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ARTISTIC EXPERIMENTATION IN MUSIC:

AN ANTHOLOGY

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# Artistic Experimentation in Music

An Anthology

Edited by  
Darla Crispin and  
Bob Gilmore

Leuven University Press

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# Introduction

Darla Crispin and Bob Gilmore

This book is an anthology of writings about an emerging area of research: artistic experimentation in music. The paradox implicit in this opening proposition—can one already confidently make an anthology of texts about so recent a field of enquiry?—is here answered in the affirmative. The editors believe the time is ripe for a first gathering of materials from this cross-disciplinary terrain, which cuts across and between the boundaries of the conventional categories of performance, composition, historical and critical musicology, performance studies, musical analysis, reception theory, aesthetics, and much else.

The majority of the thirty-five texts have been written especially for this volume, and those few that are here reprinted from other sources are all of very recent vintage. The book is therefore somewhat unconventional in departing from the traditional concept of the anthology as a collection of texts of disparate origins in time and place. This is, rather, an anthology of the present. Moreover, the material is united by its common genesis in the work of one particular institution: the Orpheus Research Centre in Music (ORCiM), in Ghent, Belgium, founded in 2007 with the explicit aim of addressing questions and topics at the heart of musical practice, building on the expertise and perspectives of musicians and engaging in dialogue with longer-established research disciplines. This volume includes material resulting from the most recent research agenda of ORCiM, currently in its second phase: an exploration of artistic experimentation in music.

For readers unfamiliar with the aims of ORCiM, a brief explanation might help to shed light on the nature and scope of this book. ORCiM is an independent institution dedicated to artistic research in music. Its Research Fellows have in common that they are also musical practitioners, and the questions they explore are ones that emerge from their ongoing musical activity. This practice often involves activities that range across music and beyond, into the domains of the visual arts, literature, philosophy, and much else.

ORCiM's recent focus on artistic experimentation in music, the theme of this anthology, is an institution-wide project that began in 2010 and is still continuing. "Experimentation" here should not be taken to refer only to the twentieth-century development of *experimental music*: rather, the kind of experimentation described here is an attitude—or perhaps a wide-ranging set of questions—that can be applied to any sort of music, as the articles on Monteverdi, Brahms and jazz make clear.

The articles within this anthology, therefore, do not articulate a single view about what artistic experimentation in music *is*, or what specific activities it

entails. The articulation of a diversity of approaches, and even the uncovering of tensions, is an important aspect of this collection, given the early stage of development in the artistic experimentation research trajectory as a whole. This refusal to delineate an official “ORCiM line” on experimentation goes back to the wider context of artistic research, within which artistic experimentation is embedded. Over the past decade, artistic research has developed to the extent that it is now increasingly accepted as a potential mode of inquiry, especially within arts training institutions. However, these same institutions are under increasing pressure to articulate watertight definitions for artistic research, something that is not entirely viable, given its relative immaturity and complex nature. Furthermore, any artistic research agenda eliciting homogeneity within its research outcomes would seem problematic, especially to artists.

ORCiM’s approach to this has been to work on aspects within the frame of artistic research that seem most relevant to each of its own researchers and external contributors, and to allow differentiations to stand alongside each other. This creates a wide horizon of approaches, which are codified in the Glossary section of this volume, so that variants in terminology can co-exist within the anthology as a whole while the use of terminology in the individual articles remains clear. In the longer term, this seems a more practical way to work toward defining terms for artistic research.

If this book does not provide a simple, one-sentence definition of the concept of artistic experimentation, it nonetheless suggests a number of possible meanings and understandings, many of them closely interlinked, which are presented here with the aim of opening discussion and exploration rather than establishing a new, and arguably unhelpful, set of boundaries. Perhaps the most obvious of the many possible understandings of the term “artistic experimentation” is a form of enquiry that differentiates itself from “scientific experimentation.” But, as becomes clear from the texts in the book, this should not in any way be taken to imply that artistic experimentation is somehow less rigorous or less exact than its scientific counterpart, simply that its methods of enquiry are usually different. Likewise, the term experimentation has, both in everyday conversation and in professional practice, a range of meanings that are reflected in the texts here: any attempt to reduce or delimit its meaning would fail to reflect its use, both actual and potential, by artistic practitioners.

The advent of a research centre such as ORCiM may be regarded as a symptom of the coming to the fore of a particular set of contemporary research questions. Within the past decade there has been an intensification of intellectual interest and curiosity concerning the field of musical practice. We want a fuller understanding of how performances and compositions come into existence, and what the motives and methods used by musicians in the process of art-formation are. Advanced research in this area goes hand in hand with the generation of new research languages and media. These are an essential part of the reliable dissemination of outcomes and outputs based within musical practice. Propagation of such languages can enfranchise research groups and communities, and this can enable them to gain credibility in the wider public sphere. “Artistic research,” as a field of enquiry, has thus emerged to meet the need

both for a context in which to situate the questions of artists, and for a conceptual space in which they may experiment with how those questions—and their answers—might be communicated, whether through writing, speech and presentation, or through actual compositions and performances themselves.

For all their benefits, however, theoretical approaches present challenges to their newer, more practically-oriented counterparts. In a world of research in which publication is paramount, the hegemony of the written word sits uncomfortably beside a body of work that does not have its essence in spoken and written language, but in music itself. The oft-cited metaphorical relationship between music as a communicative medium and the more specific communicative properties of spoken and written language should not deceive us into underestimating just how different are the world-views of those on either side of this debate. And that itself is a problem: the division of artists and thinkers into separate territories places restrictions upon how one may work within and across these areas, and even upon how one may identify oneself as operating both within the world of research and that of an art practice.

This situation is changing, however. An increasing number of scholar-musicians are no longer resigned to accepting that the ideological gaps between practising musicians and those who reflect upon music without performing it are unbridgeable. Indeed, just as there has been a strong post-millennial strand that questions the fixation on scrutinising scores and recordings—on treating musical works as artefacts, rather than events—there has also been a discernible increase in the number of conservatoire-based teachers interested not only in pursuing excellence in performance but also in understanding more about what this excellence might be, and how it is both achieved and recognised.

For such thinkers, the impulse for engaging with research emanates from the artist's own questions about their art—its nature and origins, the processes through which it comes into being, the nature of its reception, and so on. Artistic research argues that the questions of the artist, derived through development of an expert *habitus*, will be of a different nature from those of one who has not attained some level of artistic excellence.<sup>1</sup> The challenges here are obvious enough. The first is that an objectivity model in artistic research cannot function as it purportedly does in other research areas, since the artist's questions come through, and are embodied in, his or her unique engagement with their art: instead of striving toward objectivity, the questions are overtly and, it could be argued, intentionally hyper-personal and reflexive.

A further challenge comes with the baggage tied up in notions of excellence and aesthetic value. This is not to say that the world of art is not already shot through with aesthetic judgements. But these live in the realm of criticism, and are rarely advanced as adjuncts to a research process. In relation to music, this is an astonishing state of affairs, since the only kind of widely disseminated, regularly presented writing on music *is* criticism. All these different research

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<sup>1</sup> The concept of *habitus*, used by Aristotle and reanimated more recently by thinkers such as Merleau-Ponty and Bourdieu, may be taken to refer to the lifestyle, values, and expectations of particular social groups acquired through the activities and experiences of everyday life.

communities need each other, and they need specific research resources and discourses to enable their fruitful interaction.

Artistic research demands from its exponents high levels of proficiency in both the intellectual and the practical realms that are relevant to the specific research areas explored. Since the approaches involved require a high degree of self-scrutiny and analysis, the challenge to produce research outcomes that can bear critical scientific *and* artistic scrutiny is considerable. It requires the development of tools to inform critically the processes of practitioners, as well as opening new questions within the established scientific realms of musicology and social theory.

It is this critical space that ORCiM has sought to inhabit and explore with an increasingly precise focus. Its researchers gradually came to the realisation that working with music—exploring the nature of musical artworks in their process of coming into being and attempting to articulate aspects of this—formed a process that all researchers, each in their own style, could see in common. Each was involved in a continuous process of trying things out, evaluating the results of each trial and using these to inform and refine the nature of future work. ORCiM could be regarded as a metaphorical laboratory for artistic experimentation.

Through a series of propositions and questions, it became possible to make a case for the adoption of artistic experimentation as a principal focus for ORCiM. Some researchers were concerned that the resemblances typically cited between the arts and the sciences are often superficial, and do not always offer scope for questions of artistic research. Nonetheless, it could be argued that a body of successive actions (performances, compositions, etc.) within the frame of a particular art form can represent a systematic undertaking of acts of inquiry, with the primary focus of evaluation of the artist's work being upon the "experimental" product itself—the artefact. This focus means that critiques within art and science are directed differently: in science, the critique is directed back at the hypothesis, and involves the outcome as a means of testing this hypothesis through replication; in art, the critique is directed at the outcome, the artefact, and the aim is precisely to avoid replication, since each valid example of art should somehow be exemplary and *sui generis*. Therefore, while the paradigm of science includes the insistence on being able to demonstrate one's working, that for artists is to demonstrate an outcome that, while comprehensible within a wider tradition or body of consensus, manifests elements of uniqueness that enable it to be apprehended as a quasi-spontaneous and transformative experience. Developing an appropriate language of critique is therefore essential to making progress in promoting artistic research; the doing and making processes of the artist must progress hand-in-hand with the development of new language.

Inevitably, in forming a preliminary platform upon which to build a research focus based on artistic experimentation, more questions arose, many of which have yet to be answered conclusively. For example, it is by no means clear that the means by which the artist progresses from work to work can always be seen as analogous to the scientist's progression from experiment to experiment. It is

also difficult to prove whether, for the artist, the movement is systematic, intuitive, opportunistic or random and arbitrary, or some combination of these. Furthermore, it is not easy to separate the processes driving this movement in the context of artistic experimentation from those in artistic practice more generally; and, finally, the functions of aesthetic theory and criticism in the artist's conception and execution of works of art and how such functions might change with the focus upon artistic experimentation is not obvious.

ORCiM distilled such concerns into four fundamental research questions that guided individual researchers and research groups toward more unified processes of inquiry during the 2010–13 span of its over-arching project in artistic experimentation:

1. What is the character, function, and potential of experimentation in musical practice?
2. How does experimentation shape artistic identity and expertise, and how can it disclose aspects of embodied knowledge?
3. How does artistic experimentation affect the development of musical practices, both historically and currently?
4. How does artistic experimentation in music relate to other fields of human activity?

An even more fundamental question lies beneath all these: is it really true that art is, by its very nature, experimental? In which case, the concept of artistic experimentation would eventually be perceived as tautologous. Or, is the more general inquiry within art something more akin to “imaginative invention” or “mental play,” and, if so, is there a meaningful distinction between this and an artistic experimentation that might be characterised as freer than its scientific counterpart but more rigorous than artistic practice in general? Might “the language of invention” be a more helpful substitute for “the language of experiment”?

It was precisely this friction, the tension in terminologies, which many ORCiM researchers found inspirational in considering new kinds of discourses about musical creation. Artistic experimentation became the key phrase at the heart of a unified research agenda, with researchers finding attraction or productive resistance in the multiple connotations of this concept. One possible understanding of the term, which forms the core contention of ORCiM's current research agenda, is that:

Experimentation is omnipresent in artistic practice and in the processes of music making. Artistic experimentation encompasses the actions that an artist undertakes in developing and constantly renewing personal artistic identity and expertise. Exploring this field has the potential to give greater insight into how art unfolds, and opens new possibilities for artistic practice and reception.<sup>2</sup>

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<sup>2</sup> From an ORCiM brochure on artistic experimentation, Orpheus Institute (2010).

This anthology exemplifies this contention. It is organised in four large sections:

1. *Towards an understanding of experimentation in artistic practice*  
Challenging existing discourses in order to create new conceptual contexts for experimentation within artistic practice
2. *The role of the body: tacit and creative dimensions of artistic experimentation*  
Exploring embodied dimensions of musical practice in order to articulate significant aspects of tacit knowledge within the creative process
3. *Experimenting with materials in the processes of music-making*  
Creating and evaluating new musical situations and challenging the frontiers of current and established interactions in performance, composition, and improvisation
4. *Sound and Space: environments and interactions*  
Exploring environments and previously untried interactions in order to generate innovative and experimental artistic practices.

The materials and outcomes of ORCiM's practices of experimentation have a quality of continuous unfolding; the overlaps in the list show that research questions can transfer from one domain to another. This quality of non-completion is certainly one with which many musicians can instinctively identify, since artworks are under no obligation to offer definitive solutions or comforting boundaries—indeed, they may be created precisely with a view to exposing intractable problems and proposing them as matters for reflection, rather than resolution. The concept of experimentation creates a space for this, but it also provides some discipline for discussions and for developing new instances of art making. Important to the ORCiM experimental ethos has been the work of the philosopher Hans-Jörg Rheinberger, who visited the institute in June 2012 (as documented in the article by Michael Schwab at the end of Section 1). Several of the authors in these pages make reference, in their individual ways, to Rheinberger's ideas—still relatively little-known in English, despite the availability of translations of much of his most important work.

This anthology thus presents a selection of materials that will continue to be developed. This reveals ORCiM itself to be an incomplete experiment, but one with which artist researchers are invited to engage through study of the writings and the performance examples that follow. With the possible exception of its four final articles, the anthology is not necessarily meant to be read sequentially. The Glossary aims to further elucidate the specific terms used by the authors in their individual contributions, while also highlighting the important commonalities, differences, and even contradictions between how artistic researchers understand such vocabularies within the contexts of their own artistic experimentation activities. Appendix 4, Resources for Artistic Experimentation, endeavours to assemble those materials used by individual contributors that are of general relevance to larger questions concerning the tools, methodologies, spaces, and outcomes of artistic experimentation. The combined written and audio-visual materials in this anthology (in the form of the enclosed CD and the online video resources: see Appendices 2 and 3) offer

a series of insights into different kinds of practice that can be compared and contrasted, in order to invite the reader/listener to join the researchers in an experimental space.

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In preparing this book the Editors would like to thank Peter DeJans, Director of the Orpheus Institute, for his unfailing encouragement. Our thanks also to the many contributors both inside and outside ORCiM; to Anna Scott for her preparation of the Glossary and the Index; to Juan Parra for preparing the audio and visual components of this publication; and to Edward Crooks for his copy-editing. We are grateful also to the efficient staff of the Orpheus Institute office, and to all at Leuven University Press.

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## Section I

# Towards an Understanding of Experimentation in Artistic Practice

This section presents ten articles that outline, in various ways, how the ORCiM focus upon artistic experimentation creates new conceptual contexts for understanding how research may be embedded in musical practice. In order to create a platform for understanding how this works, aspects of the contemporary situation regarding experimentation in the arts are presented. Of particular importance is the delineation of the difference between the specific category of “experimental music,” which has John Cage and James Tenney amongst its principal exponents, and the broader view of experimentation that is subscribed to by ORCiM, which undoubtedly includes “experimental music,” but embraces many other aspects of music-making as well.

Certain strands of thought have been emphasised within the ORCiM environment, and these are prominently represented in Section 1 of the anthology. They may be summarised as follows:

The sketching out of a wider context for artistic experimentation, leading us from the specific aspects of the American Experimental Tradition to a wider picture of an experimental “world” for the arts, is presented by Bob Gilmore in the first piece in this section. His “five maps” of the experimental world give the reader an opportunity for initial orientation, and a chance to relate some of the novel ideas proposed for artistic experimentation to existing models within music history.

Within Gilmore’s study is a strong statement about the importance of understanding the mediating factors that affect practitioners as they endeavour to carry out the double role intimated in being an artist-researcher. Clarity about these mediations is essential for the artist to function effectively in both worlds. But this presupposes that doing so is entirely viable. Sounding a note of cautious scepticism, Godfried-Willem Raes reminds readers about both the difficulty of working as a self-critical observer, and the necessity, in his view, of retaining institutional differences between research in the arts and that practised in the wider humanities. He remains to be convinced both that the arts can escape scientism in appropriating the models of science, and that the institutions of the humanities can serve the practical needs of the arts.

A potential route out of this dilemma is presented by Michael Schwab, whose adaptations of specific concepts of Hans-Jörg Rheinberger’s notion of “experimental systems” have become important themes within the ORCiM enquiry into artistic experimentation in music. Schwab proposes that many of the communicative problems encountered by artists who seek legitimation for their work as research may be addressed through the vehicle of the “exposition” and, in particular, through the mode of exposition available as the online *Journal for Artistic Research (JAR)*.

The potential for exposition as a way to account for multiple trajectories is explored in more detail by Paulo de Assis, whose exploration of “epistemic complexity” is facilitated by the non-linear thinking that lies behind the approach. By allowing multiple paths to stand alongside each other, researcher-performers can re-imagine canonical works as potential sources of new knowledge, rather than as fixed entities that must be “reproduced.” As Kathleen Coessens notes, however, there are “right times and right places” for the actions of the

artist, however conservative or radical these may be deemed to be; her articles on “kairos” and on her model of a “web of artistic expertise” explore ways that allow artistic research to be precisely situated.

In considering such modelling, we are reminded that none of this activity takes place out of social, political and cultural contexts. Marcel Cobussen reminds us of the ethical factors that touch artistic research as a whole, and that should become part of the evolution of a socially responsive and responsible field of work.

Two later articles in this section contextualise such concerns. They are both written by composers—Bart Vanhecke and Richard Barrett—and give accounts of aspects of the authors’ creative processes. Many of the central concerns about the thoughts and concepts developed as a part of artistic experimentation are crystallised in these articles. These include whether subjectivity and the musical imagination can be accounted for within a research context; how thought processes might elicit both compositional and philosophical exchanges; and how experimentation and construction may relate to one another.

#### FIVE MAPS OF THE EXPERIMENTAL WORLD – *BOB GILMORE*

In this introductory article, Bob Gilmore outlines five distinct definitions of the term “experimental,” with the intention of linking these to an enhanced understanding of the “experimental tradition” in music. In doing so, he delineates the diverse backgrounds from which the ORCiM research agenda on artistic experimentation could be seen as emerging. These include the American Experimental tradition, Darmstadt, and more recent responses to the ideas of postmodernity. He also sounds a warning about how quickly experimentation can lose its core impulse and become merely derivative, and reminds us that genuinely experimental work must take risks and make provocations.

#### THE EXPOSITION OF PRACTICE AS RESEARCH AS EXPERIMENTAL SYSTEMS – *MICHAEL SCHWAB*

As a means of underlining the importance of Hans-Jörg Rheinberger’s notion of “experimental systems” to many of the research approaches adopted within ORCiM, Michael Schwab seeks an artistic equivalent to the scientific notion of “experimentation.” In doing so, he does not limit his search to practices that may simply have appropriated aspects of experimentation from the sciences, but looks for examples of experimentation that may be uniquely germane to artistic practice. He sketches a possible approach to the problem of how the experiments of art may be reported on by relating this to the concept of “exposition” that he has developed with colleagues in the context of the *Journal for Artistic Research (JAR)*, of which he is editor-in-chief.

EPISTEMIC COMPLEXITY AND EXPERIMENTAL SYSTEMS IN MUSIC  
PERFORMANCE – *PAULO DE ASSIS*

Considering musical works as highly elaborated semiotic artefacts, Paulo de Assis situates different elements involved in music performance (such as sketches, manuscripts, editions, recordings, and articles) in terms of “epistemic complexity.” He suggests that, as a consequence of their highly elaborated nature, musical works seem no longer to have an indisputable ontological character (Goehr [1992] 2007; Kramer 2011); their character is now seen as dependent on their epistemic complexity, contextualisation, and use.

EXPERIMENTAL ART AS RESEARCH –  
*GODFRIED-WILLEM RAES*

In recent years, the development of a research-oriented competence has become one of the aims of higher arts education and, like the thesis-based doctorate for the sciences, the possession of a qualification that demonstrates this competence is becoming a fundamental condition for gaining tenure in institutions of higher education in the arts. But for Godfried-Willem Raes, making arts education “academic” should not lead to a tendency to link it to, let alone merge it with, the humanities. The central question remains: what is research in the arts?

TINY MOMENTS OF EXPERIMENTATION: KAIROS IN THE LIMINAL  
SPACE OF PERFORMANCE – *KATHLEEN COESSENS*

This article is concerned with the small gaps—possibilities for experimentation—that emerge in the elaboration, preparation, and performance of a musician’s act, informed by the background of his or her world of highly skilled practices, profound training, embodied schemata, and prepared interpretational expression. In the act of performance, in the liminal space between contingency and the hidden background of artistic practice, “Kairos,” which Kathleen Coessens translates as *the artistic opportune choice of action*, can appear and challenge expected interpretation by opening up the “here and now” of the performance. Coessens explores the possibilities of Kairos and its manifestations serving as a focus for artistic experimentation.

THE WEB OF ARTISTIC PRACTICE: A BACKGROUND FOR  
EXPERIMENTATION – *KATHLEEN COESSENS*

Beyond “inspiration,” all artistic improvisation and experimentation is enhanced by what Kathleen Coessens calls an “artistic web of practice.” This web of expertise is both culturally shared and idiosyncratic—thus, specific for each artist. Coessens explains the ways in which it functions as a kind of dynamic artistic background, an internalised and integrated whole upon which the artist relies for his or her creativity.

TOWARDS AN ETHICAL-POLITICAL ROLE FOR ARTISTIC RESEARCH  
– MARCEL COBUSSEN

How can the subaltern—or “the other”—speak? How can she or he be understood without or outside the discursive frameworks, conceptual conventions, and discourses that we have at our disposal? Marcel Cobussen explores these ethical questions as a reminder to the reader of some of the social and cultural contexts of artistic experimentation in music.

A NEW PATH TO MUSIC: EXPERIMENTAL EXPLORATION AND THE  
EXPRESSION OF AN AESTHETIC UNIVERSE – BART VANHECKE

The term “experimentation in music”—or in the arts in general—is commonly used in three different senses: it usually refers (1) to innovativeness in artistic creation, (2) to unpredictability or indeterminacy in procedures or outcomes, or (3) to experimentation in the scientific sense. In this article, Bart Vanhecke suggests a different categorisation of artistic experimentation on the basis of developmental exploration of the idiosyncratic part of an artist’s aesthetic universe.

FROM EXPERIMENTATION TO *CONSTRUCTION* –  
RICHARD BARRETT

What is meant by “experimental” as it applies to music? Richard Barrett uses this question to frame an account of the genesis of his piece *CONSTRUCTION*, a two-hour composition for voices, instrumental ensemble, and three-dimensional sound installation. This paper was first presented as a keynote lecture at the ORCiM INTERNATIONAL SEMINAR 2012: *Composition—Experiment—Tradition*.

ARTISTIC RESEARCH AND EXPERIMENTAL SYSTEMS:  
THE RHEINBERGER QUESTIONNAIRE AND STUDY DAY - A REPORT  
– MICHAEL SCHWAB

This paper is a report and a reflection on a Study Day with the philosopher Hans-Jörg Rheinberger, Director of the Max-Planck-Institut für Wissenschaftsgeschichte in Berlin, held at the Orpheus Institute in 2012. Michael Schwab discusses notions in Rheinberger’s writings such as “experimental system,” “epistemic thing,” and “technical object” (all of which were developed in the context of his case study on the “discovery” of transfer RNA and the development of the new field of molecular genetics), and their relevance to artistic research.

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# Five Maps of the Experimental World

Bob Gilmore

Research Fellow, Orpheus Institute, Ghent

When I was sixteen years old I fell in love for the first time with the music of an experimental composer. I had no idea he was an experimental composer, and back then I would have had no clue what that term meant. On the contrary, I loved his music because it was Protestant, as I was, because he did crazy things with hymn tunes, and because his music sounded like New England in autumn—at least the New England of my imagination—with barn dances and cider barrels, church bells and marching bands. It was music like no other, and it made my imagination run wild.<sup>1</sup>

The composer in question, of course, was Charles Ives. I learned that, depending on which view you took, Ives was either the first great figure in something called the American Experimental Tradition, or he was a precursor of that tradition, which began a few decades later with the music of Henry Cowell and his student John Cage.

From my sixteen-year-old perspective this didn't make much sense. Stravinsky at that time seemed to me just as experimental as Ives, possibly more so, because Stravinsky's music was so diverse, with so many different languages and accents and sudden, startling changes of direction, whereas Ives's music, visionary and uplifting though it was, basically all sounded the same. Yet no one called Stravinsky an experimental composer. Insofar as "experimental" meant anything to me back then, I thought you could apply that word to all my favourite composers—Beethoven, Berlioz, Chopin: they had all *experimented* with various elements of music and introduced new things as a result.

