say is the 'substance' of music written in the spectral style (beyond the manipulation of spectra and experiments with colour)?
For me, the 'substance' or most crucial aspect of spectralism is an awareness of sound itself. Whether this be dissolving a complex tone into its harmonic partials, or using a Fast-fourier transform to modify a tone – it is precedence given to timbre - in this way, one can consider Debussy a 'spectral' composer – as the timbres he created are placed on an equal footing to any motivic development or harmonic arc.

You said the 'subject' is illustrated by the harmonic series, can you be more specific within the context of the score?
Yes, this is really rather simple, I'm afraid. Look at the pitches at b11 - C, E and C. They're in the natural harmonic series of C (4th and 5th partials). I've used this 'motif' at several points in the score (b18, for example, although transposed, and then again at b.78). It's what I call an 'anchor' point; it fulfils a similar role to a cadence in tonal music.

You make great use of artificial harmonics in the piece, is there a specific reason why you chose to incorporate them? Is there something special about them?
There's one very simple, practical reason - there are many, many artificial harmonics that can be constructed – much more than natural ones. It just gives more pitch choice.

But secondly, and more importantly, it's the sound. Harmonics of all different types worked especially well with the palette of effects I created – because they're 'simpler' tones, the sound can be processed to a higher degree – think about all the frequencies coming into the effect unit from a natural tone. By using harmonics, the degree of the effect can be much greater, without generating lots of 'noise'. They also fit very well

with the timbral language as well, they're an 'extended' technique, and simply work well as part of an extended timbral vocabulary.

You said you have applied certain pitches or pitch sets as they respond well to the electronic effects being applied, could you explain this slightly more and maybe give an example from the score? When you say 'pitch sets', are you referring to spectra?

Actually, more than pitch sets, I found that certain frequency ranges responded very well to certain registers. Bar 6 is a good example of this. There's a microtonal delay effect at this point, combined with the microtones in the cello. It was a rather simple, if long-winded, process to work out what the 'acceptable' frequency range for each effect combination was. For example, at b6, the overall effect, when moving the musical material any higher than the current given pitches, changed dramatically to the ear. I also had additional musical considerations, e.g. I wanted to pre-figure the C/E/C use @b11, and felt that basing bb6-10 around C as an 'anchor' (it is also the last note, used as a quasi-'pedal') meant that the opening section (up to the end of b12) hangs together aurally.

Let's take another example, bar 19. Again, a delay effect is being used, so the working frequency range is slightly limited – to high and the delay effect produced results in a lack of clarity – too low and the same problem occurs, but with the additional factor of low frequency 'noise'. This shaped the quasi-melodic, almost motivic-like section of music here. Again you see how timbral considerations were as much part of my compositional process as melodic considerations.

Your use of microtones combined with the electronics is very effective in *Hearing Voices*, was there a specific reason why you chose to use them?

Only in the sense that they, combined with the microtonal effect, provided a highly interesting timbral quality, and are extremely expressive. They're not quite limited to gestural qualities, but I don't deny, coupled with the microtonal pitch shifting effect, that these sections are highly effective.

Appendix 3

Cello Works by Franghiz Ali-Zadeh

Ask Havasi (1998), for violoncello solo, was written using traditional Western notation but is based on an Eastern theme. Written while the composer was living and working in Turkey, it is a folkloric narration, illustrated by Persian miniatures, Leyla and Megnun (*Leyla ile Mecnun*) by Mehmet Fuzulî (also spelled Muhammed Fizumi; 1494–1555/1556). Like many of the composer's works, the theme is one of love. The Turkish word *ask* means love, in the broadest sense of the word. *Hava* (plural *havasi*) encompasses a variety of meanings, such as 'air', 'mood' (mentally and musically), 'emotion', 'impression', 'melody', 'mode' (*mugham*), 'metre', and 'dance'

The work is shaped around one long melodic line which is traditionally sung (or in this instance, played) out of love; Ali-Zadeh employs directions such as 'with a resonant, beautiful tone', '*amoroso*', '*dolcissimo*', '*grazioso*', '*agitato*', '*cantabile*', and '*leggiero*' to describe this character of the composition.[332]

The metre is free throughout, and the composer offers no indication of time signature or bar lines, consequently granting a great deal of interpretative license to the performer. Like *mugham*-interpreters, who improvise differently depending on the mood and level of ecstasy, the cellist may decide at certain points how often (s)he wants to repeat the motif, how long to 'savour' a passage. Though based on an Eastern (Turkish) story and showing obvious *mugham* influences, *Ask Havasi* sounds the least *mugham*-inspired of all her cello pieces, drawing instead on contemporary Western techniques that were popular amongst composers during the twentieth century. Examples of these techniques include: full use of the high registers of the instrument, *glissandi*, various pressure techniques, dissonant chordal playing, and the inclusion of the voice.

In *Dervish* (2000), a septet for violoncello solo, violin, viola, *ney-tutek, kanun,*

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[332] Franghiz Ali-Zadeh, *Ask Havasi* (Hamburg: Sikorski, 1998).

gosha-nagara, and narrator or tape, the composer's individual style is firmly established. Merging Azerbaijani and Western instruments, written text, and traditional improvisation, 'Ali-Zade creates her Dervish as a dialogue between a man and his soul, a khanande and a cello player, improvised music and composed' [*sic*].[333]

A dominant *mugham* character can be heard from the outset of this piece. The soundscape for the vocal recitation is set with an instrumental opening – the *ney* begins, followed by short motifs on the *gosha-nagara* (kettle drums) and *kanun* (zither), which fade away into silence. From this silence a soft sustained A in the viola and violin creates an intense atmosphere interrupted by the rhythmical patterns of the *gosha-nagara* and *glissandi* of the *kanun*. The section centres on the note A, with intensity and colour added through rises in register and dense ornamentation. Out of this, the foreign (Western) cello emerges, taking on the role of the soloist. As the singer (*khanande*) begins, the cello embraces and expands the dervish's voice, extending and broadening the vocal part, evoking an image of a crying, dancing dervish.

Counteractions (2002/2003), for violoncello and accordion/bayan, is another musical narrative based on folk traditions from Ali-Zadeh's native land. This story conveys passion and desperation, and the composer again draws on contemporary Western cello techniques to tell her folk tale. This piece is also referred to as *Yanar Dag*. The composer explains in her programme notes that *Yanar Dag*, translated 'burning mountain', is a place in Azerbaijan where one can find burning soil caused by oil from deep underground catching fire when it surfaces. In this legend, the fire (accordion) leaving the mountain comes from a man in love (violoncello). Ali-Zadeh wrote: 'The monumental spatial sound of the accordion [is] like the grumbling of the earth confront[ing] the excited "human" voice of the cello. Both are in eternal antagonism because there is no power to overcome the grief as well as there is no power to extinguish the flame of love'[334] In this work, we see the influence of Tatar-Russian composer Sofia Gubaidulina, who used the bayan in her chamber works for cello and bayan, including *In Croce* (1979) and *Seven Words* (1981).

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[333]Inna Naroditskaya, *Song from the Land of Fire* (New York: Routledge, 2002), 201.
[334] *Ulrike Patow,* 'Classic Clips'.

Ali-Zadeh ventures further into the world of improvisation and indeterminacy in music in her *'Oyan!'* (2005), for violoncello solo. Literally translated *'Oyan!'* means 'Wake up!' or in an extended interpretation: 'Come to yourself! Take courage! Oppose!' The composer states in her programme notes that she envisioned that the performer taking ownership of the work: 'Based on the title of the piece, every cellist is able to present his style. Fantasy and courage are very welcome within the interpretation.'[335]

Ali-Zadeh provides a sense freedom and flexibility for the performer through various means. These include: sections with optional percussive effects (to underline the tension and build momentum); a *dolcissimo* section (bars 86–93), where two versions (*ossia*) are available; harmonic sections which should be performed completely spontaneously (for example, in the bars 176–178 the performer can choose to play either fourth flageolets or quint flageolets, each creating different pitch results); fast rhythmic and metric changes; and numerous *accelerandi* and *ritardandi* during which the performer can dictate the flow of the musical line.

The composer has written several other works for the cello of note, including *Mersiye* (2002), concerto for violoncello and orchestra. Translated as 'elegy,' the composer employs six percussionists, harp and celesta in her orchestra to create a rhythmic, dramatic and impassioned lament for the dead. Unusual colours and textures are created when the cello is combined with this atypical ensemble, with Ali-Zadeh utilizing the full range of the instrument and various contemporary techniques in the solo part. And finally, *Shyshtar* (2002), metamorphoses for twelve violoncelli, and *Sehnsucht* (2004), concerto for soprano, violoncello and orchestra. While all of the pieces mentioned exhibit many features typical of Ali-Zadeh's individual style, *Habil Sayagi* remains the best example of the composer's mingling of Eastern and Western styles and is the foundation for many of her compositions that followed.