Subsequently I heard more music by the composers within the American Experimental Tradition and was absolutely knocked out by it. Some of it changed my whole musical life; other parts left me absolutely cold. Thinking of it as a *tradition*, however, I found it hard to understand why music historians insisted that some of these people belonged so closely together. The work of Harry Partch and that of John Cage, for example, especially their later work, has

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<sup>1</sup> This article was first presented as a conference paper at the ORCIM International Seminar 2012: *Composition—Experiment—Tradition*, at the Orpheus Institute on 23 February 2012. This slightly revised text retains something of the informal nature of my spoken presentation.

really nothing in common, and is actually highly antithetical on pretty much every count. The argument goes that what unites them is their very outsider-ness in terms of career path and lifestyle, their distance from the mainstream. Well, maybe: but it doesn't seem very convincing to define a musical tradition in terms of kinships based primarily on non-musical considerations. Moreover, several of the composers supposedly at the heart of the tradition themselves shunned the word "experimental." Robert Ashley, in a 1995 CD liner note, commented that "composition is anything but experimental. It is the epitome of expertise. It may be aleatoric or purposefully unpredictable in its specific sounds, or purposefully exploratory of a sound, but experimental is the wrong word." Or we find Harry Partch (1974, 357) quoting with approval the exasperation of a famous artist, who protested "You never *see* my experiments" (my emphasis).

So we have two things we need to understand if we want to talk about an "experimental tradition" in music: the word "experimental," and the word "tradition." I think in this case the latter is a good deal easier than the former, so let's talk first about "tradition" and then about the question of what "experimental" in music really means. I would suggest that the American Experimental Tradition is an example of what the historian Eric Hobsbawm called an "invented tradition," a social construct invented by a few (an "elite" of some kind) to proclaim and to justify the coherence and importance of (in this case) a certain kind of artistic work and a particular aesthetic, and to differentiate it from other directions, other traditions (Hobsbawm and Ranger 1983). If conceived as a role call of names, it makes no sense to me, as many of the composers thus included have arguably less, or certainly no more, in common with one another than with others outside the tradition.<sup>2</sup> But as a description of a general *tendency* it may have some validity. Among the first to advance the idea was John Cage himself, notably in an article entitled "History of Experimental Music in the United States," written in the late 1950s and included in his first book, *Silence*, in 1961. In that text he doesn't actually use the phrase "experimental tradition," but that is essentially what he's talking about. (The phrase crops up a year or two later in writings by the American musicologist Peter Yates; there may be even earlier examples.)

In that article Cage offers not one but two definitions of the term "experimental." And there are others: I can think of five plausible and reasonably distinct definitions of the term "experimental," which I'd like to outline briefly. There may be more than five, and I'm certainly interested in the possibility of a sixth. These are definitions of, and perspectives on, what I will call "the experimental world" (with a nod to the sociologist Howard Becker [1982]), and they will hopefully provide us with ways of navigating that complex and sometimes daunting terrain.

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<sup>2</sup> The "experimentalist" Nancarrow's friendship with the decidedly "uptown" Elliott Carter belies the simplistic pigeonholing of Nancarrow's music as merely "experimental" (see Stojanović-Novičić 2011).

## ONE AND TWO

The two definitions Cage provides in his “History of Experimental Music in the United States” are quite different, so I’ll call them the “soft” and the “hard” definitions. The soft definition holds that to be experimental involves “the introduction of novel elements into one’s music” (Cage 1959, 73). As examples of this practice, Cage points to the music of many of the composers now considered part of the American Experimental Tradition, including Carl Ruggles, Leo Ornstein, Dane Rudhyar, Alan Hovhaness, Lou Harrison, Henry Brant, Ruth Crawford, Gunther Schuller, Harry Partch, and Virgil Thomson. But he feels about their music the way he does about that of Charles Ives, about whom he remarks that “much of Ives is no longer experimental” (70). (Logically, the “novel elements” after a time cease to be “novel.”) This is the first of my five definitions: “the introduction of novel elements into one’s music.”

Cage’s “hard” definition has become justly famous. In it he says that an experimental action is “an action the outcome of which is not foreseen” (69). He goes on to relate this to his own work with chance operations and, more essentially, to “composing in such a way that what one does is indeterminate of its performance.” He tells us that this type of experimental music is what he now does, what his teacher Henry Cowell sometimes did, and what a few of his younger friends do, notably Earle Brown, Morton Feldman, and Christian Wolff (69–71). This is the second of my definitions, and it can be applied also to the work—or some of the work—of many composers since Cage. Alvin Lucier’s *I Am Sitting in a Room* (1969), by this second definition, is a classic example of an experimental composition. What will happen to the playback of the voice recording, as it is re-recorded and played back again and again, is entirely dependent on the particular acoustics of the room in which the performance takes place: the sonic outcome is unpredictable.

## THREE

Within the optimistic climate of the late 1950s, when “History of Experimental Music in the United States” was written, Cage apparently had little need to feel that his experimental work had solid historical roots, and was more concerned to *differentiate* it from the work of those earlier Americans, the “soft” experimentalists. But he did like the feeling that certain younger contemporaries were keen to share his endeavour. Things were very different with the composer who is in a way Cage’s natural successor in the next generation, James Tenney. One of the recurrent themes of Tenney’s output is an engagement with the work of others, especially older composers, and the majority of his compositions bear dedications to a wide range of them whose work he admired. This is as true of early Tenney pieces like *Quiet Fan for Erik Satie* of 1970 and *Spectral CANON for CONLON Nancarrow* of 1974 as it is of his later works, which bear dedications to, among others, Varèse, Cowell, Ruggles, Partch, Wolpe, Cage, Xenakis, and Feldman; to friends and contemporaries like Harold Budd, Pauline Oliveros, Nam June Paik, Steve Reich, and La Monte Young; and to older figures that he himself had never known personally, like Ives, Crawford, and Scelsi. All these

composers, of course, are “experimentalists” in (at least) Cage’s soft definition. Tenney’s ongoing need, his whole life, to invoke these composers in the titles and dedications of his pieces has an aspect of “safety in numbers,” forming a link to this invented tradition. He strove, in his work as well as his life, to understand where these experimenters—these pioneers—were leading, and to support them by helping to colonise the new terrain they had uncovered.<sup>3</sup>

For Tenney, the idea of an American Experimental Tradition was a living reality, one to which he felt a strong sense of belonging. But Tenney had his own definition of “experimental,” which is different from either of those I mentioned by Cage (whom Tenney regarded as an important mentor and friend). Tenney believed that “experimental” in music should mean more or less what it does in the sciences. The composer would write a piece of music, try certain things out, then judge whether they worked, didn’t work, or only partly worked, then in the next piece that experiment could be followed up: like a scientist, one could go further down the same line. “I guess all of my music can really be called experimental,” he told an interviewer, “but in a sense different from how John Cage uses the word, and a bit different from how it’s been used to describe the experimental tradition . . . It’s more literally an experiment, like a scientific experiment, and in science, in scientific work, one experiment always does lead to another one” (Tenney, Kasemets, and Pearson 1984, 10). The etymology of the word *experiment* links it to the Old French *esperment*, meaning a trial or test, but which also had the sense of “practical knowledge.” In other words, Tenney’s is the concept of composition as *research*. By analogy to a research scientist, a composer could test or verify a hypothesis through the medium of music. This definition seems more inclusive and in a way more generous than either of Cage’s two, because by Tenney’s definition composers like Carl Ruggles or Ruth Crawford, say, with their explorations of dissonant counterpoint, could be considered as doing research, since a new composition would be at least partly an experiment into a specifiable aspect of music that was being tested. Moreover, Tenney’s own interest in picking up their explorations of dissonant counterpoint in some of his own later works (for example in the *Diaphonic Toccata* and *Diaphonic Study*, both from 1997) continues the experiment, and reinforces the idea of an ongoing experimental project across generations, something that Cage’s “soft” definition—with its emphasis of the transitory nature of “novelty”—does not acknowledge.

#### FOUR

There was an interesting exchange after a lecture Tenney gave at Darmstadt in 1990. When the then-young composer Daniel Wolf asked him what advice he would give a young composer operating within what Wolf called a “post-experimental model,” Tenney replied: “There is no such thing as post-experimental . . . My sense of ‘experimental’ is just ongoing research.” Tenney couldn’t

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<sup>3</sup> CD, track 7, features Tenney’s *Harmonium #1* (1976), dedicated to Lou Harrison, in a live performance by Trio Scordatura at the Orpheus Institute, Ghent, 3 October 2013.

accept the concept of “post-experimental”: to him, just as there was no end to the musical experiments we could imagine, so there would always be such a thing as *composition-as-research* as long as there was such a thing as *composition*. We might ask exactly what Wolf meant by “post-experimental” (remembering that this particular exchange took place more than twenty years ago). “Post-experimental”—with its resonance of terms like “post-tonal,” “post-serial,” “post-minimal”—implies that experimentalism is a historically bounded phenomenon, a period of music history that has now passed, or nearly so. Wolf’s term reinforces the idea of experimentalism as an invented tradition, a historical construct with its own particular history and ideology. So here comes a fourth definition: that “experimental” refers to a type of music of a particular historical era, essentially, if not quite exclusively, the music of the fifties, sixties, and seventies stemming from Cage’s “hard” definition—such things as Alvin Lucier’s music for brainwave phenomena, David Tudor’s forest of electronica, the indeterminate scores of Earle Brown, Christian Wolff, and Cornelius Cardew, and much else.

This is important as we need to remember that the whole idea of an “experimental tradition” does not happen by itself but must be *constructed* in various places and by various individuals. Perhaps ironically, for a tradition with such strong American roots, one of the most important of those places was West Germany, especially in the years between the end of World War II and the collapse of the Berlin Wall. The musicologist Amy Beal has shown in her brilliant book *New Music, New Allies* (2006) how it was overwhelmingly *this* kind of American music, the “experimental” rather than the more symphonic kind, that was seen as the most important by a number of new music festival directors, composers, and critics from the 1950s right through to the 1980s (and beyond). A number of young American composers in those years made their names, and a sizeable part of their incomes, in Europe, using their successes there to try to boost their profile back home.

Going further, and following the ideas of the sociologist Howard Becker in his book *Art Worlds* (1982), we must remember that an experimental music “world” (or, more colloquially, an experimental music “scene”) has to be constructed through a dynamic relationship between agents and mediating factors. If the agents in this case have mostly been the composers themselves, the mediating factors comprise a complex network of festivals, foundations, academic institutions, venues, private patrons, performers, publishers, publicists, critics, musicologists, and so on. Collectively this network sustains, ideologically and practically, the idea of an experimental scene, or an experimental tradition, by boosting the dissemination and consumption of this music. Financially, the experimental scene has always been sustained by a mixture of institutional and foundation support and, crucially, by support from private patrons. Probably the earliest such individual to support experimental music (at least in definitions numbers one and three) was none other than Charles Ives who, beginning in the late 1920s, funded Henry Cowell’s New Music Edition of scores and recordings (Swafford 1996, 368). Later, from the 1960s onwards, a great many experimental composers, especially on the West Coast, benefited from

the largesse of the late Betty Freeman, including Partch, Lou Harrison, Steve Reich, Peter Garland, John Cage, and others. Many of the great experimental music studio spaces, like Phill Niblock's Experimental Intermedia in New York, Walter Zimmermann's Beginner Studio, or Johannes Fritsch's Feedback Studio, both in Cologne, would never have survived as long as they did if they were purely dependent on institutional funding. In other words, all this and more is necessary to create an "experimental scene," after which it is possible, arguably, to be "post-experimental."

#### FIVE

Another important component in the creation of an experimental "world" has been scholarship. One of the first and still one of the most influential books to discuss the subject was Michael Nyman's *Experimental Music*, written in the 1970s and reprinted, largely unchanged, in 1999. There he says, in essence—and here is my fifth and final definition—that "experimental" is all the interesting new music that isn't avant-garde. Avant-garde music, Nyman argues—the music of Stockhausen, Berio, Boulez, and others—derives from the great traditions of western music, whereas experimental music does not, and comes from other sources, including non-literate (or perhaps post-literate) ones. So this is an ideological and even a political distinction. This would not be a bad rule-of-thumb definition of what experimental music is were it not for the large amount of interesting music that lies in the grey area between the two. If we divide the world into avant-garde and experimental, where do we place a composer like Feldman? Or Xenakis—does his music really derive from the "great traditions of western music"? Or how about this: compare Ligeti's *Poème Symphonique* for 100 metronomes (1962) with Alvin Lucier's *Clocker* for amplified clock, performer with galvanic skin response sensor, and digital delay system (1978). They are somewhat similar concepts, both problematising time-keeping devices of different kinds, and the sound of each, while distinct, has a lot in common: one piece might quite easily be mistaken for the other by a listener who did not know them particularly well. So do we think Ligeti's piece is avant-garde and Lucier's experimental? And if so, isn't this not so much because of the way they sound or the way they're made but because we're familiar with the rest of the two composers' outputs?

We live at a time when "experimental music" is thriving. There are scenes, in different places; there are venues, websites, record labels, and ensembles devoted to this kind of music—or, more accurately, these kinds of music. But there are of course drawbacks, in that once a "scene" is in place quite a lot that can flourish within it loses sight of the original impulse that led to its creation. Some of what gets called and packaged as experimental music today seems to me not really experimental because, paradoxically, it fits neatly within now-familiar techniques and practices of the experimental tradition. Genuinely experimental work, the work that takes risks and asks provocative new questions about method, material, working practices, and everything else, remains as rare and as precious as ever.

Nonetheless, experimental work in my own preferred definition, that of Tenney (definition number three), is alive and well, and thriving in the music of the younger generation. As regards the work of older composers, I'm of the opinion that some music is inherently, not temporarily, experimental. Let's put it this way: it's hard to imagine a time when pieces like Conlon Nancarrow's *Study for Player Piano no. 33* (? late 1960s) which explores the rhythmic proportion of two in the time of the square root of two, will ever *not* be considered experimental. And there is still plenty of virgin territory out there. It seems to me that the maps of the experimental world are not—and perhaps, as James Tenney believed, never will be—complete.

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# The Exposition of Practice as Research as Experimental Systems

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Over the last few years, Hans-Jörg Rheinberger’s theory of “experimental systems,” which he has developed in relation to the empirical sciences and molecular biology in particular, has gained currency in debates around art and research. While Rheinberger (2007, 2009, 2012a, 2013) acknowledges that a comparison between the advance of art and that of science may be made, it is striking that, in the literature to date, no coherent picture has emerged as to how his theory may productively be employed in this context. Authors who focus on the notion of “experimentation” seem to limit their discussion to practices that conceptually, materially, or aesthetically make reference to the sciences, failing to address the remaining practices in terms of experimentation (e.g., in Friese, Boulboulé, and Witzgall 2007). Authors who focus on epistemological implications may identify “epistemic things” in general within artistic practice, while failing to account for the specificity of experimentation in this context (e.g., Borgdorff 2012a).

My recently published multiauthor book *Experimental Systems: Future Knowledge in Artistic Research* (Schwab 2013a) tries to assemble more voices between those positions, since, when looking at the status of experimentation in artistic practice, it is vital to find an artistic equivalent to a scientific notion of “experimentation” and not limit this search to practices that may simply have appropriated aspects of experimentation from the sciences. Artistic practices outside “experimental art” or “experimental music” in fact may share an epistemological project with experimental science without having any obvious relationship to it. In this short text, I aim to sketch a further possible approach to this problem by relating Rheinberger’s notion of “experimental system” to the concept of “exposition” that my colleagues and I have developed in the context of the *Journal for Artistic Research (JAR)*, of which I am founding editor-in-chief.<sup>1</sup>

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<sup>1</sup> The relationship between “experimentation” and “exposition” suggested in this chapter will be further investigated as part of my contribution to Paulo de Assis’s ERC-funded research project “Experimentation versus Interpretation: Exploring New Paths in Music Performance in the Twenty-First Century” (2013–17).

## WRITING

Regarding experimentation, the link between laboratory science and an academic publishing project may not be immediately obvious if one does not understand, as Rheinberger (2012b, 90) does, experimentation as a process of writing, or, to be more precise, as a “writing game” where an experimental system known as “graphematic space” produces “graphemes”<sup>2</sup> (Rheinberger 1997, 105–8; 1998). An emphasis on writing is also supported by the analysis of “laboratory life” made by Bruno Latour and Steve Woolgar (1986), who find a “strange mania for inscription” (48) where “the laboratory [takes] on the appearance of a system of literary inscription” (52). Research carried out by Steven Shapin and Simon Schaffer on Robert Boyle’s invention of the air pump—and with it, experimental science—may further support such claims due to the importance of “literary technology,” where “the text itself constitutes a visual source” rather than simply offering “the narration of some prior visual experience” (Shapin and Schaffer 1985, 61; Shapin 1984).

One may, however, argue that Rheinberger’s (1997, 106) explicitly Derridean approach, in which he differs from Latour, allows him to situate writing in the experimental object itself, outside its production through measuring devices, from which it is nevertheless not independent (*ibid.*, 111). When focusing on these devices, one runs the risk of assuming the existence of material from which the device simply produces text through measurement and transcription, a position that does not take into account that such an assumption may actually be the result of experimentation itself. With Derrida, however, one has to argue that the material as it appears in an experimental system (the experimental object) is already part of a writing game and thus dependent on “arche-writing . . . as the condition of all linguistic systems” (Derrida [1976] 1997, 60). As Rheinberger (1997, 111) says, quoting Latour and Woolgar (1986, 51) and Latour (1987, 64–65), “It is thus unnecessary to distinguish between machines that ‘transform matter between one state and another’ and apparatuses or ‘inscription devices’ that ‘transform pieces of matter into written documents.’”<sup>3</sup>

A focus on Derrida thus relaxes the link between writing and measurement and opens up the possibility for a writing practice manifested not in numbers but in “scribbles” (Rheinberger 2010a, 244–52), in “preparations” (*ibid.*, 233–43), and also in the experimental object itself, which “*is* a bundle of inscriptions” (Rheinberger 1997, 111; emphasis in the original). However, as Rheinberger (*ibid.*, 28) writes, experimental systems “inextricably cogenerate the phenomena or material entities and the concepts they come to embody.”

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2 The notion of “grapheme” usually refers to the smallest semantic unit of written text. Rheinberger extends the term to also include material traces that emerge from an experimental system, applying Derrida’s *Of Grammatology* ([1976] 1997) to empirical science.

3 While Rheinberger (1997, 77–78) acknowledges the tacit dimension, one needs to see the body as complicit in writing rather than as yet another “inscription device” that produces text, in this case, through experience. It is the materiality of the body rather than the subjectivity of either artist or audience that is relevant to an experimental approach to embodiment. Neither device (explicit) nor body (implicit) can have authorship in an experimental system conceived as writing space.

Thus, following Rheinberger, inscriptions take place simultaneously in two spaces: the material, graphematic space and the representational space of science.<sup>4</sup>

There is no space in this short chapter to discuss Rheinberger's theory in detail, in particular his notion of the "epistemic thing" as the guise in which new knowledge enters the (experimental) scene. For the purpose of this text, it is sufficient to point out the deeply differential nature of experimental systems where "experimenters are not interested in identities; they proceed in the search for 'specific differences'" (Rheinberger 1997, 79).<sup>5</sup> Naturally, research has to be focused on such specific differences, since by definition new knowledge will differ from what is known already. In this sense, "method" may be doubted as crucial for substantial progress in research—as it was famously by Paul Feyerabend in his book *Against Method* (1988)—since "method" to some degree predicts the outcome.<sup>6</sup> Following Derrida's approach, this doubt needs to be extended to the source material on which experimentation takes place; possible preconceptions about dormant properties in a material will limit what might emerge, requiring the "dislocation" (Rheinberger 1997, 82) of those preconceptions. It is thus crucial to Rheinberger (*ibid.*, 81) that "an experimental arrangement must be managed in such a way that it keeps being governed by difference. I use the term *différance* to characterise the specific, displacing dynamics that distinguishes the research process."

Writing is nothing but this dislocation, displacement, or deferral, to introduce yet another, this time more temporal, Derridean term.<sup>7</sup> Something needs to re-emerge as different during the process of writing (or experimenting, for that matter), regardless of whether this alteration is caused by the material at hand or by the experimental approach that is employed. After the fact of writing, what is given has reshaped its own origin *as if* what is given now has always been given, *as if* no difference ever occurred. To explain the naturalness with which this process takes place, Shapin (1984) borrows Robert Boyle's notion of the "matter of fact" (in opposition to "matter of law") that is produced through an experiment, where, with the help of a highly artificial construct (the experimental apparatus), facts emerge that are beyond doubt, like nature itself. This paradoxical situation makes it difficult to question whether what has emerged in the experiment was, in fact, the cause and origin for precisely this emergence. Deconstruction, which cannot be called a method following the above

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4 For a discussion of the relationship between the graphematic and the representational space see Schwab (2013b, 7–9)

5 Rheinberger here makes reference to Robert B. Loftfield, a researcher interviewed in Rheinberger's case study.

6 The questioning of "method" appears to be particularly strong in artistic research, where nobody seriously believes that artistic research practice can be explained as sets of methods (see Slager 2009; Miles 2012).

7 According to Derrida, *différance* governs both difference in space and time as "the becoming-time of space and the becoming-space of time" (Derrida 1982, 8). In effect, the position from which all differences (space) may be assessed needs to be deferred into the future (time) since the position would otherwise be part of what it tries to assess. This is the reason why according to Rheinberger (quoting François Jacob), experimental systems are "machines for making the future" (Rheinberger 1997, 28).

(cf. Gasché 1986, 121), is Derrida's attempt to bring back into the discourse what that same discourse expels in its formation (cf. Schwab 2008b).<sup>8</sup>

#### PUBLISHING

Focusing on the role of formation, Rheinberger argues that in an experimental system “the scientific object is shaped and manipulated ‘as’ a traceable conformation” (Rheinberger 1997, 111). However, since the scientific object is conceived as a “bundle of inscriptions,” and since those inscriptions are made both in the graphematic and in the representational space, there is always a public dimension even to what happens on the presumably private space of a scientist's workbench. One may thus say that the transformation of a material object is strictly speaking also a publication activity, if the term “publication” were not limited—as it usually is—to the production of conventional text, illustrated or not.

Interpreting transformational activities as publication is perhaps easier to accept if one follows Latour and places “series,” “chains,” or “cascades” of transformation between the poles of “world” and “language,” which he illustrates with the example of a field trip to the Amazon rainforest. In his understanding, material is transformed from its local, particular, material, multiple, and continuous pole through such chains into a form of “compatibility, standardisation, text, calculation, circulation and relative universality” in a movement that he calls “upstream” and “amplification” (Latour 1999, 70–71). Crucially, in his understanding, if meaning is to be retained, it must be possible to retrace those transformations (downstream): “To know is not simply to explore, but rather it is to be able to make your way back over your own footsteps, following the path you have just marked out” (ibid., 74). In this way, an inner link is provided between knowledge encoded in (academic) writing and in material objects without any formal correspondence, where the one need not resemble the other.

This resonates with Henk Borgdorff's (2012b, 197–98) understanding that an experimental space is already a space of publication. According to Borgdorff, publication is not something that is done after the experiment has been conducted, as is the writing-up of its results; rather, publication is always already taking place in experimental systems. While publication may appear to be secondary in the sciences, it cannot be so in art. Artworks are not simply “written-up”—that is, they are not published results, where the work happened somewhere else—they are engaged from the outset in the work of publication.

With reference to Rheinberger's quotation (above), during “the shaping of an object *as* traceable conformation,” the “as” indicates a differential redoubling,

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<sup>8</sup> In Schwab (2008a, 217) I argue with reference to Winfried Menninghaus (1987) that, with deconstruction, Derrida's emphasis remained on the critical rather than the formative side of discourse. Rheinberger's work on experimental systems that trace the formation of new objects in the context of experimental science shifts the balance and brings Derrida's thinking in closer proximity to processes of creation, which in books such as *The Truth in Painting* (1987) is still largely an exercise of interpretation.

where difference is inscribed as identity—a differential process that makes an identity (the scientific object) manifest *a posteriori*.<sup>9</sup> Likewise, the notion of “exposition” that the *Journal for Artistic Research* employs to describe its format of publication is defined as “the exposition of practice *as* research,” where, through forms of exposition rather than documentation, an artistic object’s (epistemic) identity is made manifest (see Schwab 2011, 2012a). Crucially, in terms of form, such an exposition need not resemble what it exposes, since what is exposed may have been transformed during the process. Mika Elo (2008, 1) even insists on such formal difference in terms of media when he says that “one essential task of the artist/researcher is to provide well-articulated passages between different media while maintaining high sensitivity to their mediality.”