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[335]*Ulrike Patow,* 'Classic Clips'.

Appendix 4
Glossary of Terms

Ashig. A singer and poet accompanying himself with the *saz*

Avaz. A short motif; several *avazes* may constitute a *gushe*

Daf or *gaval.* Tambourine-like instrument; played by a *khanande* during a *mugham* performance

Dastgah. Complete *mugham* composition, includes metrical and improvisatory sections

Gazal. Poetic form used in *mugham*, consists or four to fifteen *beits*, the formula of a *ghazal* is: *AA, BA, CA, DA*

Gushe. A theme-thesis, an identity card usually introduced at the beginning of a section, the development of which is based on endless repetition, modification, and ornamentation.

Haram. 'Prohibited,' a term often applied to music in traditional Islamic society

Kamancha. A spiked fiddle

Khanande. A singer of *mugham*

Maye. Central to *mugham* composition, it has several meanings: 1) a tonic; 2) a tonic zone in the central section in the composition; 3) a modal home

Marsia. Lament

Mugham. 1) Model system underlying Azerbaijanian music; 2) compositions (*mugham-dastgah*) based upon specific tonal, rhythmic, melodic and formal organization; 3) a concept related to Arabic *maqam*, Turkish *makam,* Persian *dastgah* and Indian *raga*

Nagara. A small pair of kettledrums

Rang. A dance-like instrumental section of a *dastgah*, provides transition between and contrast to improvisational sections

Saz. A fretted lute, a relative of the Turkish *baglama*

Sho'bes. Mainly known as a section of a *mugham* composition historically it was also referred as a segment of a *mugham* scale associated with a specific section of the performed composition

Tar. A plucked string instrument that accompanies the *khanande* in *mugham* performance, also a solo instrument in instrumental *dastgah*

Appendix 5

List of Works Mentioned in, or Relevant to the Text

(Listed in order of first appearance)

Introduction

Friedrich Gruzmacher, *Hohe Schule des Violincellospiels* (1891)

David Popper, *Hohe Schule des Violincellospiels, Op. 72* (1901–1905)

Louis Feuillard, *Excercises Journaliers pour Violoncelle* (1919)

Artyom Vassiliev, *Trio* for bayan, cello, and percussions (1998)

Salvatore Sciarrino, *Due Studi* for cello solo (RP)

Jacob ter Veldhuis, *Ta Ta Ta Ta* for cello and ghetto blaster (RP)

Frances-Marie Uitti, *Mensognie della Notte* for cello and laptop (RP)

Siegfried Palm (ed.), *Pro musica nova: Studien zum Spielen neuer Musik: fur Violoncello* (1985)

Franghiz Ali-Zadeh, *Habil Sayagi* (1979) for cello and piano,

Michael Cryne, *Hearing Voices* (2011) for solo cello and electronics

Chapter One

 Zoltan Kodaly, *Sonata* Op. 8 for solo cello (1915)

Anton Webern, *Three Little Pieces* Op. 11 (1914)

Morton Feldman, *Projection I* for solo cello (1950)

Morton Feldman, *Intersection IV* (1953)

Earle Brown, *Music for Cello and Piano* (1955)

Randy Raine-Reusch, *Sparrow's Wing* (2007)

Helmut Lachenmann, *Pression* for solo cello (1969)

Helmut Lachenmann, *Notturno* for small orchestra and solo cello (1966/67)

Krzysztof Penderecki, *Sonata* for cello and orchestra (1964)

Krzysztof Penderecki, *Capriccio per Siegfried Palm* for solo cello (1968)

Krzysztof Penderecki, *Cello Concerto No. 1* (1972)

Kryszton Penderecki, *Cello Concerto No. 2* (1982)

Krzysztof Penderecki, *Per Slava* for solo cello (1986)

Krzysztof Penderecki, *Divertimento* for solo cello (1994)

Krzysztof Penderecki, *Concerto Grosso* for three cellos and orchestra (2000–2001)

Krzysztof Penderecki, *Largo* for cello and orchestra (2003)

Krzysztof Penderecki, *Serenata* for three cellos (2008)

Sofia Gubaidulina, *Ten Preludes* for violoncello solo (1974)

Sofia Gubaidulina, *Detto-2* for cello and small orchestra (1972)