Although the concept was touched upon by others around the same time (e.g., Sullivan 2005; Lesage and Busch 2007; Barrett and Bolt 2007), Katy Macleod and Lin Holdridge were the first to focus on the importance of the “as”-construct in the context of artistic research. In the introduction to their book *Thinking Through Art: Reflections on Art as Research* (2006), they borrowed the concept from an essay by Steven Melville (2001) published in the catalogue to the exhibition “As Painting: Division and Displacement” at the Wexner Center for the Arts in Columbus, Ohio. As the exhibition’s title suggests, here too one finds emphasis on difference, but also on the role of material (in this case painting) that is not dissimilar to Rheinberger’s approach. Melville summarises his argument very persuasively when he says:

1. Matter thinks. “Thinks” here evidently means “makes a difference,” so the proposition is that matter gives itself over to difference or to a process of difference.
2. This process must be grounded in matter opening itself to sense through some interruption of its apparent absolute continuity with itself; the ground of thought is something like a cut or fold, a moment of delay or excess, in which substance refigures itself as relation.
3. Because thought taken this way is above all articulation, matter is not conceivable apart from language and the structure of difference to which it gives particularly compelling expression. There is no perception and so no visibility that is not also a work of articulation. (Melville 2001, 8)

It is through this move that Macleod and Holdridge (2006, 12) can, at the end of their introduction, call for the “need to bring our writing nearer to our making”; however, despite their best efforts, it still seems unclear “how research artwork might be more fully understood” (*ibid.*, 6). While, as facilitated by the recourse to Melville, the philosophical underpinning seems to be in place, their book is not yet able to overcome the academic framework and its lim-

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<sup>9</sup> This historical dimension is an epistemological necessity, which in turn requires one to “historicize epistemology” (Rheinberger 2010b).

ited understanding of writing: the implications of Melville's thinking are only partially developed. This in turn prevents a full understanding of "research artwork" as (material) writing practice that academia can assess as text.

Comparing this situation with Rheinberger's thinking, the crucial missing element in the creative field is no longer the academic framework that institutionally locates "research," since this has been increasingly developed since the 1990s (for the UK see, for example, Candlin 2001); rather, what is missing is a conceptual framework that delivers writing as practice, akin to what Rheinberger in his scientific domain calls "experimental system." Between material practice and scientific discovery, with "experimental system" he traces a concept that protects and formulates the material writing space, not in radical opposition to academia, but as a differentiation and localisation of those of its practices that deliver what it can know.

Likewise, within the creative fields, with the notion of "exposition" a concept has been established that is currently being tested in relation to both its quality as writing, which can interface with academia, and its acceptance by researchers in the various disciplines in relation to its usefulness. While the outcome of this process is still open, I would at least like to try to sketch how the exposition of practice as research may be set in place to deliver a space comparable to that of experimental systems.

Importantly, the term "exposition" is arbitrary.<sup>10</sup> Alternative terms may be used, as long as they facilitate a similar redoubling as introduced above. For example, one may speak of "the performance of practice as research" or "the staging of practice as research."<sup>11</sup> Whatever notion is used, however, it seems to be important for this notion to be defined by a specific practice, that is, by that within which difference is made. Although developed in the context of the *Journal for Artistic Research*, because of this very general definition "exposition" transgresses the very limited confines of academic publishing and emerges as a fundamental part of any research practice.

The exposition of practice as research is not limited with regard to its form; it may occur in any context—such as journal publications, conferences, concerts, exhibitions, or even during teaching sessions—while within those contexts, exposition may occur in any medium or form.<sup>12</sup> As argued by Tom Holert (2009), who discusses artistic research in more general terms, "exposition" may be a (late) consequence of "talk" entering the studio when, after the Second World War, academies were reformed to accommodate contextual studies that would influence the formation of "critical practice" (see also, Candlin 2001).

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10 Having been instrumental in the development of this concept, I concede that part of this particular choice has to do with my own artistic roots in photography, where, for instance, an image emerges through exposure.

11 Further notions that are suggested are the translation, the reflection, the unfolding, the exhibiting, or the curating of practice as research (Schwab 2012b, 342–43).

12 It cannot be assumed, for instance, that text is by definition more expositional than an artistic presentation, although it may be so.

In general, “exposition” may be defined as the discursive supplementation of practice that can allow for the emergence of different identities of this practice. While practice may be exposed as research, it may also be exposed, for example, as political action (e.g., Daniel Buren), as commercial activity (e.g., Andy Warhol), or simply as life (e.g., Joseph Beuys). As I argue elsewhere (Schwab 2012a), such a notion of exposition makes it necessary to distinguish between first- and second-order art-making, since it cannot be assumed that all art engages in such notions of writing, particularly not with the paradigm of research. In that text, I reserve the expression “first-order art-making” for a more conventional conception of artistic practice, whereas I use “second-order art-making” to indicate artistic practice as writing, in which one may see art’s embrace of secondary formats that engage in difference or even *différance* (Öberg 2010, 14–15) as a means to self-define a practice without relation to discipline or similar external frames that can be used to construe the identity of that practice.<sup>13</sup> As a consequence, rather than judging by fixed criteria, the assessment of artistic research, as it is done, for instance, in the *Journal for Artistic Research*, may focus on a submission’s expositiveness and the way it engages difference to produce “epistemological gain” by allowing reviewers to retrace the transformational relationships that are set up in it.<sup>14</sup>

As indicated in the domain of scientific experimentation by Boyle’s notion of the “matter of fact,” in art too, the level at which those tracings operate needs to be within the material itself while signalling traceability, that is, intelligibility. However exciting (or not) it may be, if evidenced in the material, an artistic proposition must be beyond doubt, since what it presents is part of the material’s potential even if it is unexpected, unusual, or unprecedented. It is this aspect that allows one to suggest, with Melville, that “matter thinks,”<sup>15</sup> not as a primary cause for artistic research but as a result of its artistic exposition, which shares with experimentation a dedication to its own practice-base.

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13 There is no space to elaborate on this here, but one could argue for a definition of “modern art” as first-order art-making and “contemporary art” as second-order art-making. See Aranda, Wood, and Voldokle (2010) for an investigation into “What is Contemporary Art?” and Osborne (2013) for the relation between contemporary art and postconceptual art practice.

14 “Epistemological gain” is a concept that Isabelle Graw introduces in her book *High Price* (2009) in order to speak about the (priceless) value of art. In my understanding, “epistemological gain” needs to be reserved for art that exposes itself as research.

15 The suggestion that objects, and in particular artworks, may “think” is rapidly gaining currency. While in their book *The Literary Absolute*, Philippe Lacoue-Labarthe and Jean-Luc Nancy (1988, 115) speak of a “subject-work” to express this reflective dimension, Jacques Rancière (2009, 107–32) argues for the “pensive image.” In Schwab (2008a) I argue that this trajectory was begun by Walter Benjamin’s reassessment of early German Romanticism. In this respect, I want to point out that already for Novalis there is a deep similarity between art and science when he says that “the innermost principles of art and science are mechanical” (quoted in Menninghaus 1987, 36), which being governed by difference produce matters of fact.

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# Epistemic Complexity and Experimental Systems in Music Performance<sup>1</sup>

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## INTRODUCTION

In a process that was particularly enhanced in the twentieth century, the performance of musical “works” became a complex articulation of different types of data, information, and knowledge, retraceable in diverse material sources (including sketches, instruments, editions, recordings), in reflective discourses (*in, on, and about* music), and in multifarious performance “styles.” The continuous accumulation and sedimentation of such kinds of knowledge represents an exponential growth of complexity that involves technical, artistic, aesthetic, and epistemic components. Such “complexity” might be labelled—borrowing a concept from the sciences (Dasgupta 1997; Kováč [2000] 2013; Kováč 2007)—“epistemic complexity.”

Considering musical works as highly elaborated semiotic artefacts, I situate different elements (such as sketches, manuscripts, editions, recordings, and articles) involved in music performance in terms of “epistemic complexity.” By deconstructing works in this way, the tokens of their respective and variable complexity emerge as “boundary objects” (Star and Griesemer 1989), objects that change their ontological and epistemological nature depending on the context in which they are used.<sup>2</sup>

The dismantling of musical works into their graspable constitutive elements reveals them as complex accumulations of singularities, as multi-layered amalgamations of “things” (Kubler [1962] 2008; Brown 2001), disclosing open-

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1 Reprinted from *Experimental Systems: Future Knowledge in Artistic Research*, edited by Michael Schwab, 151–165 (Leuven: Leuven University Press, 2013). Reprinted by permission of the author and the publisher.

2 On the concept of “boundary object” in the context of artistic research, see Henk Borgdorff’s interview with Michael Schwab (Borgdorff 2012, 174–83, particularly 177). Borgdorff attributes the concept of “boundary object” to Thomas F. Gieryn. However, Gieryn’s concept is that of “boundary work,” which has a different meaning, referring to instances in which frontiers, boundaries, limits, and demarcations between fields of knowledge are created, established, advocated, or reinforced (see Gieryn 1983). Borgdorff’s use of the notion appears to be situated somewhere between “boundary work” and “boundary object” in the way I use the term here, which follows Star and Griesemer (1989).

ended possibilities for infinite new assemblages—raising questions of traceability, control, and critical assessment of the results. Hans-Jörg Rheinberger’s notion of “experimental systems” seems to be a promising conceptual and methodological framework for the concrete practice of such new aesthetic-epistemic assemblages. In the central part of this paper I will describe Rheinberger’s thinking, preparing the reader for the application of this theory to music performance.

Beyond the mere (re)creation or (re)production of a work through performance, at stake in this paper are processes that constitute musical “things” as objects for thought through performative devices. From this perspective the notion of epistemic complexity is just one element among many that contribute to a new mode of exposing musical objects. Methodologically this new mode is organised by different but interrelated approaches: identifying and scrutinising musical “things” that define a given musical work (in the sense of an “archaeology”); studying their “epistemic complexity”; extracting them out of their traditional *Umwelt* and inserting them within the confines of experimental systems; and, finally, “exposing” them anew, in previously unheard reconfigurations of materials.

#### EPISTEMIC COMPLEXITY

In his essay “Experimental Complexity in Biology: Some Epistemological and Historical Remarks,” Rheinberger (1997a, S245) states that “reduction of complexity is a prerequisite for experimental research.” In other words, the overall context of research is characterised by complex configurations and arrangements of complex “things” that must be filtered and precisely selected to become part of the experimental setup. A vast number of components, interactions, behaviours, and embedded knowledges precede the experimental research itself. In order to do research and to arrive at some kind of result, the ontic complexity of the research object has to be reduced while retaining its fundamental and specific “epistemic complexity.” Despite the title of his article, Rheinberger does not really address the topic of “complexity,” since his central concern is with the experimental situation. Even when he writes that “experimental systems are machines for reducing complexity” (*ibid.*, S247), he does not enter into a discussion of exactly what characterises this “complexity,” a characterisation that would inform the “epistemic horizon” that enables the research in the first place. Further elaboration of the notion of “complexity” thus seems pertinent.

Biologist Ladislav Kováč and the philosopher Subrata Dasgupta—working separately and in different disciplines—have produced stimulating reflections on the topic of “epistemic complexity.” According to Kováč (2007, 65), “biological evolution is a progressing process of knowledge acquisition (cognition) and, correspondingly, of growth of complexity. The acquired knowledge represents epistemic complexity.” Dasgupta (addressing “technology and complexity”) uses the same term in relation to artificial (i.e., human-made) things,

defining complexity as “the richness of the knowledge that is embedded in an artefact” (Dasgupta 1997, 116).

Inspired by Hans Kuhn’s understanding of life as an unceasing process of accumulation of knowledge that starts with self-copying nucleic acids (Kuhn 1972, 1988), Ladislav Kováč (1986) developed a “bottom-up” approach to epistemological problems—an approach that may be associated with “cognitive biology”<sup>3</sup> and that conceives life as “epistemic unfolding of the universe” (Kováč [2000] 2013, 1). Biological evolution, based on a logic of self-replicating entities, is a continual growth of knowledge that involves the “creation of *subjects* with ever greater embodied knowledge” (ibid., 18, emphasis added). This principle presupposes that “there are levels of complexity in the living world and that, in the course of biological evolution, there has been a continuous growth of complexity” (ibid., 14). This tendency toward the epistemic unfolding of the universe constitutes what Kováč calls the “epistemic principle” (ibid., 14–20). According to this, but omitting the normative connotation of the word “progress,” there is a general tendency toward ever more complex organisms. However, there is no teleology and no guiding principle with a clear end. What are observable are several *teleonomic* processes that simply produce complex products without any guiding foresight. A system (in this case a biological species) is situated in a given environment with (a) *surroundings* (the part of the environment that interacts with the system and has a detectable influence on it), and (b) an *Umwelt* (the specific part of the surroundings that interacts with the sensors of the system).<sup>4</sup> However, only that part of the *Umwelt* that is experienced by the subject (Husserl’s *Lebenswelt*) is effectively internalised as the basis for construction(s) and operationally used as the initial input for solving problems (cf. Kováč 2007, 66). As Kováč says: “At all levels, from the simplest to the most complex, the overall construction of the subject, the embodiment of the achieved knowledge, represents its *epistemic complexity*. It is the epistemic complexity which continually increases in biological evolution, and also in cultural evolution, and gives the evolution its direction” (Kováč [2000] 2013, 17).

Coming from a completely different field of inquiry, with a background in computer science, artificial intelligence, and cognitive sciences, Subrata Dasgupta’s theories on systemic and epistemic complexity open up new avenues for understanding human creativity and its tendency to continuously generate new artefacts. Whereas Kováč is focused on biological species and entities, Dasgupta’s interests revolve around human-made artefacts and their origins, evolution, and epistemic content. According to Dasgupta, *artefacts* are

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3 According to Boden and Zaw (1980, 25), “a cognitive biology would be one in which biological phenomena were conceptualized for theoretical purposes in terms of categories whose primary application is in the domain of knowledge.” Moreover, according to Kováč ([2000] 2013, 1) “knowledge is embodied in constructions of organisms and the structural complexity of those constructions—which carry embodied knowledge—corresponds to their epistemic complexity” (Kováč [2000] 2013, 1).

4 The subtle differentiation between “surroundings” and “*Umwelt*” goes back to the work of Jakob von Uexküll (cf. Uexküll 1982). Jesper Hoffmeyer (2012) describes this difference as follows: “In everyday German, *Umwelt* means simply ‘surroundings’ or ‘environment,’ but through the work of the German biologist Jakob von Uexküll (1864–1944) the term, at least in scientific literature has acquired more specific semiotic meanings as the ecological niche as an animal perceives it; the experienced world, phenomenal world, or subjective universe; and the cognitive map or mind-set.”

“useful things that are produced or consciously conceived in response to some practical need, want or desire” (Dasgupta 1996, 9). But artefacts possess another fundamental and interesting property, one that relates to Kováč: “like organisms, they manifest *evolution*” (Dasgupta 1997, 114). The production of “things” and their evolution over time are, therefore, central topics of his reflections. In approaching these topics, Dasgupta distinguishes *systemic complexity* from *epistemic complexity*. Referring to Herbert Simon’s (1962) article “The Architecture of Complexity,” Dasgupta argues that “a system . . . is said to be complex if it is composed of a large number of parts or components that interact in nontrivial ways” (Dasgupta 1997, 113). Complexity depends, then, on quantitative characteristics and on intricate operational behaviours—aspects that tell us *what* the nature of an artefact is. Dasgupta calls this kind of “complexity” *systemic complexity*. It does not tell us *how* that artefact assumed the form it did, nor does it give us any clues about what it might produce in the future. The crucial claim of Dasgupta is that beyond *systemic complexity* there is another, deeper kind of complexity in the universe of human-made things: “*the richness of the knowledge that is embedded in an artifact*. I shall call this *epistemic complexity*. It consists of the knowledge that both contributes to, and is generated by, the creation of an artifact” (Dasgupta 1997, 116). Any artefact is, therefore, surrounded by knowledge that is prior to its emergence and also by knowledge that appears only after the artefact was made. In addition to these *ex-ante* and *ex-post* moments, the specific moment of invention or design is itself a knowledge-rich, cognitive process. Furthermore, artefacts themselves are also knowledge: a design embodies and encapsulates one or more operational principles, to start with. “And, in the case of true invention, when the artifactual form is *original* in some significant sense, the operational principles it encodes constitute genuinely *new* knowledge” (ibid., 117). Whereas the *systemic complexity* of an artefact requires it to be made up of a large number of parts or components that interact in complicated, non-trivial ways, *epistemic complexity* adds to it two wholly new dimensions: the artefact’s capacity for producing unexpected behaviour; and the amount, variety, and novelty of the knowledge embedded in it. It is this embedded knowledge that Dasgupta calls “the epistemic complexity of an artefact” (cf. ibid., 118).

Dasgupta proposes the identification and enumeration of the “significant knowledge tokens” that constitute an artefact as a first step toward an evaluation of its epistemic complexity. However, as he says, the risk is that such an enumeration will stay within the limits of the artefact’s *systemic complexity*, conveying “nothing of the intricacy of the interactions of these knowledge tokens, nor the manner in which they came to participate in the cognitive act, nor (in the case of old knowledge) why they were invoked at all” (ibid., 136). And here is where Rheinberger’s experimental systems (and his proposed methodological reduction of systemic complexity) might be extremely useful, helping to situate better the “significant knowledge tokens” at hand. In turn, this would allow precise calibration of the diverse objects/things involved in the experimental set up and to produce graphematic outputs that allow for traceability and for the constitution of new tokens (involving epistemic gain). However, before describing Rheinberger’s experimental systems, and to facilitate the

understanding of its use in music performance, it is necessary to turn first to the exploration of epistemic complexity *in music*.

#### EPISTEMIC COMPLEXITY IN MUSIC

Musical works are highly elaborated, complex semiotic artefacts with intricate operational functions. They are made of a variable, though normally large, number of constitutive parts that interact in non-trivial ways. This gives them, in the first place, *systemic complexity*. But they are also the products of invention and embed a rich array of interconnected knowledge encapsulating one or more operational principles. Their conception, creation, and concrete making (and/or performing) inherently involve pre- and post-knowledge, as well as a vast combination of refined cognitive processes. Like organisms, they also manifest evolution (but not necessarily “progress”), doing this in three ways: (1) in terms of “pure” creation, that is, new, original compositions; (2) in terms of re-creation, that is, the performance of past musical works; (3) in the sophisticated process of their preservation over time (editions, recordings, theoretical reflections, etc.). Taking a closer look at the history of musical “things” (without adhering to traditional visions of music history, compartmentalised in styles and periods) and adapting George Kubler’s statement regarding a “history of things,” a “history of musical things” would include both material artefacts and aesthetic positions, both replicas and unique examples, both tools and expressions—in short all materials worked by human hands under the guidance of connected ideas developed in temporal sequence (cf. Kubler [1962] 2008, 8). New pieces are a combination of old knowledge with new cognitive extensions, and—in the most interesting cases—with unexpected and surprising elements. In addition to their systemic complexity, music things aim at producing unprecedented events embodying new knowledge. In this sense, through the amount, variety, newness, and richness of the knowledge that they embed, they have a considerable epistemic complexity, being artistic examples of what Rheinberger (talking about “experimentation” and following François Jacob) designates as “a machine to make the future” (Rheinberger 1997b, 33).

Musical works are surrounded by and encapsulated in specific epistemic settings, which are made of elaborated collections of historically produced (and inherited) “things,” such as sketches, drafts, first editions, recordings, or essays concerning a given musical work. After two centuries in which the “work-concept” dominated (see, among others, Goehr [1992] 2007), in recent decades attention has turned to what may be called an *extended work-concept* that takes into consideration the deconstruction of musical works into their graspable constitutive elements, revealing them as complex accumulations of singularities and as multi-layered conglomerates of “things” with the utmost diversity (cf. Kramer 2011, chapters 11 and 14). The closer one gets to such constitutive things, the clearer the epistemic complexity of musical works and performances becomes.

From the perspective of a performer dealing with a musical work from the past (which might also be a very recent past), types of relevant objects loaded with variable degrees of epistemic complexity include:

1. Materials generated by the composer (sketches, drafts, manuscripts, first prints, revisions of prints, etc.)
2. Editions of a “piece” throughout time
3. Recordings of works
4. The reflective and conceptual (musicological, philosophical, analytical, etc.) apparatus around musical works (including thesis, articles, books, etc.)
5. The organological diversity; that is, the musical instruments in use (for example, historical versus contemporary)
6. The performative/aesthetic “orientation” of the performer (historically informed practice, “Romantic interpretation,” “new objectivity,” “modernising approach,” etc.)
7. Arrangements of works
8. The practitioner’s own body, which is biologically, technically, and culturally organised

One important observation is that until quite recently many of the items in this list were not generally available since they were the “property” of an exclusive group of experts. In the current, increasingly democratised knowledge-society more and more people have access to them. The items on the list are just the main tokens of a musical work’s epistemic complexity and may be extended by potentially infinite further sub-tokens. They build a complicated network of things with embedded knowledge. At some point, they all were reifications or sedimentation of a specific creative or reflective situation. Now, they might function as (1) objects of inquiry (What are they? How many parts do they have? How do they function?) or as (2) “things” for further inquiries (How can they become productive again? How can they build reconfigurations of the work they belong to? What futures do they enhance?). The first approach has to do with a work’s systemic complexity, the second with its epistemic complexity. Moreover, making explicit the epistemic complexity of musical works allows us to understand works as made up of a myriad of “boundary objects” (see also Star and Griesemer 1989). To make performances using selections of such “boundary objects” is an act that discloses open-ended possibilities for new assemblages. Crucial to these new assemblages—and necessary to enhance their epistemic complexity—is the inclusion of a productive “not-yet-knowing,” the creation of room for what is yet unthought and unexpected. Under this light, processes of *becoming* appear as more productive than statements of *being*. Works, just like “objects of knowledge,” in general remain essentially open. The fundamental incompleteness of any attempt to “close” or narrow down a human-made invention becomes the starting point for epistemic games. In the place of a clear-cut ontology of the artwork, we find an unfolding

becoming, where experimentation and the concrete production of new assemblages become the central artistic activity.

#### HANS-JÖRG RHEINBERGER'S EXPERIMENTAL SYSTEMS

Rheinberger developed his theory of “experimental systems” in relation to the empirical sciences, particularly to molecular biology. However, it was Rheinberger himself who opened the door for other potential uses of this theory, specifically, for example, in relation to the activity of writing: “Das Schreiben, so behaupte ich, ist selbst ein Experimentalsystem” (Rheinberger 2007; my translation: Writing, so I claim, is an experimental system in its own right). That Rheinberger mentions “writing” [Das Schreiben] as a potential field for applications of his theory has certainly to do with his conception of the experimental space and of the scientific object itself as a complex “bundle of inscriptions” (Rheinberger 1997b, 111). The idea of “inscription” might be traced back to Derrida, whose seminal book *De la grammatologie* [*Of Grammatology*] Rheinberger translated into German (with Hanns Zischler) in 1983. Taking his own suggestions further, I propose to extend the use of his theory also to the performance of past musical works.

In the prologue to his book *Toward a History of Epistemic Things*, Rheinberger stresses that “in a post-Kuhnian move away from the hegemony of theory, historians and philosophers of science have given experimentation more attention in recent years” (Rheinberger 1997b, 1). Reflecting that, Rheinberger’s essay is “an attempt at an epistemology of contemporary experimentation based on the notion of ‘experimental system’” (ibid.). Originally taken from the everyday practice and vernacular of mid-twentieth-century life scientists, the concept of “experimental system” is frequently used, as in Rheinberger, to characterise the space and scope of the research activities conducted by researchers in those sciences (particularly in biochemistry and molecular biology). Importantly, this is, in the first place, a practitioner’s notion, not an observer’s (see Rheinberger 1997b, 19). In his most succinct formulation, Rheinberger states that “experimental systems are arrangements that allow us to create cognitive, spatiotemporal singularities” (ibid., 23). And in a later publication Rheinberger writes, “It is only at the beginning of the 1990s and in the context of an ongoing replacement of theory-dominated perspectives of scientific change by practice-driven views on research that the concept of experimental systems has found entrance into the historical and philosophical literature on science (Rheinberger 1992, Rheinberger and Hagner 1993, Rheinberger 1997[b])” (Rheinberger 2004, 2).

On several occasions—notably in the “Prologue” to the book *Toward a History of Epistemic Things* and in the online essay “Experimental Systems: Entry Encyclopedia for the History of Life” (Rheinberger 2004)—Rheinberger gives a thorough description of the four basic features of an experimental system. These features are summarised in table 1.

(a) Working units of contemporary research	—“Experimental systems . . . are the genuine working units of contemporary research in which the scientific objects and the technical conditions of their production are inextricably interconnected. They are, inseparably and at one and the same time, local, individual, social, institutional, technical, instrumental, and, above all, epistemic units. Experimental systems are thus impure, hybrid settings” (Rheinberger 1997b, 2).
(b) Differential reproduction	—“Experimental systems must be capable of differential reproduction . . . in order to behave as devices for producing scientific novelties that are beyond our present knowledge, that is, to behave as ‘generator[s] of surprises.’ . . . To be productive, experimental systems have to be organized in such a way that the generation of differences becomes the reproductive driving force of the whole experimental machinery” (Rheinberger 1997b, 3). —“Differential reproduction conveys a peculiar kind of historicity to experimental systems. They can acquire, to speak with Ian Hacking ‘a life of their own’” <sup>1</sup> (Rheinberger 2004, 5, including citation of Hacking 1983, 215).
(c) Graphematicity	—“Experimental systems are the units within which the signifiers of science are generated. They display their meanings within spaces of representation . . . in which graphemes, that is, material traces . . . are produced, articulated, and disconnected and are placed, displaced, and replaced. . . . scientists create spaces of representation through graphematic concatenations that represent their epistemic traces as engravings, that is, generalized forms of ‘writing’” (Rheinberger 1997b, 3).
(d) Experimental cultures conjunctures bifurcations hybridisations	—“Experimental systems get linked into experimental ensembles, or experimental cultures. . . . [through] conjunctures and bifurcations” (Rheinberger 1997b, 3). —“Finally, conjunctures and ramifications of experimental systems can lead to ensembles of such systems, or experimental cultures.” (Rheinberger 2004, 6).

Table 1

In short, an experimental system is a specific unit of research, spatiotemporally precisely located, wherein two kinds of “things” interact: technical objects and epistemic things (whose difference is functional and not ontological). Within such a system, mechanisms of reproduction and repetition aim at the generation of differences. Furthermore, an experimental system is a space of representation where inscriptions are made in order to generate and preserve traces. Finally, experimental systems might establish links to other experimental systems (conjunctures), be divided into several experimental systems (bifurcations), or merge with other experimental systems (hybridisation). At some

point an articulation of ensembles of experimental systems might emerge, generating what Rheinberger calls “experimental culture” (cf. Rheinberger 1997b, 3).

Rheinberger’s use of the term “system” means a kind of loose coherence both synchronically with respect to the technical [objects] and organic [epistemic] elements that enter into an experimental system and diachronically with respect to its persistence over time (Rheinberger 2004, 3). As the use of the terms “technical object” and “epistemic elements” reveals, *technicality* and *epistemicity* form an intricate relation at the inner core of an experimental system. “Epistemic things” are the entities “whose unknown characteristics are the target of an experimental inquiry” (Rheinberger 1997b, 238), paradoxically embodying what one does not yet know (cf. *ibid.*, 28). “Technical objects” (sedimentations of earlier epistemic things) are scientific objects that “embody the knowledge of a given research field at a given time” (*ibid.*, 245); they might be “instruments, apparatus, and devices which bound and confine the assessment of the epistemic things” (Rheinberger 2004, 4). Technical objects and epistemic things coexist simultaneously within the experimental system, and “whether an object functions as an epistemic or a technical entity depends on the place or ‘node’ it occupies in the experimental context” (Rheinberger 1997b, 30); “within a particular research process, epistemic things can eventually be turned into technical things and become incorporated into the technical conditions of the system” (Rheinberger 2004, 4). Between the two extremes, there is room for a gradient scale, for diverse degrees of hybrid things and for vague material entities whose function in the experimental system changes. An example of such an entity, when applying these notions to music, is the score, the material inscription of a complex set of signs and symbols that might be considered as either an epistemic thing or a technical object depending on the role it plays at any particular point during a performance.

#### EXPERIMENTATION IN MUSIC PERFORMANCE: HOW TO MAKE THE FUTURE?

The application of Rheinberger’s terminology and research architecture to music performance is an attempt to establish a wider common ground for artistic research in music performance. This application is not obvious, nor is it straightforward. Rheinberger developed his theories in a very specific field of inquiry. In transferring these theories to other fields (especially to artistic and creative areas), one must proceed cautiously. This said, however, there are several musical entities that might be considered as being “technical objects” and/or “epistemic things,” depending on the specific use and context of their presentation. Accepting the risk incurred in applying Rheinberger’s theories to music, one might say that scores, instruments, or tuning systems, for instance, may be seen as technical objects that are brought into particular constellations (such as “the concert” or a CD recording), to produce assemblages that are treated and perceived as works of art. The same entities may, however, operate as epistemic things, whose qualities can be divided into two main groups: those

already known and those still to be known (discovered). Musical works participate, therefore, in two different worlds: one related to their past (what constitutes them as recognisable objects), another related to their future (what they might become). If we require the performance to be an idealised act of interpretation (be it hermeneutic or performative<sup>5</sup>) and if we reduce it to the repetition of the score (understood as an instrumental technical object), we take away the possibility for epistemic things to emerge or to unfold into unforeseen dimensions. We would be dealing mainly with the work's past. If we want to give credibility to performance as an instance, among others, of epistemic activity, we need a concept such as "experimentation" that creates space in relation to the score (which would otherwise overdetermine and close down the epistemic potential of performance practice), allowing unpredictable futures to happen. And we also need Rheinberger's experimental systems as a basic methodological tool to frame our artistic experimental approach.

From this perspective, experimentation, methodologically conducted through experimental systems, might allow for "making the future" of past musical works, something of which "interpretation" is far less capable. Moreover, artistic experimentation has the potential to bring together the past and the future of "things," enabling and concretely building (constructing) new assemblages—something that non-artistic modes of knowledge production cannot do.

But how can such new assemblages appear? Under what conditions and responding to which criteria? How to evaluate their quality? How to assess their constitutive parts and define them as contributions to knowledge? To suggest possible lines of answer to these questions a brief summary of the concepts and practices exposed so far in this chapter—as well as a reference to the Foucauldian concepts of *archaeology* and *problematization*—will help better situate and explain not only the concept of "experimentation" in use in this chapter but also my own conception of artistic research and its role in our knowledge society.

The first fundamental concept presented in this chapter was that of *epistemic complexity* as defined and developed by Kováč and Dasgupta. For Kováč epistemic complexity is the result of the epistemic unfolding of the universe (*epistemic principle*), while for Dasgupta it concerns the richness of the knowledge that is embedded in an artefact. If we think in terms of simple time coordinates such as past-present-future these two perspectives share one characteristic: they both scrutinise things (biological organisms or human-made artefacts), looking at and analysing their respective pasts. What things *are* in the present is understood to be an accumulation of epistemic features throughout time, from the past until the present. Even if this approach might inform us how an organism or an artefact might behave in the near future, the main concern of those two authors is not with the future but with identifying, articulating, and evaluating the evolution of such things.

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<sup>5</sup> For the distinction between hermeneutic and performative "interpretation" see Hermann Danuser's entry on "Interpretation" for the German Encyclopaedia MGG (Danuser 2007).

Second, I presented the concept of *things* as developed by Rheinberger, inspired by Kubler. This concept allowed me to consider the epistemic complexity of the natural and human worlds as a potentially infinite galaxy of things, entities that escape closed definitions and that might have different functions according to the context in which they are temporarily immersed. In the second section I mentioned some graspable examples of things that constitute musical works, things that I defined as tokens of a musical work's epistemic complexity. This breakdown of the epistemic complexity of musical works into its manifold constitutive elements (things) is crucial because it enables open-ended possibilities for new assemblages.

In this constellation of potentially infinite things the concept of *archaeology*, as elaborated by Michel Foucault, becomes a helpful methodological tool. According to Clare O'Farrell, "Archaeology' is the term Foucault used during the 1960s to describe his approach to writing history. Archaeology is about examining the discursive traces and orders left by the past in order to write a 'history of the present.' In other words archaeology is about looking at history as a way of understanding the processes that have led to what we are today" (O'Farrell 2007). In this sense, archaeology is a way to look at the past from the present, with the goal of better situating/understanding the present (and, crucially, *not* the past). It describes a boomerang-like route: from the present to the past, and back from the past to the present. It does not aim at disclosing "how things really were" but rather "why things are what they are" *today*. In Foucault's words:

Archaeology does not try to restore what has been thought, wished, aimed at, experienced, desired by men in the very moment at which they expressed it in discourse. . . . it does not try to repeat what has been said by reaching it in its very identity. It does not claim to efface itself in the ambiguous modesty of a reading that would bring back, in all its purity, the distant, precarious, almost effaced light of the origin. It is nothing more than a rewriting: that is, in the preserved form of exteriority, a regulated transformation of what has already been written. It is not a return to the innermost secret of the origin; it is the systematic description of a discourse-object. (Foucault 1972, 139–40)

The link to Michel Foucault is explicit in Rheinberger and is very important to his theories of experimental systems in several regards but particularly to the definition of epistemic thing: "[Foucault's] 'discourse-object' is what I call an epistemic thing" (Rheinberger 1997b, 8). For Rheinberger, epistemic things are "things embodying concepts" that "deserve as much attention as generations of historians have bestowed on disembodied ideas" (*ibid.*). To give epistemic things the attention they deserve is (1) to extract them out of the *chaos* of systemic complexity, and (2) to allow them to contribute to the formation of new entities, new epistemic things that, in turn, will add new things to the archaeology of epistemic things, that is, to epistemic complexity. From this perspective, archaeology appears almost as a necessary consequence of epistemic complexity.

But Foucault's "discourse-object" is not only to be described but must be productively resituated, involving *problematization*, another Foucauldian concept that gained increased relevance in Foucault's late works: "The notion common to all the work that I have done since *Histoire de la Folie* is that of problematization" (Foucault 1998, 257). With this concept Foucault refers to the work one does to direct one's thought toward present practices which were once seen as stable but which the researcher shows to be problematic in some crucial sense. "Problematization doesn't mean the representation of a pre-existent object, nor the creation through discourse of an object that doesn't exist. It is the totality of discursive or non-discursive practices that introduces something into the play of the true and false and constitutes it as an object for thought" (ibid.). Problematization has, therefore, to do with "objects," with things that are archaeologically retraced and transmuted from "neutral objects" into "objects for thought." In the context of the present chapter, archaeology and problematization go hand-in-hand, and they both work as problematization of the *aesthetic-epistemic complexity* described above.

*Epistemic complexity, things, archaeology, problematization*—the concepts presented so far—all scrutinise things (biological organisms, human-made artefacts, and concepts) by enquiring into their past. The notion of problematization might be understood as a highly elaborated form of *interpretation* of historical data. In this sense, looking backwards and applied to music, it is perfectly recognisable in disciplines such as, for example, music analysis, music theory, music historiography, organology, and biographical studies—in fact in the majority of musicological sub-disciplines.

However, there might be a different mode of problematising things, a mode that, rather than aiming to retrieve what things *are*, searches for new ways of productively exposing them. That is to say, a mode that, instead of critically looking into the past, creatively projects things into the future. Such is the final proposal of this chapter: to reverse the perspective from "looking into the past" to creatively designing the future of past musical works. In my view this is precisely what artistic research could be about—a creative mode that brings together the past and the future of things in ways that non-artistic modes cannot do. In doing this, artistic research must be able to include archaeology, problematization, and experimentation in its inner fabric. The making of artistic *experimentation* through Rheinberger's *experimental systems* becomes a creative form of *problematization*, whereby through *differential repetition* new assemblages of things are materially handcrafted and constructed.

In a deeper sense experimentation is not the act of conducting experiments (and even less of making tests). Aesthetic experimentation relates primarily to a completely new orientation of the senses and of the reason, aiming to reconfigure the sensible. As phrased by Ludger Schwarte in the opening speech of a conference on "experimental aesthetics" held in Düsseldorf in 2011: "Aesthetic experimentation starts when the parameters of a given aesthetic praxis are broken, suspended, or transcended, in order to work out a particular mode

of appearance that reconfigures the field of the visible and of the utterable” (Schwarte 2012, 187, my translation).<sup>6</sup>

That such reconfigurations are only possible after a profound consideration of the epistemic complexity of aesthetic things is the inevitable and necessary condition for creative problematisation; that is to say: for artistic research. From this perspective, artistic research therefore happens when: (1) The epistemic complexity of a given object of inquiry is scrutinised; (2) the constitutive things of such objects of inquiry are identified and isolated; (3) an archaeology of such things is explored; (4) the results of this exploration are problematised with the purpose of enabling their projection into the future; (5) the problematisation happens in precisely calibrated frameworks (experimental systems); (6) inside an experimental system *differential repetition* is stimulated, enhanced, and achieved; (7) new assemblages of things emerge as the result of a constructive (and not only theoretical) endeavour.

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6 “Das ästhetische Experimentieren beginnt dort, wo die Parameter einer gegebenen ästhetischen Praxis unterbrochen, suspendiert oder überschritten werden, um eine spezifische Erscheinungsform herauszuarbeiten, die das Feld des Sichtbaren und Sagbaren rekonfiguriert.”

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# Experimental Art as Research

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A number of recent developments, particularly in higher education in the arts across Europe, have resulted in the theory and practice of research in art gaining new momentum.<sup>1</sup> The underlying reason is simple: academic higher education, whether technical or purely scientific, can only claim to be academic when supported by scientific research and insofar as the institutions that provide such education pursue their own research. Education that consists mainly of learning skills is for this reason not academic: it is craftsmanship. In a great many European countries, the decision has been made—partly in imitation of the Anglo-Saxon model—to include higher education in the arts in academic education. And this very phenomenon—besides creating hilarious phenomena such as teaching piano, trumpet, or violin by “lecture”—has saddled us with a considerable problem. The difficulty is apparent in all sectors of art education: the fine arts, music, performing arts, and even literature, although academic training in the latter is pretty much non-existent in most Western countries. In recent years, research competence has become one of the aims of education and, like the thesis-based doctorate, has become a fundamental condition for gaining tenure in institutions of higher education in the arts.

Clearly research *in* art is not the same as research *about* art. The latter, after all, belongs within the humanities (art history, musicology, literature studies, etc.), which have had a solid place among our university courses for years. Their academic nature is seldom questioned, even though the claim of studies in the arts to be scientific can be contested on the basis of the artefactual nature of their object of study. This is because the research deals with artefacts made by humans, which all too often are directly influenced by the research itself.<sup>2</sup> This area of conflict approaches the self-evident when artists—assuming that they have any of the required skills—start practising the humanities with respect to their own work. The distinction between subject and object becomes so

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1 I wrote an initial, concise version of this essay in October 2003 in Barcelona for publication in *Reflexief*. The Dutch-language original of the present essay, which is somewhat more extensive than the original, was written in Ghent in January 2011 at the request of the Dutch magazine *Kunstzone*. It appeared in February 2011. This English version, again somewhat extended, was intended for this ORCiM publication.

2 Michel Houellebecq’s most recent novel (*La carte et le territoire*, 2010) is very enlightening on that issue, although he is certainly not the only one to point out the manipulative aspect of the art world. Incidentally, one should put this into perspective here by mentioning the relatively recent emergence of disciplines such as systematic musicology, which is not so much directed towards specific artistic artefacts, their makers and their history, as towards the general issues surrounding the phenomenon of music and its conditions of existence; in doing so it only uses scientific research methods.

blurred at that point that the research results can be considered purely egotistical. An artist can indeed, with perfect legitimacy, take his or her own work as the object of all kinds of reflections, but it can never be a valid object of academic research. It is clear that making arts education academic cannot be intended to link it to, let alone merge it with, the humanities. The big question remains: what is research in the arts?

Research automatically implies that there is something being researched and that a question, a problem, exists with respect to that something. But not just anything can be the object of research: the need for a rational research method to exist and for the results to make a verifiable difference are obvious requirements. Moreover, it is also necessary for the object of research to be problematic and for the problem to have a demonstrable significance. The latter must certainly supersede the significance it has for the individual researcher. A painter wrestling with perspective, a composer tying him- or herself in knots over problems of orchestration, a performer struggling with a highly complex score . . . these people are searching, but not researching. That is, and remains, a fundamental distinction. Creating art, practising it, with whatever degree of excellence, cannot simply be conflated with research in art. Art and research are not the same thing, although they may occur together.

However, art that is not problematic, hence art that does not research anything, is something I believe I can only reluctantly call art, since it would limit itself to purely reproductive, at most somewhat interpretative, craftsmanship. This forces us to use a somewhat more restrictive definition of art than the customary definition as understood by common sense. Even one that is a bit elitist, perhaps. An artist who limits him- or herself to craft is like a laboratory technician who uses test tubes, measuring scales, and reactions according to the rules, regulations, and rituals, but does so without asking any questions, to no purpose that is clear to him or her. Or like musicians, whether or not they have instruments to play with, who attempt to interpret a score as well as their fine motor control will allow for the entertainment of their fellow human beings. They are performing, but in no sense does this entail research, as it lacks problematic content. Following this line of reasoning, therefore, relevant art—art that poses relevant problems—is by nature experimental. The problem, the question, is the most important force that drives it. In this respect there is no fundamental difference whatsoever between art and science. The main difference lies first in the rigidity of the research method and second in the nature of the problems investigated in art. With respect to the former, the rigidity of the research method, I would like to point out that the experimental arts world has made considerable progress in the last quarter of a century and its methods do indeed correspond to methods in contemporary scientific research. The existence of scientific journals such as the *Computer Music Journal*, *Leonardo*, *Organised Sound*, and others, bears witness to this.<sup>3</sup> As to the latter, the

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<sup>3</sup> The conception of research in the arts defended here corresponds closely to a tradition that has been prevalent in the progressive contemporary music world since the second half of the twentieth century. We only need to think of the many variants of the “Centre de Recherches Musicales” in French-speak-

nature of the problems investigated, the problems mainly have to do with what I would like to call expression (in the broad sense). Experimental art searches for and develops means of expression. If the results of this research are considered significant enough, the artistic results in which they are embedded simply become art. The mere use of means of expression, however innovative they may be, is by no means sufficient to call a project "research." These means of expression may be highly individual and specific, but may also be suitable for use in general and relevant to many others who are confronted with similar problems of expression. The development of means of expression does indeed occur within the art form itself. After all, it is only within art that they can be evaluated. At least in the case of experimental art.

To understand expression too narrowly in this context would be a misunderstanding: expression is by no means the unique preserve of art! Of course scientific researchers must also be capable of expression in order to put the results of their research into the forum where it is ultimately to be tested. Communication skills are clearly necessary to make the researcher's expressions comprehensible. In the case of science, it is also desirable to be as unambiguous as possible. However, in the case of expressing affects and/or concepts, the primary requirement is that the expression is able to invoke affects and/or concepts in those to whom it is potentially directed. A lack of ambiguity is not necessarily a requirement here, although high levels of convergence may occur. It is clear that this happens from the simple fact that a large number of artistic expressions are classified in the same way by large groups of people. A requiem is not cheerful dance music. That is quite objective.

Music is pre-linguistic, as it were, since it precedes or at least displaces conventional semantics. This is why its syntax cannot be set out in a system of fixed rules, let alone prescribed. The pre-linguistic nature of artistic expression means that it must by definition concern itself with a search for an adequate syntax and, in that if nothing else, it is experimental. This adequate syntax is primarily expressed in the coherence of the form: the architecture of the artwork. Whatever form it takes, it can only be shown and performed by realisation in a material form or a substratum of energy. The production of form in this substratum again requires from the latter a certain suitability that is not an a priori given. Research in art is therefore primarily concerned with the development of substrata or media in which and with which the syntax can be realised as optimally as possible. Of course experimental research into the

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ing areas, the "Untersuchszentrum für Neue Musik," "Laboratorium für Klanggestaltung," "Studio für Tonuntersuchung," "Studio for Electronic Music," "Artistic Research Centre," "Institute for Psychoacoustics and Electronic Music," and so on, whose names alone are a symptom of this phenomenon. I have observed that a few peculiar people are currently trying to misuse the concept in a recuperative and reactionary sense for purely reproductive and historicising purposes, a bit like the way the opera world embraced the trendy term "music theatre" in the last quarter of the twentieth century, although the term was thought up by the avant-garde (Kagel, Cage, Stockhausen, etc.) specifically as an antidote to the decrepitude of opera. It is painful to observe how certain institutions are now even making funding available for the recuperation of scores by old, rightly forgotten, and totally insignificant conservatory directors in the guise of "research into the arts."

possibilities for processing these substrata, including tools and instruments, also belongs to research in art.

The main difference between scientific research and research in art lies in the fact that artistic research does not build up a coherent theory within which and on the basis of which initial hypotheses are proven as theses. Research in art, or experimental art, does not necessarily prove anything. Instead it has to show, demonstrate, and extend possibilities, and, where possible, convince.

Of course one might object that this sort of artistic research is completely superfluous, since art in earlier times did not go hand in hand with artistic research. However I have serious doubts as to whether this is true. What is more, there might be evidence for the statement that until a long way into the nineteenth century, a substantial proportion of artistic production (and, at that, the segment of artistic production that upholds art histories to this day) was indeed fundamentally supported by research but that this link all but disappeared during the nineteenth century under pressure from the general capitalisation of artistic production, which led to art becoming largely a vulgar and reproducible commodity: the commercialisation of art. Indeed, it is certainly not in the work of Johann Strauss or the music of Jimi Hendrix, Herman van Veen, Arvo Pärt, or Radiohead (the examples have been taken at random from commercial music) that we can detect committed artistic research. It is aberrant, to say the least, that precisely where people today express themselves, they do so by imitating handed-down examples (the veneration of corpses in the classical music world) and by using tools and means of expression that come from a past in which there was still research into the arts (orchestras and traditional instruments). A healthy contemporary culture develops its own means of expression that are adequate to its expressive needs, and ongoing research in art is essential for it to do so. Historicism aimed at reproduction is gradually coming to an end. I will not mourn its passing.

If we wish to create space for genuine research in art, the first condition for doing so is the creation of permanent arts laboratories: sanctuaries from which experimental art can connect to its contemporary environment and to the resources provided by both science and technology within that environment. The importance of these bridges and the interdisciplinary skills required to use them cannot be emphasised enough: is it not unhealthy and aberrant that most canonical means of expression, whose use is still taught in our educational institutions as a craft, are derived from periods in history that are at least a hundred to five hundred years behind us? It is as if our own time were incapable of coming up with resources and insights that could serve as a basis for considerably more adequate means of expression. If this is not yet clear as a general principle, it boils down to a honest question as to how and why our conservatories are still teaching students to play violins, bassoons, and oboes, but only seldom how to use contemporary means of expression, let alone how to construct and develop them.

To put forward a utopian thought, I believe that higher arts education as a whole should be conflated with permanent laboratories of this kind. Currently such labs do exist in a prototypical form. Our knowledge of them is limited

to the field of means of musical expression, an area for which governments across Europe have provided a certain minimal funding in recent years. This is of course a logical consequence of the implementation of the Bologna agreements, which stipulate that all academic education must be linked to research, and consequently to the necessary resources to bring this about. The Logos Foundation, based in Ghent (Flanders) has surely played a pioneering role here, if only in the field of music: it has been constructing and developing new musical instruments for over forty years, including an entire orchestra of robots. In the Netherlands, pioneering work on electronic interfaces has been done by the STEIM in Amsterdam, and naturally examples can also be found in France (IRCAM, Grame, and others) and Germany. For now, however, I only wish to plead for such laboratories as academic islands, as a starting point for research in the arts, which are understood exclusively to be the experimental arts.

Only in recent years have we seen the creation of doctoral schools that also support artistic research. Universities started special training programs for PhD students, but do not have specific curricula for experiments in the arts. The ORCiM program at the Orpheus Institute, restricted to music, is a prototypical example of a serious attempt to meet the needs of doctoral students in music. In general, there is still a lot of ambiguity as to the definition of experiment and research, as these notions are often fairly ill defined. The Schools of Arts have a tendency to take a rather reactionary position in following a strategy of preservation in an attempt merely to upgrade their existing activity. Much of the “artistic research” conducted there, following the criteria outlined in this paper, would fall through completely. Often one will hear them proclaim the statement that the doctorate in the arts should be given to those who excel in their art. This undermines the notion of both experiment and research. Awarding doctorates to artists for mere excellence not only devalues those doctorates but also undermines them. I hold that doctorates should only be delivered to artists after proof of research competence and proof of relevant results.