Sofia Gubaidulina, *Ten Preludes* for solo cello (1974)

Sofia Gubaidulina, *In Croce* for cello and organ/bayan (1979)

Sofia Gubaidulina, *Seven Words* for cello and string orchestra (1981)

Sofia Gubaidulina, *Aus dem Studenbuch* for cello, orchestra, male choir and reciter (1991)

Sofia Gubaidulina, *Und: Das Fest ist in vollen Gang* for cello and orchestra (1993)

Sofia Gubaidulina, *Canticle of the Sun* (1997-1998) for cello, percussion instruments and choir

Sofia Gubaidulina, *Quaternion* for four cellos (1996)

Sofia Gubaidulina, *Mirage: The Dancing Sun* for eight cellos (2002)

Sofia Gubaidulina, *On the Edge of the Abyss* for seven cellos and two aquaphones (2002)

Sofia Gubaidulina, *Labyrinth* for twelve cellos (2011)

Sofia Gubaidulina, *Vivente – Non vivente* for ANS synthesizer (1970)

Sofia Gubaidulina, '*Heute früh, kurz vor dem Aufwachen*' (1992–1993)

Mario Davidovsky, *Synchronisms No. 3* for cello and pre-recorded tape (1965)

Carl Vine, *Inner World* for amplified cello and tape (1994)

David Lang, *World to Come* (2010)

Tom Flaherty, *Trio* for electric cello and digital delay (1991)

Carlos Rodriguez, *Crater Lizards* (1986)

Michael Cryne, *Hearing Voices* for solo cello and electronics (2011)

Ken Steen, *Shadows and Light* (1989)

Michael Gatonska, *On Connecticut Naturalism* (2003)

Anna Rubin, *Landmine* (2001)

Brian Ferneyhough, *Time and Motion Study II* (1973-76)

Mauricio Kagel, *Match* for two cellos (1964)

Michael Gordon, *Industry* for solo cello and electronics (1992)

Steve Reich, *Cello Counterpoint* for cello and pre-recorded tape (2003)

David Fennessy, *The Room is the Resonator* (2009)

Gillian Whitehead, *The Journey of Matuku Moana (1993)*

Brigid Bisley, *Waiata* for cello solo and tape (1995)

Additional works of relevance

Iannis Xenakis, *Nomos Alpha* (1965-1966)

Iannis Xenakis, *Kottos* (1977)

Dmitri Shostakovich, *The Nose* (1927–1928)

Alfred Schnittke, *Faust Cantata* (1982)

Alfred Schnittke, *Peer Gynt* (1986–1987)

Edward Varèse, *Deserts* for orchestra and tape, (1950–1954)

Henk Badings, *Capriccio* for violin and two sound tracks (1952)

Rolf Gehlhaar, *Solipse* for cello and tape delay (1974)

Meyer Kupferman, *Concerto* for cello, tape, and orchestra (1974)

Lukas Foss, *Cello Concerto* (1966)

Barry Truax, *Etude* for solo cello and two sound tracks (1984)

David Behrman, *Figure in a Clearing* for cello and thirty-three electronic generators (1977)

Tod Machover, *Electric Etudes* (1983)

Tod Machover, '*Begin again again…*' (1991)

Karlheinez Essl, *Sequitur IV* for cello and live-electronics (2008)

Gabriel Prokofiev, *Multitracks* suite for solo cello and multitracked cellos (2010)

Gustav Mahler, *Das Lied von der Erde* (1908)

Darius Milhaud, *Saudades do Brasil* for piano (1921)

Zoltán Kodaly, *Duo for Violin and Cello*, Op. 7 (1914)

Zoltán Kodaly, *Sonata* for solo cello, Op.8 (1915)

Hector Villa Lobos, *Cello Concerto No. 2* (1953)

Astor Piazzolla, *Le Grand Tango* (1981)

Peter Sculthorpe, *Requiem for Cello Alone* (1979)

Peter Sculthorpe, *Cello Dreaming* for cello, strings and percussion (1998)

Peter Sculthorpe, *Into the Dreaming* for solo cello (1993)

Peter Sculthorpe, *Sonata for Cello Alone* (1959)

Peter Sculthorpe*, Tailitnama Song* arranged for cello and piano (1974, cello version 1989)

Peter Sculthorpe*, Djilile* for cello and piano (1986)

Peter Sculthorpe*, Threnody* for solo cello (1992)

Peter Sculthorpe*, Parting* for cello and piano (1995)