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# Tiny Moments of Experimentation

## Kairos in the Liminal Space of Performance

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A concert performance of music seems, at first sight, a non-experimental, well-prepared activity requiring considerable technical and instrumental skill, background knowledge of context and composition, rehearsal, and interpretational fidelity to a tradition. However, small gaps—possibilities for experimentation—emerge in the elaboration, preparation, and performance of a musician’s act, in the background of the musician’s world of highly skilled practices, profound training, embodied schemata, and prepared interpretational expression. In the act of performance, in the liminal space between contingency and the hidden background of artistic practice, *kairos* (which I translate as *the artistic opportune choice of action*) can appear and challenge expected interpretation by opening up the “here and now” of the performance.

### THE ARTIST’S PRAXIS: EXPLORATION AND PERFORMANCE IN SPACE AND TIME

How can the world of a performing artist, the artistic realm or space of his or her activity, be described? The artist’s world is part of the ordinary world in which humans—and thus also artists—live, dwell, and act. But it is also a generally isolated time-space related activity, often with untidy boundaries, with lengthy hidden phases and short, revelatory appearances in the outer world. This “outer world” may be unaware or have difficulty understanding the hidden, private artistic activity, endeavour, and training behind these moments of public display. In the first place, what the artist does on stage does not necessarily presuppose his or her artistic practice beyond the stage. Second, each performance act opens a complex situation of sign-signification, totally focused on the artistic enactment and temporary reality of the artwork, in which the artist recedes into the background. Third, what possibly could be unveiled or concealed by the artist about him or herself or about the artistic process is

caught up in the interpretation or creation of meaning—whether that of the audience or of the artist—linked to the artwork. Fourth, the enactment of the artist always entails tacit, ineffable, and embodied aspects that remain resistant to explanation.

However, artistic performances do not occur suddenly, rather they are backed by interwoven parameters or spaces that together form the artist’s realm. It is thus necessary to consider the situation of artistic performance as one part of the broader artistic realm of the performer. Each unique artistic performance is an instance, a moment of concentrated artistic endeavour. It is but the visible manifestation of a long process of patient integration of multiple tacit dimensions, which can be considered as spaces within a broad zone of exploration in which to roam and to dwell, to mine and to borrow from (see “The Web of Artistic Practice: A Background for Experimentation,” in the present volume). At the same time, this zone’s constituent parts orient and influence the artist, who is also a fundamental part of it. In this zone, the artist will experience different phases of action and reflection, on different levels: discovery, heuristics, training, rehearsal, research, mimesis, instruction, interpretation, and so on. Though often originally socially steered, the artist will develop a personal commitment towards the possibilities and constraints, extensions and limits of this idiosyncratic zone of exploration. This zone of exploration indeed implies, for most of the time, a private, retired, or semi-private social position. The artist is working, exploring, investigating, and reflecting on how to enact art. One part of this process is a personal inquiry taking place in a self-protected, hidden social position; the other part is social, embedded in dialogue, education, transmission, and exchange.

The explorations of the artist as well as the resulting performances offer new opportunities, input, and experiences. Both enrich the artistic realm in a dynamic movement between long processes of training, discovery, and creation and moments of explicit enactment and interpretation, equilibrating skills and choices, external influences, and inherent personality, technical training and reflection, preparation and performance.

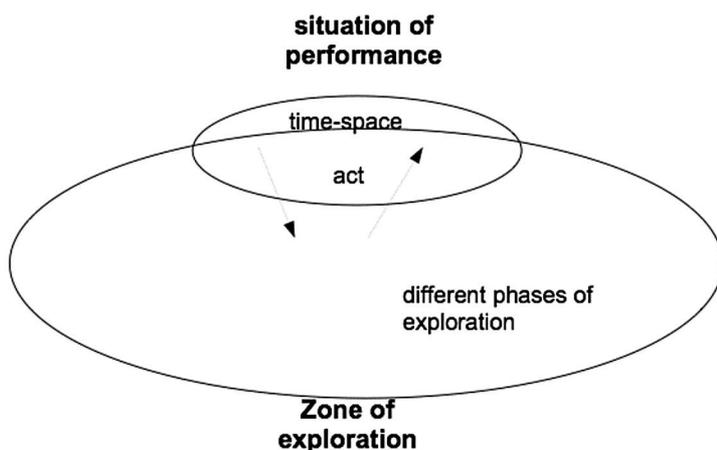


Fig. 1

The performance-act is situated in an open, public social space, which is usually protected by the surrounding rituals and rules concerning the constituents of the performance as well as the participants in the situation. Two aspects can be distinguished.

A first aspect is the time-space frame of the performance, which is often decided on a social basis: when, where, and how will the performance take place. The ritualisation of the preparation and the social codes that define the performance act as a public artistic act are, for both performers and audience, fixed well in advance: how to behave, greet, applaud—even how to dress. They can be considered as the contours, or as the frontier that precedes entering the liminal space of performance: for the audience, this forms a bridge between the ordinary world and the expected aesthetic experience, for the performer, it signals a readiness to engage in the artistic act. In that sense, we can consider the act of performance as temporally and spatially situated. It is inserted in the *chronos*, the quantitative measure of time, and happens in a specific *topos*, a place—a room, or a theatre, for example.

The second aspect of the situation of performance is the instance of the performance itself, the inside of the performance, in which the performer creates the artwork, absorbed in the enactment, from a position of self-reflective embodiment. The rules of cultural society and the specific *chronos* and *topos* of the event require the performer to be “ready,” to have acquired and elaborated the necessary cognitive and embodied patterns and trajectories capable of sustaining and expressing that specific artistic act of performance out of his or her broader web of artistic practice. But, once started, each performance and, inside that performance, each instance of it, is enclosed in its own artistic time and place and is enacted in moments of now reaching out towards the whole act. In time-notions, an act of artistic performance is one whole, and cannot be exposed in different phases: no revision, no reprise, no hesitations. It is one holistic process unfolding in time and space. The movements themselves are part of a process of embodied and reflective expectation and anticipation. Once the act is launched, each gesture is the result of the previous one and the origin of the next, each gesture adding, changing, and influencing the meaning of what was before and what is to come. Performance time is fleeting and constraining: movements unfold and succeed one another and even a silence or immobility is but a tension or preparation for the embodied gesture towards the next movement or sound; the movement is never in isolation. Internally experienced time and spatialised, objective, analysable time merge into an embodied time. This embodied time is experienced and realised through the body and the gesture, withdrawn from ordinary or social time (*chronos*) into a suspended time in which the embodied and gestural flexibility in the artwork determines temporal suspension or elasticity. An embodied narrative of meaning takes place. Moreover, the dynamic process of the performance-act happens not only in time but also in space. The movements of the body incorporate the surrounding space, linking interiority and exteriority. The space of the performance, being the space of the performer, becomes part of the body, or the body part of the space. The artist enacts (with) a high perceptual and kin-

aesthetic sensitivity of the space, the objects, bodies, atmosphere, of everything that is “in touch” with his or her body, extending the body and its unfolding gestures into the material surroundings and objects.

The theatre space changes completely when a performance starts. The empty space becomes an artistic space, an integral part of the artistic act, changing the space into a lived artistic embodied realm. The floor is no longer “the floor of a theatre building,” the walls are no longer ordinary walls; they become part of or even “disappear” into the creation of the artistic embodied act. Position thus becomes disposition: where the artist is and what he or she does or will do, his or her spatial position, and the nature of the material and relatedness of body and space, merge completely in the unfolding of the performance. The artist’s performance involves the creation of a new time-space, or an “in between” time-space: a liminal space of artistic performance that challenges ordinary quantitative time-space experiences or *chronos-topoi*.

	<i>zone of exploration</i>	<i>situation of performance</i>	
<i>time-space</i>	broad realm of discovery and training different phases/moments	time-space of performance	instance of performance
<i>personal commitment</i>	preparation, dwelling, heuristics, reflection, training, etc.	readiness contact	acute attention, enactment
<i>social position</i>	private/ retired / semi-private —> hidden position —> dialogue position	ritualisation / roles relation to the audience	performance as public act of self-reflective embodiment

Table 1

### KAIROS IN THE ACT OF PERFORMANCE<sup>1</sup>

How can creativity happen in the act of performance itself? Everything is prepared, rehearsed: is there a space left for experimentation? Yes there is, because the act of performance contains unpredictable elements, occasions, or constraints, urging creativity to emerge, urging the artist to “undertake something.”

The assemblage of the spaces of artistic practice, of preparation, and of performance in one “here and now,” in one act, creates a liminal space of creativity, in between the artistic background and the focus of attention. It may

<sup>1</sup> This part of the text has its origins in Coessens (2009).

be construed as a laboratory where an important experiment will happen: everything is prepared, space and time controlled, actors and objects in place. While, in contrast to the laboratory, an experiment in the concert situation is not expected, a comparable rigour and meticulous preparation is put forth. A heightened awareness tracks both the artist and the scientist: control, observation, and action. However in the concert situation, the performer is part of the event, while in the laboratory, the scientist places him- or herself outside the experiment. Moreover, the laboratory researcher expects something “experimental” from the actions of the event, which is normally not the case for the performer.

However, in this liminal space of performance, possible experimentation can emerge as “kairos,” a Greek word meaning “a propitious moment for decision or action.” For the ancient Greeks, different contexts, aims, trajectories, and situations require new choices, decisions, and ad hoc reflection. Choices can never be settled, can never rest on facts and principles. Humans have to make decisions in particular situations: they have to act in a specific context. Moreover, decisions and choices, analyses and commitments have to be made at the right moment, at the opportune time, the kairos. Aristotle considers the kairos as the propitious decision, made in an individual and concrete dynamic situation. He uses the word to describe the art of rhetoric, meaning that the general rules of rhetoric are void as general forms, but have to be applied flexibly in different situations, not foreseeable by the rhetoricians (Aristotle 1925, 1354 [*Rhetoric* 1.1.14]; Kinneavy and Eskin 2000). Rhetoricians have to enter the situational context, to interfere, play with it, react to present circumstances in an appropriate manner, led by virtue, equity, fitness, and occasion.

What then can kairos mean for the performer?

From the point of view of the artist, the seemingly continuous unfolding of gestures in the act of performance is confirmed by a heightened awareness and an embodied and cognitive track of this continuity, always ready to reassess background and focus. This attention implies a fast tracking of possibilities and constraints and quick attuning between proprioception and exteroception. The artist will have to cope with unexpected conditions that may suddenly hinder the attuning of body and space. He or she will prevent this as much as possible, by already “sensing” the space, by preparing his or her body and its “touch” with that space. The kairos of the artist concerns the faculty and reaction to cope with the unexpected, with the particular constraints of the artistic situatedness. It concerns some expectation of the “unexpected,” of an impression, a noise, a friction that interrupts or questions the prepared narrative. Just as every performance is different—a different space, public, mood, time, context—every decision in a performance, every commitment is specific, particular, and context-linked. Thus, decisions and choices, analyses and commitments have to be made at the right moment, at the opportune time, the kairos.

The artist has to be alert, to react, to contest, to interfere, whenever his or her responsibility can make that little difference needed. This offers us a translation of Aristotle’s “virtue” into artistic virtue: “Through the performance, the artist establishes artistic virtue, acting with a sense of pride as well as humility,

knowing that, well-prepared, the artist has to be prepared for the unexpected. In a broader sense, virtue refers to the sincere participation and interaction in and the cultural contribution to the art world” (Coessens 2009, 278).

The second notion connected to *kairos* is equity, in rhetoric another moral notion. It can be reconsidered in this context as the idea of artistic balance, of sensing what is appropriate and how it can be revealed in the particular situation of the performance. The equity principle aims at a kind of respect towards and a fundamental belief in art, one’s own artistic act, the other artists, and the audience, even in very difficult situations. Equity is to be found in the intention, not in the action itself, but in the underlying purpose. Equity aims at readjusting an imbalanced situation through intelligence, character, and good will. Different environmental settings and different audiences will require adaptation and continuous revision of interaction with other performing artists.

Fitness then, in the moment of *kairos*, concerns vigilance, and the possibility of reaction. It implies alertness of the performer to the sensibilities of the audience, as well as fitting the artistic discourse to broader social, cultural, and moral sensibilities. In this sense, the artist has to make his or her audience attentive. Fitness allows the artist to draw out, bring to the fore, and display energising forces and imagination, building on the web of artistic practice, in due measure and proportion.

Finally, the notion of occasion implies a feeling for the appropriate moment of creative interventions, an awareness of open possibilities, and the ability to cope creatively with unexpected opportunities. The performing and situated musician, in the liminal space created by the confrontation of dispositions, preparations, and the inescapable moment of performance, has to be alert, to react, to interfere, to decide each instance as it arises, because no rules exist for the unprecedented. *Kairos* implies the coming together of “knowing how” and “knowing when”; it is the faculty of observing and realising the available means of artistry in any given case. The multiple choices and decisions, ephemeral as they are, are fundamental and creative ways of travelling between background and focus, between deep artistic endeavour and immediate praxis, between movement and aesthetics, between self and expression.

Spaces for experimentation are, both in science and in art, often constrained by different fixed parameters. In the case of performance, the musician as expert has elaborated an interpretation to stick to. Moreover, the time and space, expression, and content of performance have been fixed by traditional and cultural rules. However, unexpected elements in the situation of performance can open gaps for experimentation, where the performer can explore a new movement, sound, arch, or intention not previously elaborated. In the action, he or she will have to make a qualitative judgement about it and will reflect afterwards on the importance of it, as well as on how to repeat it in other situations. This new element, explored in the contingency of events, can then become a constructive part of further interpretations.

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# The Web of Artistic Practice

## A Background for Experimentation

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### INTRODUCTION

Beneath the artist's apparent expertise and creation—revealed in artistic realisations such as composition or performance—a complex domain of experience, knowledge, and actions is hidden and difficult to pin down. This domain consists of different tacit dimensions, which can only be made visible, understandable, by theorising, or by the introspection and interpretation of the artist. Moreover, within the process of creation, the artist is seldom consciously aware of these dimensions, the focus at that moment being creation itself—some artistic idea or aim. The tools of the artist, knowledge, expertise, experiences, and actions present in his or her creative endeavour, remain in the background of this act. It is often only after the act of creation, that some reflection or recollection, as a kind of re-enactment of the background, is possible.

That background is the subject of this article. Beyond “inspiration,” all artistic improvisation and experimentation is enhanced by what I call an “artistic web of practice,” which is both culturally shared and idiosyncratic—thus, specific for each artist. This web of expertise functions as a kind of dynamic artistic background, an internalised and integrated whole on which the artist relies for his or her creativity. It is constituted by five dimensions that refer to the complex interactions and exchanges between the musician and his or her environment: embodied know-how, personal knowledge, the environmental, the cultural-semiotic, and the receptive dimension. Together they form a “web” of artistic practice, woven repeatedly by the artist over multiple periods of education, exploration, and performance, offering a solid but agile support and augmenting artistic expertise. The personal artistic search of the musician in acquiring his or her “web of artistic practice” is a creative path: there is no single curriculum, training, or personality, nor one history of how to become an artist. Musicians have to creatively recognise and recombine the dispositions they possess, those they desire to acquire, and those that happen to arrive by contingency and through experience.

ZONE OF EXPLORATION: TACIT DIMENSIONS BEHIND THE ACT OF  
CREATION

Patiently, over years of rehearsing, studying, listening, and playing, an artist builds up a web of artistic practice that offers a space or zone of exploration: a rich domain of skills, knowledge, aesthetics, and expertise on which to rely. The artist can roam and dwell in it, mine and borrow from it. At the same time, it will orient and influence the artist. This zone of exploration provides background knowledge for the artistic act. Through patient integration of different phases of the multiple tacit dimensions of the zone of exploration, the artist can construct again and again his or her musical narrative and comprehension of a score. This zone contains five dimensions: embodied expertise, personal knowledge, the semiotic-symbolic, the ecological, and the interactive/self-reflective dimension. These dimensions refer to the complex interactions and exchanges between the artist and his or her environment, exchanges that happen over time and in different places, and are pervaded by the limits of human culture and human biology. Together they form a “web” of artistic practice, woven and re-woven by the artist over multiple phases of education, exploration, and creation. This web of artistic practice constitutes a robust but flexible scaffold and is continually developing and augmenting artistic expertise.

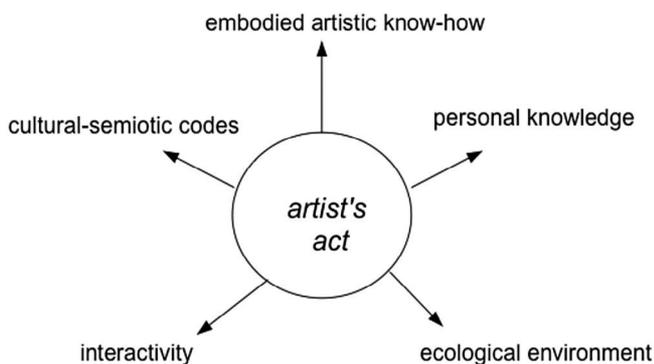


Fig. 1

EMBODIED ARTISTIC KNOW-HOW

Every human being has a primary embodied relation to the world, reciprocally interacting with and modifying the environment (Crowther 1993). Though, in the action of the artist, this embodiment is a skilled, high-level attuning of the physical and perceptual modalities towards the world—whether in the form of materials, tools, or instruments—in a kind of unified activity in which qualities and sensations come together. Artistic creation means taking action in an embodied way: every process of creation contains instances of embodied per-

formance combining different skills, perceptual capacities, and sensorimotor coordination. The body of the artist is his or her first medium of expression.

A first important aspect of this dimension is its synaesthetic and multi-modal nature, which brings together the sensorimotor, intellectual, and embodied capacities of the artist. Etymologically, synaesthesia comes from “syn,” together, and “aesthesia,” senses, implying an attachment or union of the different senses. Synaesthesia means the simultaneous presence of, or translation between, different perceptual sensations. Thus musicians sense their music physically, composers hear what they are writing down: different sensory capacities interact and compound in the focus towards a total grasp of what is—or is expected to be—created. Multi-modality means the multi-sensory interaction of different perceptual modalities, as the artist moves seamlessly between different modes of interaction; from visual to touch to movement to idea; from body to sensation to intellect—and vice versa. This synaesthetic and multi-modal arousal of the artist in the process of creation is a “total” or holistic experience: an experience in which the whole body and mind, the inner and the outer world, are moved as a whole, as a unified striving towards a creative purpose. This creative purpose is neither clear nor defined, but is part of the process of aiming towards and striving for a yet ineffable endpoint. The endpoint will be an artwork or performance, but the purpose itself is, in part, ineffable, being directed and created by interactions between motives that are conscious and unconscious, embodied and cognitive, perceptual and kinaesthetic, and inner and outer. Moreover, this “total” experience often happens in a kind of dimensionless flow in which temporal and spatial awareness of the here and the now, as well as a conceptual and conscious awareness of the self, recede in front of the creative act, the focal point. It thus recalls Mihaly Csikszentmihalyi’s (1990) notion of flow: an optimal experience of focal attention and dimensionless motivation in acts of creativity, sustained by synaesthetic and multi-modal processes of embodiment.

A second aspect of the embodied dimension is the embodied know-how. Artists acquire skills by way of mimesis, instruction, training, and personal experience. Society imprints itself on the individual, often imperceptibly, by repeating social practices, responses and experiences, and patterns of conduct and lifestyle: language, the way we eat, speak, how we walk, how we behave, our outlook on the world, what we like (Bourdieu 1980). Artistic society and the prevailing aesthetic culture have an important impact on young artists. How to handle an instrument, how to hold a pencil, how to merge colours, and how to cope with space, sound, or materials are imposed in a quite imperceptible way by multiple repetition and instruction by a master, and are integrated by the pupil through admiration and imitation of artistic heroes and cult objects. Artists will end up with an artistic habitus, having incorporated traditional and cultural embodied ways of “how to be an artist” (Coessens 2011). Moreover, as the subject proposed to and imposed on artists—artistic skills—appeals to their way of being and interests, they will embody these skills and know-how to a much deeper and more durable point of expertise than more generally socially imposed practices. Artists, at certain points in their artistic develop-

ment, will search consciously or unconsciously for better, easier, and more complex embodied ways to express themselves. The instruction will be sustained by harsh training imposed on the body, compelling it to act in certain ways, depending on time, space, materials, and circumstances. Artistic practices emerge—embodied schemes that structure perception, thought, action, and communication in the artistic process of creation. They acquire an embodied artistic logic, an expert habitus, a seemingly natural and spontaneous yet very elaborated and sophisticated praxis of how to behave, cope, and think artistically, and thus how to engage in a process of creation. This aspect of the embodied dimension is linked to—and overlaps somewhat with—the dimension of personal knowledge.

The third aspect of the embodied dimension is the interaction of the artist with the tool, the material, and the instrument. In the course of acquiring the expertise, a special kind of relationship develops: the tool, instrument, or material, initially approached as something alien to the novice, as something “out there,” gradually divulges its secrets and becomes a familiar part of the body’s activities. Finally, the tool is totally integrated in the act, being part of the artist’s total experience. It has become a bodily extension. Karl Popper (1972, 238–39) mentions the term “exosomatic development,” a development outside the body, meaning that humans extend their bodily and cognitive capacities by way of external means: if you cannot see, you wear glasses; if you are not fast enough, you use a car; if your memory is limited, your computer will remember it for you. Andy Clark (1997, 179) calls this human propensity to bodily extension “external scaffolding,” referring to a scaffold, a construction that helps reach higher levels. A sustained incorporation, an embodiment of the formerly external tool, leads to a seamless integration. For example, musicians, in a very real sense, physically connect to their instrument, which, although an extension of the body, is experienced as an integral part of the body and the bodily capacities. An expert violin player and his or her violin fuse together in the moment of artistic performance; the duality of human being and instrument is substituted with the unique experience of one extended subject. The intense focus on the aesthetic outcome—the music—makes the means (i.e., the instrument, the chords, and the reflection on the interaction) recede into the background. The same happens in other arts: the experience of the material, its resistance, warmth, and the ineffable way of handling it in the act of creation, merge into one embodied and holistic experience. The fusing together of the artist’s bodily capacities with the material and aesthetic possibilities of the tool can thus lead to an unexpected, qualitative outcome. The interaction between the bodily, genetic possibilities of the artist, his or her acquired skills, and the tool, can thus exceed the limitations of both the body and the tool, outstripping the pure addition of human capacities and material possibilities. Triantafyllou and Triantafyllou’s (1995, 69) remark concerning dolphins is certainly appropriate to the artists’ embodied expertise. Clark rephrases their observations: “By thus controlling and exploiting local environmental structure, the fish is able to produce fast starts and turns that make our ocean-going vessels look clumsy, ponderous, and laggardly . . . it is even possible for a fish’s swimming efficiency

to exceed 100 percent” (Clark 1997, 219). A Stradivarius is enthralling only as the pure voice of an excellent violinist; a chunk of clay becomes an enchanting and cherished object only through the hands of the sculpting artist. I should acknowledge that the extension of the body is in both cases somewhat different: the music being created by way of the instrument, the artwork created with the material itself. In the first case, the realisation, music is different from both the maker and the tool, whereas in the second case, the artwork is the artistically realised material.

#### PERSONAL KNOWLEDGE

The notion of personal knowledge was first described by Michael Polanyi, who offered an interesting view on what scientific activity can tell us about the background of knowledge acts and heuristic processes (Polanyi 1958). Polanyi analyses the notion of personal knowledge on a dynamic level, paying attention to the activity and the process of scientific endeavour. In the whole knowledge process, he distinguishes between forms of knowledge involved. These are linked to what will be the focus and what is subsidiary, or, what is the subject and the background of the knowledge act.

Polanyi (1958, 69) draws a broad distinction between a passive, implicit, or tacit component and an active, more or less explicit component. Obviously, in the act of knowledge, we are dealing with an articulated statement of explicit knowledge from a focal awareness and critical position. But if I may use a metaphor—one not used by Polanyi: this is only the tip of the iceberg. Beneath all this there is always a mass of tacit knowledge that remains unarticulated and a-critical, of which the “knower” has only a subsidiary awareness. Grene, deepening Polanyi’s approach formulates it as following “Our explicit awareness, the focal core of consciousness, is always founded in and carried by the tacit acceptance of something not explicit, which binds, heavily and concretely, ourselves to and within our world. This means . . . that knowledge is always personal. . . . For only the explicit, formulable core of knowledge can be transferred, neutrally, from person to person. Its implicit base (since it is not verbalized and cannot be formulated and so impersonalized) must be the groping . . . of someone” (Grene [1966] 1974, 24–25). These tacit aspects of knowledge are the background parts that we do not question, but take for granted and use as if these are a natural part of our biological being—and thus not acquired. As thus, they are in some sense “embodied.”

Personal knowledge acts are closely linked, being inevitably determined by and implicated in the environmental or contextual background. The knower can express him- or herself only within a system of convictions: a framework made of his or her tacit assent and intellectual passions, the prevalent spatio-temporal context, and the sharing of an idiom and affiliation of a like-minded community. Polanyi (1958, 278–82) names this the fiduciary mode or framework. This framework contains what Quine called the “web of belief” (Quine and Ullian 1970): every action, perception, and proposition, and every human “experience,” whether experienced by a layperson, an artist, or a scien-

tific researcher, takes place in a complex multidimensional frame of actions, knowledge, and experience, which is itself difficult to account for. In this personal web of belief, the input of previous generations, cultural ideas, technology, education, and science, and an individual's identity and commitment merge together in a present act: "Traditions are transmitted to us from the past, but they are our own interpretations of the past, at which we have arrived within the context of our own immediate problems" (Polanyi 1958, 160).

Polanyi thus explains that acts of knowledge are influenced by many parameters of which the actor is most of the time unaware. In the articulation of knowledge, this ineffable domain of tacit knowledge, personal commitment, and subsidiary awareness inevitably disappears. Knowledge is then the visible outcome of these complex processes of interaction between the outer world—social, intellectual, educational—and the researcher—his or her commitment, intellectual capacities, personality: every act of knowledge is an act of "personal knowledge" (Polanyi 1958, 62–64, 315–21).

The notion of personal knowledge certainly offers an interesting line of approach to the artist's act.

An artist's personal knowledge is made up of his or her personal expertise, previous experiences, education, embeddedness in a culture and a community of artists, and his or her cultural stock, as well as the influence of the artist's own character and temperament.

The artist's actions and outcomes are influenced and constrained by prevailing ideas about art, cultural currents, and aesthetic context. Some of the parameters are well known, others are present, but in an unconscious way. Moreover, creativity—what is original, what will be accepted as art—can change over time and place. Creative acts are thus sustained or/and constrained by the context. And these contexts differ: as humans grow up and live in other cultures, different physical and social environments can stimulate or discourage creativity. Moreover, artistic creativity is dependent on an appropriate community of like-minded people or experts in the domain. Prevailing currents and aesthetic cultural rules, implicit and explicit, will determine the possible limits of creativity. Thus, for example, when a more abstract or expressive style—abstract expressionism—prevails, more introverted artists using association and improvisation will be increasingly appreciated; in contrast, a more realistic current will attract more extroverted characters, interested in precision of style and reality-directed approaches (Abuhamdeh and Csikszentmihalyi 2004).

Broader cultural ideas and mentalities concerning creativity also influence artists' activity. Western culture appreciates autonomous and independent individual creations, considering a person as "a bounded, unique, more or less integrated motivational and cognitive universe, a dynamic center of awareness, emotion, judgment, and action organized into a distinctive whole and set contrastively both against other such wholes and against a social and natural background" (Geertz 1975, 48). Certain other, non-Western cultures are more community-oriented: a person is defined by social relations, dependent on the thoughts, feelings, and actions of the community. Humans here will act in function of the anticipated expectation of others and social standards. In Japan, for

example, the artist is expected to respect group creativity and social togetherness (Tatsuno 1990). Balinese culture requires respect for the tradition and for the community: groups can be somewhat innovative and original, but no individual artist may transgress the traditional stereotypes of music. Moreover, the higher in status the traditional form of art, the less deviancy is accepted: thus innovative artistic endeavour concerning religious artefacts or ritual dances in Bali is highly discouraged (Ludwig 1992, 456).

However, the integration of these aspects will depend on the artist. Broader cultural values and socio-cultural contexts are integrated as one part of personal knowledge, the other part being the merging of the education and identity of the artist, his or her commitment, desires, and character, and, of course, the important interaction between the artist and the outer background. In that sense, the artist will merge aspects of the public and the private, of ambition and commitment. But these aspects already refer to another tacit dimension: the receptive-reflective dimension, which will be approached later in this article.

#### CULTURAL-SEMIOTIC CODES

No tools and no symbols mean no art. Art always has a material layer that is culturally defined. Semiotic and symbolic systems provide the medium—tools, languages, codes—that permit the artist to translate his or her creative thinking and acting into something durable. The discovery, translation, transmission, interpretation, and recording of art depend upon these tools. Cultures develop semiotic systems and develop themselves because of the creation and evolution of these systems. Deeply rooted in socio-cultural styles, values, and meanings, as well as linked to technological evolution and cultural means, these codes and rules will constrain present or further possibilities of conception, interpretation, or adaptation. Yuri Lotman (1990) uses the word “semiosphere” to refer to the specific symbolic and semiotic space of a culture. A semiosphere is a coherent whole of interconnected systems of signs, symbols, codes, and significations in a culture that permits its members to communicate with others and express themselves. Thus the photographer will depend on the existing visual media and the prevailing state of image-technology; the musician will rely on the different possibilities of graphics concerning score and acoustic signals for sound-creation; the sculptor will use prevailing codes concerned with form and space, perspective, and material, or techniques. Each domain of art has its specific media and semiotic fields, each with different levels.

Though this dimension refers explicitly to the more technical, symbol- and tool-directed side of the creative act acquired by education, it is embedded in the preceding dimensions of ineffable bodily expertise and cognitive personal experiences. Only through the possible semiotisation of the artist’s creative process, thoughts, and emotions can art “happen,” exist, and be experienced by others as art. The artist has at his or her disposal “signs” that are part of the prevailing semiosphere: previously created, accepted, and transmitted structures of signs and codes with accompanying rules, which, when assembled and

constructed, bear meaning and can transmit meaning. The artist cannot escape the existing codes, but will construct within the available systems of translation a proper rhetoric, style, language, or specific discourse. Often, artists will make use of different semiotic systems, merging or superposing them horizontally—for example, text and image, or image and sound—or vertically—by mixing older and newer codes and languages together—creating polysemous works. As the signs will be superposed, contrasted, or related, different meanings will be articulated, and contrasted with, or added to, other meanings. The artist thus engages in an experimental process in which he or she, by way of an existing semiotic-symbolic system, will create an idiosyncratic “montage,” composition, or arrangement. This is a difficult process, translating artful feeling and thinking into a realised creation—or into a created “reality.” The artist has to jump from a preverbal and predetermined creative feeling towards an embodied creation. Julia Kristeva (1998, 143), a French semiotician, uses the word “chora” to indicate the moment when this feeling-thinking is not yet realised, embodied, or translated. By using an existing medium, the artist will translate his or her artistic ideas into something tangible. In a certain sense, the artist will thereby “re-order” reality, “colonise” the semiotic sphere, change aspects of existing dimensions, and insert new perspectives in the world, by way of rhetorical figures and arrangements of images, objects, bodies, movements, forms, sounds, or graphics—depending on his or her artistic field. The painter will reorder the composition of the real scene; the musician will notate the rhythms and nuances of sounds; the actor will have to organise language, sound, and kinaesthetic effects in space. Each artist will have to cope with different levels of semiotic translation, as the complexity of the relation between creative thought and created object has to be bridged: imagination has to meet the world. The link between the creative process of thought and the reality of art is met precisely by this kind of articulation of a semiotic space. The creative act has to be captured and rendered in the form of notes or drafts, improvisations or scores, text or sound, movement or images.

The translation and realisation will be unique in light of the decisions, distance, and “signature” of the artist. These three notions—decisions, distance, and signature—refer to the way in which the artist appropriates the semiotic system and will model it in an original and idiosyncratic way. The decisions of the artist concern the choice, articulation, and arrangement of semiotic meanings and symbolic codes in the artistic space, and depend on his or her skill and predispositions. The distance refers to the separation, the gap the author chooses—not necessarily consciously—to install between the semiotic system as accepted or transmitted by the prevailing culture—for example the codes of abstract impressionism—and the artist’s idiosyncratic use of it—his or her own art. Finally, the artist’s signature is the convergence of both decisions and distance. By signature, I do not mean the literal name signed on the work of art, but the figurative signature referring to the personal and unique whole of the characteristics, traits, methods, and codes carried by all the works of an artist.

## ECOLOGICAL ENVIRONMENT

All experience starts from a “being in the world,” an engagement with the environment: “Man’s sense of space is closely related to his sense of self, which is in an intimate transaction with his environment” (Hall 1966, 63). Gibson (1966, [1979] 1986) presents a general ecological approach to the environment and offers us some starting points for considering the importance of this dimension for the artist. He points to the fact that seemingly undirected and undetermined potentialities prevail in the exchange between organisms and environment. Gibson ([1979] 1986, 139) uses the term “affordances” to describe these possibilities, which derive from elements of the environment and are potentially “offered” to other—human—organisms. The affording relation is limited to what can be afforded and what can be accepted or assumed. Basic affordances are provided by the natural environment: air affords human beings possibilities of breathing, moving, visual perception, odour; water affords the possibilities of drinking, washing, sailing; the ground affords living organisms the surface for life, for standing and sitting, for equilibrium, place, movement, and manipulation; trees afford shade, fruit, energy, oxygen, and carbon. Other persons and living animals afford rich and complex experiences, communication, sexuality, and reciprocity, for example, and so exceed the purely biological environment. As human beings invent and create further artefacts, objects, or theories, these again will offer affordances and increase possibilities. The observer may or may not perceive or attend to the affordance, but the affordance, being invariant, is potentially there to be perceived and can be aroused by some need and interaction (*ibid.*).

For the artist, interaction with the environment, often unacknowledged, is of considerable importance. All artistic practice is situated: it occurs in an ecological and material setting that creates specific conditions that have an impact on artists and their activity. Artists fundamentally relate to their environment, be it a natural one—the scene of nature that a painter observes, the existing clay for a modeller, or birdsong for a musician—or an artificial one—the possibilities of loudspeakers at a concert, technological aids for a sculptor. The surrounding environment is the basis for every artistic endeavour. Affordances offer on the one hand an enormous creative pool of possible interactions between human beings and elements of the environment, neither determinable nor knowable in advance: interactions that are ecologically valuable, creative, and inexhaustible. On the other hand, affordances can also be a source of disturbance or can limit certain actions—such as bad materials or acoustics, spoiled water, or heavy light or darkness. In the realisation of a creative idea, these ecological settings do not only interfere with artists’ practices: artists will try to capture as best they can the available affordances while those affordances permit or constrain artists to realise their ideas. An important aspect of creative activity is the possibility of coping with these affordances and bending them towards artistic endeavour.

Three aspects can be considered in the exchange between artist and environment: the presence of the environment, the coping response of the artist, and the influence of the artist.

First, the surrounding space, its dimensions, colours, the incidence of light, the temperature and degree of humidity, or the furniture will have some influence or impact on the artist's practice. A musician, for example, will always be confronted with a surrounding space with the acoustical characteristics of the surrounding space, its dimensions, colours, furniture, air, and temperature, as well as the presence of people and the instruments of other musicians. The musician will have to adjust his or her embodied expertise to the situation, to the new parameters or different settings of a performance. A painter will be confronted with the affordances of the prevailing light, seasonal alterations, the shades of paint colour available—and later on, the conditions of light and the positioning of the painting in the museum or gallery will influence its brightness and the public's perception of it. The environment, being what it is, will always influence artists and their creations in some direction. But the more an artist has developed her or his expertise, the better she or he will cope with these affordances.

This means that, second, the artist can take advantage of the environmental cues. The fusion of the artist's endeavour and the affordances of the environment can, by creatively joining both capacities, lead to unexpected outcomes. This is a point I mentioned above concerning the embodied dimension. The specific activity of the artist, by way of its holistic—perceptual, cognitive, and embodied—endeavour for creation, implies that the artist has a high sensibility and an extremely profound—but often latent and ineffable—awareness of certain aspects of the surroundings. The influence of the environment will be received by the artist at once — even if these elements are in the background, the artist has a heightened awareness of it — thus, he or she will take advantage of positive environmental incentives, not only compensating for poor or inadequate situations but also upgrading them towards new interesting, stimulating inputs. This requires a subtle interplay between the artist and the environment: many adjustments have to be made to surpass eventual limitations, outstripping the pure addition of human capacities and material possibilities.

Third, all art happens in a space and is influenced by the surrounding space, but at the same time all art creates a new space by experimenting with it. The artist creates a materiality, be it sounds, graphics, or sculptures, that impinges on the existing materiality, moving it and chasing its habitual appearance away. The artist recreates, changes the existing space, and at the same time, creates his or her art. Thus, art, being influenced first by the prevailing ecological settings, changes these settings by its own coming into existence. It inserts some strangeness into the existing environment, changing the previous possible focuses and backgrounds, adding new cues and points of interest, sensations, and perceptions, and exceeding the original spatio-temporal interpretations. The room and its inherent noise, light, furniture, and colours will be differently perceived and become different at the moment the artist creates. Art thus creates new spaces because it creates new meanings, adds other meanings, and changes the scope and the focus proper in relation to a specific environment.

## INTERACTION

In that environment, the artist's act always encounters the other in the creative process, whether another artist or community of artists, listeners or audiences, the public, society, critics, friends and relatives, or, last but not least, him- or herself. I have already noted the impact of different people and of educational environment, family, and surrounding communities of artists on the artist's development, leading to idiosyncratic personal knowledge. But during the process of creation, behind the artistic activity, the other is present, whether in person, in judgement or in the self-reflection of the artist.

An artist is always surrounded by others, from an intimate level to a distant and public level, influencing, acknowledging, encouraging, evaluating, criticising, or discouraging his or her artistic output. A first—seemingly distant—level of relations that influences the artist is his or her participation in humanity: the moral, ideological, and emotional commitment to humankind. Here, for example, the impact of natural, geopolitical, national, or international events can bother or trigger the artist, offering some unexpected point of view or subject—war, catastrophe, rape. At a less distant level, there are relationships that influence the possibility of artistic creation, the quest for funds, publicity, and financial or moral sustenance, and ideological concerns that influence the dissemination of artistic products: non-profit organisations or media-concerns, critics, and the audience (Crane 1992). Other artists often inspire, not necessarily by being present, but by way of their own artistic creations. On the private level, personal, intimate relations can inspire or discourage the artist; intimate relations offer a mirror to the artist, merging the personal and the professional. The ups and downs of personal relations can enhance or destroy artistic commitment.

The artist will also be confronted with him- or herself, with a self-reflective awareness of his or her position in and impact on the world, by way of personal and creative activity. The artist's experience is traversed by doubts and dreams, by self-reflective questioning leading to a self-narrative in which the artist develops a "thinking dialogue between me and myself" (Arendt 1978, 187). This reflection shows itself as the capacity to observe, judge, monitor, and decide about the self and its actions and can become a necessary tool for evaluating and valorising one's own actions as well as bringing the personal narrative into harmony with the appreciation and critique of the other.

## EMERGENCE OF A WEB OF ARTISTIC PRACTICE

Many decisions and trials of artistic creation are prepared in the exploration phase, hidden from the public. Artists continuously integrate different tacit dimensions—embodied expertise, personal knowledge, ecological environment-cues, cultural-semiotic codes, and interactivity. These dimensions can become an explicit part of an artist's detailed practices and research. Searching for the right bodily schemata and structures will imply the mastery of artistic technical difficulties. As all human experience occurs in a specific spatial-temporal context, the adjustment of one's own actions to the given settings will be

mastered through a long period of practice and training, offering a broad personal knowledge. The artist will struggle with, handle, and integrate the different facets of these tacit dimensions in moving towards a higher level of expert artistry. They will be tacitly integrated in an interpretative and creative process in a succession of always-unique confrontations of artist, environment, and artistic object. Once acquired, they form a whole, a kind of habitus, an artistic expertise or tacit knowledge: the web of artistic practice. This web of artistic practice constitutes a robust but flexible scaffold and is continually developing and augmenting artistic expertise. The metaphor of the web is crucial because the instances of these different dimensions are linked in multiple ways, are appealed to at different moments, and merge into one another, receding and reappearing again and again in artistic practice. They are dynamic in the phase of exploration and become embedded in the artistic result.

Two remarks remain to be formulated.

In the first place, we should not forget that the web of artistic practice is never finished. Artistic endeavour always remains a dynamic process. Artistic activity will each time vary depending on the particular situation, and the artist will have to readjust all prior acquired schemata, (re)creating his or her art, reweaving his or her web. The artist will have to cope with new or different aspects of those tacit dimensions, exploring new situations every time, adapting and readjusting skills and expertise to evolving internal and external parameters—drawing upon embodied skills, personal knowledge, semiotic codes, environment, self-reflexivity, and the presence of others.

Second, the expertise an artist acquires can only be constructed by way of conceptual and embodied internalisation and blending of these dimensions in a fundamentally idiosyncratic manner. The previous description of these dimensions does not imply that an artist will observe these dimensions and then take elements out of an external world to put some of them in an order through some kind of handling or construction, turning it into an aesthetic object as if following a manual. On the contrary, prevailing elements of the tacit dimensions are mirrored, received, and integrated in the artist's internal world, in a unique way. There, they can be considered as different mental or conceptual spaces, or as flexible embodied and cognitive schemata. It is thus not the external world itself—the way these tacit dimensions can be described by observation—that is extrapolated by an artist into his or her creative process, but the internalisation of these dimensions in the artist's mind and body. These different input-spaces—or aspects of them—can then be blended into a new space, a creative mental and/or embodied idea, which finds its translation into the external world through the creation of an artefact. Moreover, this dynamic process will be repeated in the creative activity of the artist, each time in slightly different settings, thus increasing the flexibility and differentiation of acquired schemata, augmenting the artistic expertise, and solidifying the web.

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# Towards an Ethical-Political Role for Artistic Research

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[1] Can the subaltern speak? In 1988, the Indian philosopher Gayatri Chakravorty Spivak asked this question in an homonymic essay in which she investigated the relations between Western poststructuralist criticisms of the metaphysical subject and the representation of non-Western people (Spivak [1988] 2008, 109–30). According to Spivak one of the occurring problems was that contemporary Western intellectuals tried to speak on behalf of the suppressed, thereby unwittingly and imperceptibly reinscribing, co-opting, and rehearsing neocolonial imperatives of political domination, economic exploitation, and cultural erasure.

How then can the subaltern—or “the other”—speak? How can she or he be understood without or outside the discursive frameworks, conceptual conventions, and discourses that we have at our disposal? How can we recognise the heterogeneity or otherness of the other? Spivak points out two fundamental problems: first, a certain dependence upon Western intellectuals who “speak for” the subaltern rather than allowing her or him to speak for her- or himself; and second, the assumption of a subaltern collectivity rather than an accounting for their heterogeneity and individuality. Spivak warns against recognition by assimilation: a “true subaltern” is identified by her or his difference.

[2] Spivak’s humbling and thought-provoking text came to my mind when I started thinking about the relation between artistic research and ethics. That artistic research contributes to the development of knowledge, to the disclosure of new knowledge, and to a critical reflection on already existing knowledge, is, by now, more and more acknowledged and accepted. However, the question of whether an ethical or ethical-political role can be granted to artistic research opens another discussion, perhaps an even more challenging one. To meditate on this role implies not only investigating the connections between artistic research and art or between artistic research and the production, distribution, and reception of knowledge, but also considering the potential position and function of artistic research within broader social spheres. Like art, artistic research not only represents and responds to social developments and ethical-political ideas; through artistic research these developments and ideas come into existence, are articulated and questioned, and receive their concrete forms.

[3] Can the subaltern speak? Can she or he speak *in* artistic research? Can she or he speak *through* artistic research? And can she or he speak *as* artistic research? These three questions will guide this short essay. My aim is not to provide conclusive answers but to chalk out the contours within which a discussion about artistic research and ethics could possibly take place. Three modest and rudimentary anchorages should serve as points of initiation forging a discussion on an aspect of artistic research that, thus far, has hardly been thematised.

It is beyond the scope of this essay to enter at length into the question of what might be considered artistic research; I have dealt with that topic elsewhere (see Cobussen 2013, 2011, 2009, 2007). The same goes, *mutatis mutandis*, for ethics (see Cobussen 2005, 2003, 2002; Cobussen and Finn 2002; Cobussen and Nielsen 2012). However, I will briefly and simply explain why I commenced with the Spivak essay.

Of course, the question whether the subaltern can and is allowed to speak is a thoroughly ethical question. Is the other *as other*, the other who is customarily speechless and neglected, allowed a voice that is not predetermined by already existing discourses and paradigms built around well-known concepts? In other words, is there some hospitality for the subaltern, for the other in its otherness? For, as Jacques Derrida states in *On Cosmopolitanism and Forgiveness*, “ethics is hospitality” (Derrida 2001, 16). It is with these thoughts in mind that I address the relation between artistic research and an unconditional hospitality towards the subaltern, towards another otherness.

[4] First anchorage: can the subaltern speak *in* artistic research, in artistic experimentation, in the artistic results of such research? The Six Tones is a musical (research) project by two Swedes, Henrik Frisk (real-time electronics) and Stefan Östersjö (guitars and banjo), and two Vietnamese, Ngo Tra My (*đàn bầu*, a traditional monochord instrument) and Nguyen Thanh Thuy (*đàn tranh*, a cither). As Östersjö claims in his PhD dissertation *Shut Up 'n' Play!*, one of the aims of this project, initiated by the Swedes, is to defer a collage-like superposition of two culturally distinct musics and attempt unprejudiced and free “collocation” instead of a music-political “assimilation” or “integration” (Östersjö 2008, 292).<sup>1</sup>

The sonic results as well as Östersjö’s documentation provide us with interesting material regarding the circumspection with which the two Western (and male!) musicians approach the two Asian women, who were mainly educated in performing traditional Vietnamese music. Being aware of the pitfall of imposing—of reinscribing—any sort of cultural domination, the Swedes seem tentative during the first rehearsals, socially as well as musically. They are questioning their own position from the very beginning of the collaboration and are seeking to adapt to the input of the Vietnamese. Östersjö, for example, adjusts the tuning of his guitar in response to the characteristics of Nguyen playing the *đàn*

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<sup>1</sup> The initial intention of the project was to provide material for a piece by Henrik Frisk. Points of departure were some loose sketches in combination with the musical, cultural, and social backgrounds of the musicians. <https://www.youtube.com/watch?v=HJqzyDzXV5g>.

*tranh*. In accordance with the Vietnamese musical tradition, notation becomes nothing more than a framework within which the musicians have a certain freedom to shape their performance instead of the far more prescriptive use of scores in Western art music. And by frequently using traditional Vietnamese songs as a source of inspiration, the Swedes enter the role of apprentices, the Vietnamese that of the masters (Östersjö 2008, 187–91, 292–97).

At first sight it thus seems that the subaltern—in this case Vietnamese music, instruments, and women<sup>2</sup>—was clearly given a voice. By reversing the conventional, historical, and sometimes still proclaimed hierarchy in which the Western world regards itself superior to the East, the Six Tones avoids all kinds of neocolonial imperatives.

However, the project and interactions are more complex than this: hierarchies are not only subverted but also unmasked as superseded prejudices. Two brief examples should illustrate this claim. First, Frisk is presented as the composer of most pieces and, although traditional Vietnamese music doesn't know the concept of the composer, Nguyen and Ngo try to adapt to that authority. That is, they are trying, from the position of an outsider, to understand and respect concepts from another culture. However, Frisk neither plays nor accepts the traditional role of the Western composer as the one who describes and prescribes what and how to perform. Shifting from composer to performer and back again, Frisk represents a general move in Western art music towards more interactive ways of producing musical works. He thus emasculates these ideas assumed by Nguyen and Ngo, not by reversing the hierarchy but by deconstructing it.

Second, the considerable role of electronics gives the music a clear contemporary Western flavour. What seemed to be a tribute to traditional music from an exotic culture becomes a far more complex interaction between “Western” and “Eastern” influences, perhaps inclining towards the dominance of a Western musical language. However, is this a turn to re-establishing the old hierarchy? This is how Nguyen sees it: “I know normally people like to hear something Vietnamese from us. Sometimes I think I could do something that is not Vietnamese and still make people like it” (Nguyen in Östersjö 2008, 191). Nguyen seems to challenge the Eurocentric view that artists coming from other cultures are first of all “typical” or “representative” of their culture. In other words, Nguyen implicitly confirms Spivak's proposal that the subaltern should be considered heterogeneously instead of as a collective.