Peter Sculthorpe, *From Saibai* for cello and piano (1992)

Bakhtiyar Amanjol, *Two Pieces* for cello and piano

Bakhtiyar Amanjol, *Yanzi* (Swallow Song) for voice and cello

Chapter Two

Muslim Magomayev, *Shah Ismayil* (1916)

Uzeyir Hajibeyov*, Leili and Mejnun* (1907)

Uzeyir Hajibeyov*, Koroghlu* (1937)

Fikret Amirov, *Shur, Kurd Ovshari* (1948)

Fikret Amirov, *Gulistan Bayati Shiraz* (1971)

Niyazi, *Rast* (1929)

Franghiz Ali-Zadeh, *Mugham Sayagi* (1993)

Franghiz Ali-Zadeh, *Sonata for Piano*, No. 1 (1970)

Franghiz Ali-Zadeh, *Concerto for Piano and Orchestra* (1972)

Franghiz Ali-Zadeh, *Symphony* (1976)

Franghiz Ali-Zadeh, *Ask havasi* for violoncello solo (1998)

Alexander Knaifel, *Lamento* for solo cello (1969)

Pêteris Vasks, *Book*, for solo cello (1978)

Giya Kancheli, *Nach dem Weinen* for solo cello (1994)

Alexander Raskatov, *Kyrie Eleison* for solo cello (1992)

Nikolai Korndorf, *Passacaglia* for solo cello (1997)

Franghiz Ali-Zadeh, *Dervish* septet for violoncello solo, violin, viola, *ney-tutek*,

kanun, *gosha-nagara*, and narrator or tape (2000)

Franghiz Ali-Zadeh, *Counterations* for violoncello and accordion/bayan (2002/03)

Franghiz Ali-Zadeh,*"Oyan!"* for violoncello solo (2005)

Franghiz Ali-Zadeh, *Mersiye* concerto for violoncello and orchestra (2002)

Franghiz Ali-Zadeh, *Shyshtar* metamorphoses for twelve violoncelli (2002)

Franghiz Ali-Zadeh, *Sehnsucht* - in progress (2004)

Franghiz Ali-Zadeh, *Mugham Sayagi* for string quartet (1993)

Alexander Scriabin, *The Poem of Ecstasy* (*Le Poème de l'extase*) Op. 54 (1905–1908)

Alexander Scriabin, *Le Divin Poème* (*The Divine Poem*) (1904)

Richard Strauss, *Thus Spoke Zarathustra*, Op. 30 (1896)

Edward Elgar, *Cello Concerto in E minor*, Op. 85 (1919)

Chapter Three

Kaija Saariaho, *Spins and Spells* for cello solo (1996)

Kaija Saariaho, *Petals* for cello and electronics (1988)

Additional works of relevance

Jonathan Harvey, *Dialogue and Song* (1965/1977)

Jonathan Harvey, *Curve with Plateaux* for solo cello (1982)

Jonathan Harvey, *Ricercare una Melodia* for cello and tape delay (1985)

Jonathan Harvey, *Three Sketches* for solo cello (1989)

Jonathan Harvey, *Concerto for Cello* (1990)

Jonathan Harvey, *Philia's Dream* (1992)

Jonathan Harvey, *Chant* for solo cello (1992-94)

Jonathan Harvey, *Pastorale* for cello and harp (1994)

Jonathan Harvey, *Adyaya* for cello, electronic keyboard and electronics (1994)

Jonathan Harvey, *Cello Octet* for eight cellos (2008)

Kaija Saariaho, *Petals* for cello and electronics (1988)

Kaija Saariaho, *Jing* for soprano and cello (1979)

Kaija Saariaho, *Im traume* for cello and piano, (1980)

Kaija Saariaho, *Neiges* for eight cellos (1998)

Kaija Saariaho, *Oi kuu* for bass clarinet and cello (1990)

Kaija Saariaho, *Près* for cello with electronics (1991)

Kaija Saariaho, *Spins and Spells* for cello solo (1996)

Kaija Saariaho, *Sept Papillons* for cello solo (2000)

Kaija Saariaho, *Changing Light* for soprano and cello (2002)

Kaija Saariaho, *Notes on Light* for cello and orchestra (2006)

Kaija Saariah, *Etincelles* for cello solo (2007)

Kaija Saariaho, *Mirage* for soprano, cello, and orchestra (2007)

Kaija Saariah, *Dreaming Chaconne* for solo cello (2010)

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