What appears as an artistic research project on potential and actual collaborations between composers and performers turns out to be full of ethical issues and questions about concrete moral behaviour in and through music. Through the Six Tones, four Northern European and South-East Asian musicians confront themselves—perhaps inadvertently and in an unplanned way but nev-

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<sup>2</sup> Perhaps one could say that Spivak's notion of the subaltern does not apply (anymore) to Vietnamese music, instruments, and women: their position has been emancipated over the past decades. However, by being so aware of potential Western dominance and trying to avoid it, the Swedes made the idea of otherness and subalterity manifest.

ertheless inevitably and with full dedication—with several cultural prejudices and generalisations. The project appears to be a platform for mutual learning, a meeting point where these prejudices and generalisations must be challenged in order for the musicians to be able to make music together. On a local, singular, small-scale, non-discursive level where all that matters is exactly difference (or perhaps it is better to speak of *différance* here), a subaltern gets a voice, a musical voice.

[5] Second anchorage: can the ethical speak *through* artistic research? Can we encounter ethical and moral issues through specific forms of artistic experimentation? Again, I am not searching for new generalisations, alternative *grand narratives*, or substitutional moral paradigms. Instead, I focus on small and local artistic interventions that question and disrupt accepted and well-known social behaviour, thereby offering a mirror through which we can encounter our own ethical or moral presuppositions and prejudices.

Brian Rush is a North American artist who in 2010 started a series of projects joined under the name *Relational Prosthetics*. The projects consist of participatory objects leading to face-to-face interactions that can be humorous and hilarious but also, and simultaneously, engender uncomfortable and confrontational feelings. *Bench*, a project from 2011, is a construction of steel and aluminium in a public space of which the seat, sloping downward from the sides towards the middle, consists of rotatable cylinders. The effect is easy to predict: two people, preferably not knowing one another, and therefore following the social convention of seating themselves at either end of the bench, will soon end up in the middle, unavoidably engaging in physical contact. Judging from the photos shown on Rush's homepage ([www.brian-rush.com](http://www.brian-rush.com)) most people are definitely able to see the joke; they laugh and seem to enjoy the new situation. However, it is certainly not unimaginable that some people will start laughing uncomfortably. Almost ending up in the lap of a complete stranger might very well arouse embarrassment and discomfort, and this is exactly what interests Rush.<sup>3</sup>

*Bench* plays with and questions automatic social habits in public spaces, temporarily hacking them. Physical contact or rapidly entering into close proximity with a stranger is a taboo in the West, where too much eye contact can lead to aggressive comments. How do we cope with that? What socio-moral reactions can we observe when we are thrown into unexpected situations? Those are questions that can arise when one experiences Rush's work.

*Helmets*, also from 2011, consists of a suspended rail on which two helmets are connected, facing each other. Attached to the helmet is a handle by which the headgear can be moved back and forth along the rail. Whereas in *Bench* people are condemned to physical contact once they seat themselves, *Helmets* offers its participants the opportunity to choose how close they would like to get to the other. This can lead to a fascinating play of interactions, considera-

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<sup>3</sup> Video illustrations relevant to this article may be found online at <http://www.orpheusinstituut.be/en/anthology-repository>

tions, provocations, and refusals. Imagine two strangers, one of whom takes the initiative to approach the other. Possible reactions of the other might include responding in kind by moving the helmet in the first person's direction, refusing the advances by going back, or maintaining the same position and waiting to see what will happen next. Of course, the reaction of this second person will be influenced not only by the movement of the first person *per se* but also by his or her interpretation of the bodily and facial expressions that accompany this movement: laughter, timidity, aggression, overt advance, etc. In turn, the first person will attune her or his behaviour, more or less, depending on the reactions of the second person.

Is art articulating the ethical here? Are these investigations into human social behaviour in specific, possibly uncomfortable situations—investigations taking place in and through art works—confronting us with moral regulations and opinions? It is clear that Rush is not offering the participating visitors of his relational prosthetics a clear set of rules, prescribing how to behave; it is up to each participant, in each particular situation, influenced (or not) by another participant, to make decisions regarding how to (re)act. The ethics at work in Rush's interactive installations is not one of preconceived and clearly formulated ideas about correct behaviour, about doing the (universal and predefined) good, about concrete moral prerogatives. Instead, works such as *Bench* and *Helmets* simply investigate what will happen when a human being affects and is being affected. This is an ethics of engagement and an ethics of difference, an invitation to encounter the unexpected, the confusing, a (sub)alterity *within* our society, instead of the premeditated. This ethics is based on active participation and responsible sensitivity (with)in/through a full-body engagement. It is a move away from understanding or theorising ethics towards an ethics that is realised in the moment of doing the art work. Through Rush's artistic research, collective and individual social and ethical behaviour can be investigated, observed, and tested; his *Relational Prosthetics* function as a kind of social laboratory.

[6] Third anchorage: can the ethical speak *as* artistic research? Can there be something ethical in artistic research *as* artistic research? Or, again, could artistic research in itself and as itself be regarded as a subaltern, as a possible manifestation or a virtual voice of the other?

Roughly following Christopher Frayling's well-known categorisation (Frayling 1993), Henk Borgdorff distinguishes in his book *The Conflict of the Faculties* between research *on*, *for*, and *in* the arts. Focusing on the first and last only, their main difference lies in the relation between subject and object. With research *on* the arts, most often reflective and interpretative, the object remains untouched by the inquiring gaze of the researcher. In other words, there is a theoretical distance between researcher and art work or event. Conversely, research *in* the arts does not observe this distance: the artistic practice itself is an essential component of both the research process and the research results. Concepts and theories are interwoven with art practices (Borgdorff 2012, 37–39). Because it is the artist who is simultaneously the researcher, her artistic

production will undergo changes; being the alpha and omega of her research project, her art cannot remain untouched, unaffected, uninvolved.

Because today much (artistic) research takes place in the space between these two poles, I prefer to consider them as paradigmatic constructs or ideal/typical oppositions. This being assumed, is the proposition legitimate and worthy—and I want to emphasise my circumspection here—to investigate whether there is a possible connection between research in the arts and the subaltern condition? Is there some truth in the claim that musicology, art history, theatre studies, media studies, or comparative literature attempt to “speak for” the arts and artists rather than allowing them to speak for themselves? Is it too far-fetched to scrutinise to what extent these academically approved disciplines make use of methods that only allow the arts and artists to respond within the frames and constraints of those very same methods? Is it possible—and perhaps even necessary—to re-evaluate to what extent these discourses often re-disseminate generalisations, simply because they make use of discursive language whereas art emphasises the particular, the singular, the unique?

This is not to suggest that with the rise of artistic research all potential problems underlying these questions will be solved soon. Rather, the rise, development, and rationale of artistic research makes posing these questions, ethical questions to some extent, possible, urgent, and relevant.

At present artistic research takes place in the margins of art production as well as in the periphery of scholarly and academic work. As such it presents a *topos*, a utopia or perhaps an *atopos*, which is somehow commensurable with Spivak’s subaltern. To a certain extent, differing from one project to another, artistic research withdraws from the accepted researches *on* the arts. By speaking about art in and through art, different voices can be heard, different perspectives open up, different movements take place, different spaces are constructed, different plays are performed, different knowledge is presented, different language is necessary, different strategies are developed.

Furthermore, artistic researchers (can) seldom speak in general terms; through the very nature of the process, they position their own artistic work in the centre of their research, thereby almost automatically reinforcing heterogeneity and individuality. If there is some truth in this argument, it might become clear that the subaltern can also be located in the heart of Western culture and not only in those areas which were for too long considered as geographical peripheries.

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# A New Path to Music

## Experimental Exploration and Expression of an Aesthetic Universe

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### INTRODUCTION

The term “experimentation in music”—or in the arts in general—is commonly used in at least three different senses: it usually refers (1) to innovativeness in artistic creation, (2) to unpredictability or indeterminacy in procedures or outcomes,<sup>1</sup> or (3) to experimentation in the scientific sense.<sup>2</sup> In this article, I wish to suggest a different categorisation of artistic experimentation on the basis of developmental exploration of the idiosyncratic part of an artist’s aesthetic universe. To do this, I will first discuss the concepts of aesthetic universe and culture, and I will relate these concepts to artistic practice and research as expression and exploration of the artist’s aesthetic universe. Three types of experimentation related to the arts will then be discussed: experimentation *for* art, experimentation *through* art, and experimentation *in* art. All three types may be called experimental in the common sense of the term, since their procedures generally contain elements of innovativeness (although not necessarily in artistic creation), unpredictability, and scientific testing.

The theoretical and conceptual discussion will be followed by a brief description of two of the projects I am currently working on—*Elements of an Aesthetic Universe* and *A l’image du monde*—both of which explore and express my aesthetic universe and demonstrate how the concepts discussed apply to my research and creative practice as a composer. I will show which aspects of my research and practice contain elements of the three types of experimentation introduced in the first part of the article.

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1 John Cage (1958, 39) defined an experimental action as “one the outcome of which is not foreseen.” I do not consider unpredictability a defining aspect of experimentation, but a consequence of experimental procedures. Below, in the section “Ephemerality and relativity of artistic experimentation,” I claim that indeterminacy is no longer an experimental aspect of art.

2 In his Darmstadt Lecture of 1990, James Tenney stated his idea of scientific artistic experimentation: composition as research that tests a hypothesis as a general principle. See Bob Gilmore’s “Five Maps of the Experimental World,” in this volume.

## ARTISTS AND THEIR AESTHETIC UNIVERSE

An individual's "knowledge"<sup>3</sup> is the individual's web of memory. It consists of synaptically interconnected neurons in the neocortex<sup>4</sup> of the brain, all "traces" that are left in the brain by cerebral activity. Learning is the establishment and strengthening of synaptic interconnections among neurons (See Gazzaniga, Ivry, and Mangun 2008, 356–57). It is the process of acquiring new knowledge or the strengthening of existing knowledge. Thinking or thought is the process of neuronal firing happening within the cerebral web of knowledge. Thoughts are the object of thinking.

An individual's personal knowledge can be grouped in different but usually overlapping subsets of knowledge according to the different domains of thought that require and activate that specific knowledge. Whenever such a subset of personal knowledge is highly developed and structured, and occupies a prominent place in a person's activities, I will call the subset a "cerebral universe."

The "aesthetic universe" of an artist (or an informed non-artist with highly developed aesthetic interests) is the cerebral universe consisting of all the artist's aesthetic knowledge. A musician's aesthetic universe, for instance,<sup>5</sup> contains not only all the musician's theoretical and historical knowledge of music, and knowledge of the repertoire, but also the procedural knowledge necessary to play an instrument, read a score, or compose a new piece, and the emotional traces left in the musician's brain by aesthetical experiences.

A musician's artistic practice—creation or performance—is the *expression* of the complete meaning of aesthetic concepts<sup>6</sup>—aesthetic ideas—within his or her aesthetic universe. The "meaning" of an aesthetic idea for an artist is the web of all concepts that are connected<sup>7</sup> to the aesthetic idea within the artist's aesthetic universe. Those concepts don't have to be aesthetic concepts themselves. They can belong to all types of knowledge and are usually intuitive and emotional non-verbal concepts. Indeed, it is often because some ideas cannot be expressed verbally that artists resort to art to express them. An "artist" can thus be defined as a person who is able to—feels the urge and has the skills

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3 The concept "knowledge" is here used exclusively in the sense of "knowledge possessed by some knowing subject . . . which should better be called organismic knowledge, since it consists of the disposition of organisms" (Popper 1979, 73). All information that is not cerebral (e.g., the content of books) is left out of this definition. Whenever reference is made to the latter kind of knowledge, it could be called "material knowledge" (more precise would be to call it "other" material knowledge, since all knowledge—including subjective knowledge—is material). Popper (*ibid.*) contrasts subjective knowledge with objective knowledge: "the logical content of our theories, conjectures, guesses."

4 "Most researchers argue that the content of a memory . . . is stored in the neocortex" (Ward 2010, 193).

5 Although most of what will be said about the aesthetic universe, artistic practice, research, and experimentation applies to all artistic media, in this article, the emphasis will be on music, and on musical composition more than on performance.

6 A concept is here defined as the quantum of thought, regardless of whether this is the firing of a single neuron or a combination of firing neurons. An aesthetic concept is the concept for the meaning of which the artwork is the sign.

7 Concepts are said to be connected when it is possible to activate a single thought process that contains both of them.

(the procedural knowledge) to<sup>8</sup>—express the meaning of the aesthetic ideas belonging to his or her aesthetic universe through the creation and/or performance of artworks. An “artwork,” then, is the sign vehicle—the external outcome of the process of encoding—of an aesthetic concept resulting from the expression of the whole meaning of that aesthetic concept.

Artistic expression differs from other forms of communication because the *complete* meaning of the aesthetic idea, of which the artwork is the sign, is relevant. In formal communication the relevant meaning of the concepts used is normally restricted; in some cases only the definition of the communicated concepts is relevant. In colloquial communication, connotations, nuance, ambivalence, humour, irony or sarcasm, “reading between the lines,” sophistry, or demagoguery may play a more or less important role in the extension of the relevant meaning of the concepts expressed. At the opposite end of formal communication stands artistic expression, in which the whole web of meaning is relevantly expressed without limits to the possible connections between the concepts the web of meaning contains.

The complete meaning of a musical aesthetic idea is encoded in a score or performance and decoded by the performer who performs the score or the listener who listens to the performance, and this decoding ideally results in the active creation of new aesthetic ideas with their own meaning in the brain (in the aesthetic universe) of performers and listeners.

#### CULTURE AND ITS BORDERS

Most artists share common aesthetic knowledge or ideas with other people (artists and non-artists alike). This common knowledge is what I call a “culture.” People sharing a common set of aesthetic knowledge are said to belong to the same (aesthetic) culture.<sup>9</sup> Although the meaning of an aesthetic idea behind a score or performance differs from individual to individual, people belonging to the same culture will usually create and develop *similar* meanings for a particular score or performance as long as the aesthetic idea of the piece or performance can be situated within that shared culture. When we perform scores or hear performances that are considered conventional within our culture, we have no problem in attaching meaning to the score or performance that is likely similar to the composer’s or performer’s expressed meaning. This is generally the case when Westerners perform or hear tonal music belonging to the common practice of their culture. Such pieces stay within “a *tonal universe* where [the score or performance] is accessible to us in all its warmth and charm,” to quote Leonard Bernstein (1976, 307, my italics). Similarity of meaning is the only thing we can strive for if we want to understand the intentions of a composer or performer.

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8 Arnold Schoenberg claimed “art is born of ‘I must’ [I feel the urge], not of ‘I can’ [I possess the skills]” (Schoenberg [1975] 1984, 365). It seems improbable to me, however, that urge without artistic skills could lead to the creation of an artwork.

9 More precise would be to say that a common culture belongs to the aesthetic universes of those people.

Not all artists stay within Bernstein's "warm and charming" safe boundaries of existing and established culture, however. Some artists—the "true artists" according to Arnold Schoenberg—consciously or (more often) unconsciously operate at the borders of the prevailing culture, or radically venture into regions of their aesthetic universe far removed from the culture they belong to, the regions that I call the "idiosyncratic part of the aesthetic universe." As Arnold Schoenberg ([1978] 1983, 400) stated:

The young artist does not know himself; he does not yet sense wherein he is different from the others, different above all from the literature. He still adheres generally to the precepts of his education and is not able to break through it everywhere in favour of his own inclinations. He does not [consciously] break through; where there is breakthrough, he does not know it. He believes that his work is at no point distinguishable from what is generally found to be good in art; and all of a sudden he is violently awakened from his dream, when the harsh reality of criticism makes him aware that somehow he is not really so normal after all, as a true artist should never be normal: he lacks perfect agreement with those average people who were educable, who could commit wholly to the *Kultur*.

By leaving the familiar territory of prevailing musical aesthetics, musicians venture on a quest down the untrodden "path to new music" (*der Weg zur neuen Musik*), as Anton Webern called it. "New music," Webern (1960, 12) said, "is the one that has never been said"<sup>10</sup> (my translation); in other words, it is music that expresses aesthetic ideas belonging to the idiosyncratic regions of an artist's aesthetic universe. "True artists," in the Schoenbergian sense, composers as well as performers, operate to an important extent in these idiosyncratic regions. Expressing ideas belonging to this territory opens up completely new worlds of ideas in artistic communication. According to Pierre Boulez (1966, 19), Webern was "essentially out to conquer a new world"<sup>11</sup> (my translation). New worlds of this kind often abide by laws that are different from the prevailing aesthetic laws, and, once accepted, the ideas contribute to the development of culture, or even sometimes cause complete aesthetic revolutions, as will be discussed below.

#### ARTISTIC RESEARCH AND ARTISTIC EXPERIMENTATION

It is not only possible for artists to *express* the meaning of ideas belonging to their aesthetic universe, but also to *explore* that aesthetic universe. The conscious and deliberate *exploration* of an artist's aesthetic universe is how I define "artistic research." It is obvious that, since artists are the only ones who have unmediated, direct access to their own aesthetic universe, artistic research can only be performed by those artists themselves. This research can happen within the cultural boundaries of an artist's aesthetic universe as well as across cultural borders and in the "idiosyncratic part"; its aim is the gain of new knowledge

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<sup>10</sup> "Neue Musik ist jene, die nie gesagt wurde."

<sup>11</sup> "essentiellement à la conquête d'un monde nouveau."

about the aesthetic universe. When the new knowledge thus generated is situated entirely within an existing culture, it enlarges cultural knowledge or may lead to changes in existing knowledge. However, artistic research often happens in the idiosyncratic regions of the artist's aesthetic universe, or it can require or cause the extension of an aesthetic universe. It is in the latter two cases that the artist-as-researcher leaves the safety of familiar territory behind and ventures down the new and potentially perilous<sup>12</sup> untrodden paths of musical aesthetics that were mentioned above.

When artistic research and artistic practice take place in the idiosyncratic regions of the artist's aesthetic universe, or at the boundaries of a culture, or when they require new exploratory strategies or new expressive procedures, they become experimental. I distinguish between three types of experimentation related to artistic practice: experimentation *for* art, experimentation *through* art, and experimentation *in* art.

Although "experimentation *for* art" (or *for* the arts) is related to the arts, it is strictly speaking not artistic but scientific experimentation.<sup>13</sup> It uses scientific methods that start from the formulation of a problem, develop a hypothesis about (a) possible solution(s) for the problem, and end with the verification of the hypothesis through testing. In this repeatable procedure of verification, an element in a known situation is changed in order to find out what the effect of the change on the known situation is, to test or falsify the hypothesis. When this scientific procedure of experimentation is used for aesthetic purposes, I call it experimentation *for* art. This can happen within the realms of any science that can be related to art—not only aesthetics, but also, for example, musicology, psychology, sociology, or physics. Since this type of experimentation is not artistic experimentation, I will not discuss it here, instead concentrating on experimentation *through* art and experimentation *in* art.

"Experimentation *through* art" (or *through* the arts) is experimentation through artistic practice in the procedure of artistic expression. It involves the creation of new *forms*<sup>14</sup> of artistic expression, novel ways of expressing aesthetic ideas, and occurs through the expression of the idiosyncratic knowledge of the artist's aesthetic universe. This definition of artistic experimentation corresponds closely to those definitions<sup>15</sup> that state that all artistic practice that is situated outside tradition, outside an existing culture, involving the introduction of novel, innovative elements into art—not only John Cage's pre-

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12 Perilous and experimental have a common Latin root (*perire*), referring to the risk of perishing.

13 It is not artistic experimentation because it is not an artistic procedure. Music can also function as a tool in non-musical scientific experimentation. Such is for instance the case in experiments conducted to assess the influence of music on plants (e.g., by Dorothy Retallack [1973]). This is of course not experimentation for the arts, and the music that is used as an experimental tool is not necessarily experimental itself.

14 Every new composition or performance is a new expression of the meaning of an aesthetic idea, but not necessarily a novel (a new *form* of) expression.

15 David Nicholls (1998, 518), for instance, defines experimental music as music that lies outside of tradition. In contrast, Nicholls claims, avant-garde music is music that occupies an extreme position within the tradition. Translated to the idea of aesthetic universe, avant-garde music is the expression of aesthetic ideas near the borders of culture, whereas experimental music expresses ideas within the idiosyncratic regions of the artist's aesthetic universe.

pared piano or Harry Partch's new instruments and alternative scales, but also Igor Stravinsky's introduction of rhythm as a structural element in *The Rite of Spring*—is experimental. According to these definitions, music is experimental when it expresses the meaning of aesthetic ideas that are situated in the idiosyncratic part of the artist's aesthetic universe. The outcome of musical experimentation *through* art is "experimental music," that is, innovative music expressing idiosyncratic aesthetic ideas in novel ways. It results in the creation of new procedural knowledge (new compositional or performance procedures) or in the development of new musical resources.<sup>16</sup>

The second genuine type of artistic experimentation, "experimentation *in* art" (or *in* the arts), belongs not to artistic expression but to artistic exploration—to artistic research. It happens inside an aesthetic universe: hence, experimentation *in* art. It involves the development of new *kinds* of knowledge or new *types* of exploration.<sup>17</sup> It is experimentation in research on the artist's aesthetic universe by the artist, a way for artists to understand and develop or expand their aesthetic universe. Experimentation *in* art consists of *thought experiments*<sup>18</sup> that yield new kinds of knowledge about the content of the idiosyncratic part of the artist's aesthetic universe. It involves the discovery and development of new laws governing it, and the assessment of the relation between the idiosyncratic part of the aesthetic universe and culture, as well as between the artist's aesthetic universe as a whole and the external world (including other aesthetic universes<sup>19</sup>). As with experimental music as the outcome of experimentation *through* art, the outcomes of the thought experiments of experimentation *in* art are "experimental ideas" and "experimental tools" (methods, procedures or techniques that can be implemented in experimentation *through* art).

In the thought experiments of artistic research, when existing concepts or strategies prove to be inadequate, the invention or development of new concepts, new strategies, or new expressive procedures may be required to understand the explored regions of the aesthetic universe (formulation of a problem). This is part of the procedure of experimentation *in* art, a procedure that also includes the development of these concepts, strategies, and procedures (hypothesis for a solution to the problem), and the verification of their validity in relation to the ideas of the explored regions of the aesthetic universe, to already existing knowledge (verification), and to their future applications.

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16 In this context, Henry Cowell's book on new musical resources is not an example of experimentation through art, but a source for possible experimentation through artistic practice. The purpose of his book is to point out how "by various means of applying [the] principles [of the overtone series] in many different manners, a large palette of musical materials can be assembled" (Cowell [1930] 1966, x–xi).

17 Using the metaphor of "Bill's bike" (see William Brooks [2012]): experimentation *in* art consists of the exploration of *new* roads, or the creation of new modes of—new vehicles for—exploration (a horse instead of a bike, for instance, if a bike is the familiar means of transportation).

18 A "thought experiment" is an experiment that happens within a cerebral universe, as opposed to experimentation performed in the physical world. Galileo Galilei's experiment from the Leaning Tower of Pisa to demonstrate the independence of mass to the rate of acceleration of falling bodies (see Drake 1978, 19–20) is an example of experimentation in the physical world, as is all experimentation *through* art (artistic practice happens in the physical world). Albert Einstein's development of the theory of relativity, on the other hand, may be regarded as an example of thought experiment.

19 What is an internal cerebral universe for one individual is a part of the external world for all others.

This procedure is akin to the scientific procedure (problem–hypothesis–verification) discussed above, but while scientific procedure assesses elements of the physical universe, experimentation *in art* happens within the aesthetic universe. The aesthetic laws thus discovered or developed may be different from physical laws, as is discussed below in the section on the *A l'image du monde* project.

The trajectory toward the development of the dodecaphonic technique by Arnold Schoenberg during the 1920s may be seen as an example of the result of experimentation *in art*. “Beginning with his works of 1909, Schoenberg was in territory new not only to him but also to music itself” (Shawn [2002] 2003, 92–93). During the second decade of the twentieth century, Schoenberg was struck so radically by the inability of existing techniques and compositional strategies to handle the evolution of the tonal idiom that for almost a decade he felt forced to mentally experiment. This eventually led to the development of dodecaphony, a technique that not only withstood the test of implementation in compositional practice, but also shed new light on the preceding tonal idiom and the evolution it underwent. The evolution of Schoenberg’s approach to the tonal idiom led to the need, rooted in “the unconscious urge to try out . . . new resources independently,” to establish new conceptions of tonality (Schoenberg, [1975] 1984, 207); further, it led to the idea of “emancipation of the dissonance” (ibid., 216), to the introduction of the concept of “pantonicity” (the inclusion of all keys rather than the absence of key), and eventually to his “Method of Composing with Twelve Tones Which are Related Only with One Another” (ibid., 218).

When we compare experimentation *through art* with experimentation *in art*, and apply this to a composer’s activity,<sup>20</sup> the relationship—and the differences—between these two main ways to embark on new and untrodden paths of musical aesthetics becomes clear. As a composer one can experiment either by composing novel sounds or sound combinations (experimentation *through art*), or by trying to develop novel aesthetic ideas or new paradigms (experimentation *in art*) and implement them in the composition of new pieces. In the former approach, the experimental phase occurs in the composition process; in the latter, experimentation occurs during the phase of aesthetic development. The former approach results in new kinds of artistic *works*, in new aesthetic narratives, and in experimental music, whereas the latter results in the development of new aesthetic *ideas* and new aesthetic *laws*. The former approach represents *bottom-up experimentation*, which starts from artistic practice and ends in the creation of new aesthetic ideas, whereas the latter is *top-down experimentation*, which starts from fundamental research, the development of new ideas, and ends with those ideas implemented or tested in the practice of composition. The former is what Marion Saxer (2007, 55–56) describes as

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20 *Mutatis mutandis*, similar findings can be elaborated for the activities of performers. The notion of experimentation *in art* could also be extended to listeners, but that would excessively broaden the scope of the present chapter.

“novel compositional methods or procedures as experiment,”<sup>21</sup> the latter what she calls “musical reorientation”<sup>22</sup> (my translations). The former represents Webern’s “path to new music,” the latter is the exploration of a “new path to music,” which may sometimes be only a “small step” on the new path to music, but nonetheless may sometimes be—as in Schoenberg’s case<sup>23</sup>—a “giant leap.”

#### EPHEMERALITY AND RELATIVITY OF ARTISTIC EXPERIMENTATION

Experimentation *in* art and experimentation *through* art happen beyond the borders of the artist’s cultural knowledge, and generally beyond the borders of a culture. The knowledge—ideas, laws or paradigms—and artworks they produce are at the outset not part of some culture, but in the end experimental exploration of new territory in the aesthetic universe and its artistic outcomes may be accepted and adopted by a culture. Artistic experimentation is therefore a procedure that is ephemeral, transitory in nature. Once the new procedures or paradigms have become part of a culture, the exploration or expression cease to be experimental. Stravinsky’s *Rite of Spring*, the development of dodecaphony, Cage’s prepared piano, and the idea of indeterminacy as an expressive tool, or Partch’s new instruments and alternative tunings, have become part of the culture of at least a limited group of people. Therefore they *were*, but no longer *are* experimental. This is why I don’t call indeterminacy (in aleatoric music, for instance) an instance of experimentation.<sup>24</sup> The principle was initially experimental when it was introduced by Charles Ives and further exploited by composers such as Henry Cowell or John Cage, but it has now become established as a means of expression.

Unlike in scientific experimentation, where it is a necessary condition, repeatability is not a characteristic of artistic experimentation. Once a procedure of experimental exploration or expression has been culturally accepted, it can no longer be repeated as an experiment, at least not within the culture that embraced it, or by the artist who conducted the experiment. The experimental status of an artistic procedure is culturally relative and subject dependent. What is experimental for one culture (because the procedure and its outcomes have not been adopted by the culture) may be familiar territory for another culture. What is an experiment for one artist (within one aesthetic universe) may not be experimental for another. Artistic experimentation is therefore culturally or individually (subjectively) unrepeatable.

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21 “neuartige kompositorische Verfahrensweisen als Experimente.”

22 “musikästhetischen Neuorientierung.”

23 The invention of the dodecaphonic technique (or method, as Schoenberg preferred to call it) is arguably one of the three great revolutions in musical aesthetics, together with the *Ars Nova* and the introduction of harmonic thinking around the beginning of the seventeenth century.

24 See footnote 1.

*ELEMENTS OF AN AESTHETIC UNIVERSE*, A DOCTORAL RESEARCH  
PROJECT

My doctoral research concentrates on the systematisation of atonality and dissonance in a motivic serial music composition. It involves the further elaboration of a serial composition technique on the basis of chromatic interval groups that I developed some fifteen years ago. The aim of the research is to obtain a serial technique that yields music with the lowest possible degrees of tonality and consonance in a systematic way. To obtain this result, I had to assess the concepts of tonality and consonance within my aesthetic universe. Compared with how these concepts are understood by the culture to which I belong, there appeared to be differences. In other words, my ideas of tonality and consonance belong to the idiosyncratic part of my aesthetic universe, although they are still related to the prevailing conception of the ideas. Their exploration was therefore a case of experimentation *in art*. It followed a scientific procedure of experimentation: starting from the statement of a problem (how to systematise atonality and dissonance in serial composition), the procedure involved knowledge of sciences such as physics (of sound), psychophysics (of sound), psychoacoustics, and mathematics. The solution of the problem consisted of the modification of my serial technique on the basis of research outcomes, which was then verified in the practice of composition.

My concept of tonality appeared to challenge the commonly accepted idea of tonality because it is based entirely on an affinity with the tonal diatonic sets.<sup>25</sup> My claim that this affinity is a necessary and sufficient condition to determine the degree of tonality of any pitch class set is controversial because it does not take into account aspects such as functionality, hierarchy, cadences, and rhythm that are typical for tonal music.<sup>26</sup> Therefore it would seem that my concept of tonality is located in a part of my aesthetic universe containing elements that are inconsistent with the acknowledged concept(s) of tonality of the culture I belong to. To test this claim I developed an experiment on the perception of tonality that supports my concept of tonality on the basis of diatonic affinity. This experiment belongs to experimentation *for* the arts. I also composed several pieces<sup>27</sup> for the same purpose. Those pieces can be seen as experimentation *through* art, or as tools for experimentation *for* art. The claim is further refuted by the related experimental method<sup>28</sup> of tonality analysis that I have developed, which allows for the determination of the local and average degree of tonality of any piece of music on the basis of the pitch classes of the chromatic scale. This method shows that tonal music belonging to the common-practice and

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25 The three tonal diatonic sets are the major set (Forte number 7–35), the harmonic minor set (7–32), and the ascending melodic minor set (7–34).

26 This claim entails that it would be impossible to compose music based on all the seven pitch classes of one of the tonal diatonic sets that would be considered not to be tonal (or modal) according to the common definitions of tonality, in the sense that it would lack functionality, hierarchy, the occurrence of cadences, or would require specific rhythm. My claim has not been refuted in practice so far.

27 3 *Polytonal Variations* for flute, viola da gamba, and piano (2011), which were composed in the context of Hans Roels's ORCiM experiment on hyperpolyphony.

28 I call this method experimental because it is an outcome of experimentation *in art*, based on experimental ideas.

modal repertoires<sup>29</sup> has degrees of tonality that evolved together with the evolution of the tonal idiom. It also explains the transitional period in the second part of the nineteenth century where the boundaries between tonality and atonality become blurred. This falsification test proves that my concept of tonality, idiosyncratic as it may be, has a link with widely accepted ideas of tonality, and that the aesthetic area it belongs to has a common border with the rest of Western culture.

Exploring the concepts of tonality and consonance in the idiosyncratic part of my aesthetic universe led to the development of formulas for the quantification of tonality and consonance. They are central laws of my personal aesthetic universe that result from the exploration of that universe. In that sense they are the result of experimentation *in art*. The validity of these laws is tested in the practical part of my doctoral research: the composition of three orchestral pieces, each representing one stage in my doctoral research, and each supplemented by a piece for a smaller group of instruments.<sup>30</sup> Although the pieces are based on the outcome of experimentation *in art*, they are not experimental (*through art*) themselves. The three orchestral pieces—*Danse de la terre* (2010), *Danse de l'eau et de l'air* (planned for 2014), and *Danse du feu* (2012)—are dances representing the four metaphorical Empedoclean elements (earth, water, air, and fire) that encompass my entire aesthetic universe—hence the name of the project. They are synecdoches for the whole of my aesthetic universe in the same way that the four Empedoclean elements stand (or stood) for the physical universe. Mahler is reported to have said that “a symphony should be like the world: all encompassing”<sup>31</sup> (quoted in Barnett 2007, 185, my translation); this can be interpreted as meaning that a symphony should be the expression of the artist’s complete aesthetic universe. In that sense my orchestral cycle on the elements can be called “symphonic” in the Mahlerian sense, each dance representing one aspect (or two in the case of *Danse de l'eau et de l'air*) of my aesthetic universe. This aesthetic universe is not a metaphysical universe, since it is not beyond the physical world. An aesthetic universe, as a cerebral construction, is a physical entity—after all, the human brain and cerebral activity are physical objects and processes—but at the same time it constitutes a world of a different kind, governed by laws that do not exactly apply to the external physical world. I call this an “endophysical world”:<sup>32</sup> a world that is metaphysical—mystical, miraculous, transcendent, virtual—*within* the physical world.

The meaning of the aesthetic ideas expressed in my three orchestral dances of the *Elements* project consists for the most part of non-verbal concepts (non-verbal ideas), and thus cannot be expressed in words. Still it is possible to give a rough impression of some of the ideas related to the pieces, albeit

29 I use the term tonality in the broader sense “that refers to music based on the eight modes of the Western church as well as the major-minor complexes of common-practice music” (Hyer 2002, 727–28).

30 The supplementing pieces are *Le sourire infini des ondes* for ensemble (2009), *Un souffle de l'air que respirait le passé* for piano quartet (2011), and *A l'image du monde . . . originel* for piano (planned for 2013). Each piece expresses additional ideas related to those expressed in the orchestral dances.

31 “Die Symphonie muss sein wie die Welt. Sie muss alles umfassen.”

32 “Endophysical” because it is situated *within* (the Greek *endo* means within, inside) the physical universe but may be governed by laws that do not apply to the external physical world.

in a rudimentary and non-comprehensive manner: *Danse de la terre* expresses the idea of the (endo-) physicality of my aesthetic universe—matter (earth) as material existence—by extension it expresses *existing* in general. *Danse du feu* is an expression of the idea of the endophysical processes governed by my aesthetic universe's laws of tonality and consonance. It is an expression of the idea of endophysical *becoming*. Together with *Danse de la terre*, this second dance expresses all that exists: matter and material processes. *Danse de l'eau et de l'air*, in turn, expresses the elusiveness entailed by matter and material processes: impermanence, time and temporality, transience, the fact that what exists could as well not have existed. It is about the contingency of *being*.

#### THE *A L'IMAGE DU MONDE* PROJECT

As we have discussed, the laws governing an aesthetic universe may differ from universe to universe and from culture to culture. They may even deviate from the laws of the physical universe. An artist can only be understood, however, if the aesthetic (endophysical) laws of his or her aesthetic universe are similar enough to those of the performers or audience, or to the laws of the physical universe. Aesthetic universes that are close enough to other aesthetic universes or to the physical universe, and the artworks that result from the urge to express these aesthetic universes in artistic practice, are thus not “the [mirror] image of the world but *in* the image of the world” to quote Eugène Ionesco (1962, 127, my translation).<sup>33</sup> This idea is central to the *A l'image du monde* project. Whereas the *Elements of an Aesthetic Universe* project focused on the endophysical laws of my aesthetic universe, the *A l'image du monde* project is intended to be an expression of the relation between my aesthetic universe and the physical universe. It can therefore be called transphysical (building a bridge between the endophysical aesthetic universe and the physical universe). The project will consist of five pieces: *A l'image du monde . . . originel* (for piano solo), *A l'image du monde . . . double* (for piano solo), *A l'image du monde . . . multiple* (for guitar solo), *A l'image du monde . . . commentaire* (for guitar and ensemble and/or piano and ensemble), and *Improvisation fixe sur une image* (electro-acoustic composition).<sup>34</sup>

To date, the only piece in the project that has been completed is the electro-acoustic composition *Improvisation fixe sur une image* (2012), which was composed as part of the *A Day in My Life* project<sup>35</sup> at the Orpheus Research Centre in Music. The piece is based on a recorded improvisation (*improvisation fixe*) that—like all pieces belonging to *A Day in My Life*—had a poem as its inspira-

33 “L'œuvre d'art répond . . . au besoin de faire œuvre de création. . . . Le monde ainsi créé n'est pas l'image du monde; il est à l'image du monde.”

34 The subtitles refer to Boulez's *Le marteau sans maître* (1953–55, revised 1957), *Figures–doubles–prismes* (1957–58 [as *Doubles*], revised 1963 and 1968), and *Mémoriale (. . . explosante-fixe . . . Originel)* (1985). The link with Boulez is clearly intertextual, but the titles of the pieces belonging to the *A l'image du monde* project express a different meaning than they do for Boulez, although they are related to his work (Boulez's idea of “work in progress,” for instance, applies to the project). This emphasises that the scope of expressed meaning in artistic creation is broad and is re-created actively by every subject involved in the processes of artistic communication. In my artistic practice I have the freedom (and the duty) to attach new meaning to Boulez's ideas.

35 On which see Coessens and Douglas (2011).

tional source (it is *in the image* of the poem). I decoded the poem by creating an aesthetic concept for it and by developing a web of meaning for that concept. The meaning of the aesthetic concept was then merged with that of the piece I intended to compose, which was, in a first stage, expressed (encoded) through the recording of an improvisation on a bass flute, and then further developed during the process of manipulation and recomposition of the recording.

The musical material for the improvisation was provided by a chromatic interval group series constructed according to the outcomes of my doctoral research. The intention was to assess the practical applicability of the outcomes in the construction of the series, as well as to explore the way it feels to work with the series, and to experience the intuitive embodied effect the series might have on me *during the process of composition*. The composition process of *Improvisation fixe sur une image* can therefore be seen as an example of experimentation *through art*.<sup>36</sup>

### CONCLUSION

This article started from the idea that an artist's aesthetic universe is the set of all the artist's knowledge related to aesthetics, beauty, and the arts. The aesthetic universe consists of two parts: at its centre is the cultural part, which contains the aesthetic knowledge the artist has in common with other people belonging to the same culture. Surrounding the cultural part is the idiosyncratic part of the aesthetic universe, which contains the artist's aesthetic knowledge that has not yet been adopted or accepted by his or her culture.

We have seen that artistic activity comprises artistic practice (creation or performance) and artistic research, which constitute, respectively, the expression and the exploration by the artist of (the ideas belonging to) his or her personal aesthetic universe. The ideas thus expressed and explored may belong to the cultural part as well as to the idiosyncratic part of the artist's aesthetic universe. When ideas in the idiosyncratic part are central to expression and exploration, artistic activity becomes experimental. I called experimental artistic expression "experimentation *through art*" (through the processes of creation and performance, resulting in experimental music), and experimental artistic exploration "experimentation *in art*" (within the aesthetic universe, resulting in experimental ideas or tools). In addition to these two kinds of artistic experimentation, a third kind of experimentation was discussed: experimentation *for art*, which is in fact scientific and not artistic experimentation, because—although it is meant to serve the arts—it consists of a scientific rather than an artistic procedure.

There is a correspondence between the three types of experimentation introduced in this article on the one hand and common conceptions of artistic experimentation on the other: Experimentation *through art* corresponds to the common idea of experimentation as innovativeness in artistic creation (Nicholls), experimentation *for art* to the idea of scientific artistic experimenta-

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<sup>36</sup> CD, track 6: *Improvisation fixe sur une image* by Bart Vanhecke.

tion (Tenney). The third sense—referring to unpredictability or indeterminacy in procedures or outcome (Cage)—was not considered experimental since unpredictability and indeterminacy have become culturally accepted artistic features.

Although the idea of experimentation *in* the arts is a logical consequence of my concept of the aesthetic universe and its exploration and expression, I am aware that it is a marginal concept of artistic experimentation. This entails that many of the ideas developed in this article belong to the idiosyncratic part of my aesthetic universe, and are experimental themselves. They result from my venture into the unknown territory of my aesthetic universe, in which I, as an explorer, try to clear a new path through the forest of my idiosyncratic aesthetic ideas, bolstered by the conviction that:

Caminante, son tus huellas  
el camino, y nada más;  
Caminante no hay camino,  
se hace camino al andar . . .<sup>37</sup>

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37 "Traveller, your footprints are the path, and nothing else; traveller there is no path. The path is made by walking . . ." (Machado 1917, 222–3, my translation). This poem refers to an inscription in a monastery in Toledo that was also used by Luigi Nono as the title for his piece *No hay caminos, hay que caminar* . . . *Andrej Tarkowskij* (1987).

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# From Experimentation to *CONSTRUCTION*

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“Experimental” is a term we find used in quite a specific way in discussions of contemporary music. Michael Nyman’s important book *Experimental Music: Cage and Beyond*, first published in 1974, uses this word to describe a stylistic or perhaps more correctly an *attitudinal* tendency beginning in the middle of the twentieth century for which the work and ideas of John Cage formed a central point of reference. I won’t be using the term “experimental” in this sense. I would prefer to try to establish a way in which the term can be used meaningfully in relation to creative musical practice, rather than as a genre category. In a trivial sense any composer can claim to be “experimental” for the sake of positioning him- or herself in a “market” relative to colleagues; in another trivial sense any composer can claim that his or her working process involves experimentation since very few of us create our work in a definitive form without any kind of process of trial and critical feedback.

Coming as I originally did from an educational background in experimental science, I’m sometimes rather taken aback at the metamorphoses of meaning that ideas such as experimentation and research undergo when applied to non-scientific disciplines. We might also consider where and when the experimentation takes place within a creative process. The English author B. S. Johnson (1933–73) was often described as an “experimental novelist” because of the unusual form his books took, one consisting for example of a pile of unordered chapters in a box, but he himself resisted this description, saying that the experimentation had all taken place by the time the finished novel went to the publisher.

So what *do* I mean by “experimental” as it applies to music? Let’s first look at what it means in its original (scientific) context—an “experiment” is a systematic procedure, *an interrogation of some aspect of reality* for the purpose of understanding and explaining it, enabling its integration into a more general understanding, which is thereby changed, subtly or radically.

Crucially, an experiment is carried out to test a well-defined hypothesis, with the intent of either developing the hypothesis (thus leading to further experiments) or definitively disproving it. Often the outcome, or at least the desired outcome, of an experiment is not really in doubt at any point. If the result fails to conform to expectations, the scientist’s next port of call is to examine pos-

sible inconsistencies in the way the experiment was set up, and only then to begin considering whether the theory that gave rise to the initial hypothesis needs to be overhauled. At other times the outcome of an experiment might be completely unknown; but to frame any kind of experiment you need to have some idea of what you're looking for—you can send a robot to explore an alien planet but you need to choose which kinds of sensors to install on it. In general, a process of experimentation is an open-ended one, every stage of which is informed by the result of previous stages, while the direction or directions of an overarching research programme are kept constantly and critically in view. I could realistically describe my own musical work in that kind of way, although I wouldn't *only* describe it in this way. At other times I would describe it more in terms of its social and political implications and aspirations, for example, but as I continue I think it will become clear that what I'd be describing is the same whatever angle it's viewed from.

But what are my questions? It's not really possible to define them so simply, since what I'm involved in is a lifetime's work for which a lifetime will almost certainly not suffice. Ultimately my project will certainly be abandoned, sooner or later, without necessarily being any nearer to a conclusion than it is now, or was at the outset. However, one way of describing what I do would involve a process of experimentation oriented towards discovering something about the structure of the imagination, in all its aspects. I happen also to be convinced that in doing so one might in addition discover something profound about the nature of reality, since questioning the nature of creativity and the imagination leads to questioning the nature of human consciousness and thereby to ontological conundrums that overlap with the terrain of philosophy and fundamental science.

In any case, this central question proliferates and permeates into every aspect of my musical-creative activity, from the exploration of the limits of perception and perceptibility to the exploration of different ways of combining planned and spontaneous creation both in the composition process and in performance, to the exploration through music of connections between supposedly "extra-musical" ideas and models, and so on. I should also make it clear that while I could say that making music is my way of trying to understand things, it's also my way of trying to share and communicate these things. For me, listening came first, my composition is an extension of my listening, and I don't regard it as "more creative" than listening but creative in a different way. If the music I'm making can be experienced creatively by listeners then somehow my "research question" is being addressed.

One reason why the word "experimentation" is used with so many misleading connotations in music is because to be meaningful it has to encompass a dimension of risk, of *failure*, adequately to address whatever question is being asked, which sits rather uneasily with a still-prevalent notion that what a musician presents in front of an audience should be at least in its own terms "successful" (otherwise the audience is being short-changed in some way). If a scientist claimed that all his or her experiments were inevitably successful, we would do well to be a little suspicious.

Let's return to music once more. I think one of the important ideas about whatever we could call experimentation in music-making is the desire to involve the listener in the process of discovery, in other words to try and *communicate* the desire and exhilaration one experiences in trying to address one's questions in such a way that listeners may experience them for themselves, whether the result comes across as "successful" or not. In other words, I try to create situations where the listener is encouraged to be a fellow experimenter rather than an experimental subject.

Experimentation in music (and not only in music of course) involves an assertion of a kind of freedom which is rarely if ever possible in most areas of most people's lives. I think I need hardly underline that the musical world and its institutions are not set up in such a way as to facilitate this way of doing things. As a result, while the freedom to explore an infinity of imaginative possibilities is, I believe, one of the most important things that creative musicians can express, many if not most creative musicians operate as if the priority were to create a niche for themselves, a recognisable and marketable brand, in a way which apes the pressures and priorities of the commercial world although unfortunately usually without the financial rewards.

For me the experimental approach requires a certain continuity, perhaps akin to a "laboratory" in which individual projects can take their place within a longer-term collective programme of exploration and discovery. For this reason, over the last twenty-five years or so the range of my musical collaborations has been rather small compared to that of many other composers over a similar period, although on the other hand I would go so far as to say that the depth of these collaborations has been constantly increasing.

Before moving on to more specific matters, a few words on improvisation, since this is a word that often seems to be coupled with "experimentation" in a musical context. I would like to define improvisation as denoting the spontaneous element in musical performance, which either takes place within some kind of implicit or explicit framework or (as in "free improvisation") creates and transforms that framework as it proceeds. I would define *composition* as any kind of musical creative process or the results thereof. Therefore, within this scheme improvisation is a *method of composition*, no more and no less. I believe that this way of characterising these terms is clearer and more useful than most I've come across, and in particular clearer and more useful than views that define composition and improvisation as distinct or even opposed ways of making music. I say "useful" because this way of looking at things, which I've been developing since about 2002, made for the first time coherent sense of my musical activities up until that time and opened perspectives for their further continuation and expansion—in other words, returning to the scientific analogies I mentioned earlier, a hypothesis emerging from experimental results suggested the nature and direction of further experimentation, and also that what previously might have seemed like irreconcilable phenomena may be understood through the development of a deeper "theory" to be unified in unexpected ways.

During this period, one strand I've been regularly returning to has been a series of compositions, fourteen so far, which go under the title *codex*. This title is intended to invoke the idea of an ancient text that has survived in an incomplete form, requiring reconstruction and conjecture before it can be interpreted and understood, and these compositions are all so to speak in various states of incompleteness. Some were created for specific people and occasions, while others embody a set of proposals that may be realised in different ways by different people on different occasions. I'll mention two quite different examples, *codex VII* and *IX*, which are both on CD as well as finding their way onto YouTube, in order to stress what I consider their "experimental" nature.

*Codex VII* was composed and performed with seven members of the ensemble Champ d'Action and ten students from the conservatoires of Ghent and Antwerp in 2007. I arrived in Antwerp with a schedule for twenty rehearsal sessions over a period of nine days but purposely without any "musical ideas." The composition process then began by my recording (partly-directed) solo improvisations by each of the seven members of the ensemble as a basis for the electronic materials I would use in the performance. The next stage was to rehearse musical processes and textures based on these improvisations with small groups, where each ensemble member would be combined with one or two of the student participants (several of whom had joined the ensemble in the meantime!) playing the same or similar instruments. This was followed by combining the small groups with the electronic sounds I had in the meantime been working on, and then the first tutti rehearsal in which we tried out different superimpositions of these groups. Only after this stage did I write out the one-page score of *codex VII*, which acted only as a minimal reminder of what we'd been working on. While the results of this "experiment" have fed into subsequent work in many different ways, its musical result could only exist at a particular time and place with particular participants.

*Codex IX* for nine players was conceived for different circumstances: first as a stage in the development of a collective improvisational-compositional practice between myself and the ELISION ensemble, and second as a musical laboratory in which we could work together with a technical team from the Royal Melbourne Institute of Technology on developing the performative use of a real-time sound-spatialisation system that could be adapted to any kind of performance space. Both of these "research questions" were directly related to the planning of my most extended work, *CONSTRUCTION*, a two-hour composition for voices, instrumental ensemble, and three-dimensional sound installation.<sup>1</sup>

*CONSTRUCTION* actually does have something to do with "experimental music" in the historical genre sense, through its connection with the music of Cornelius Cardew (to whose memory it's dedicated) and in particular *The Great Learning*, of which I took part in the first complete performance in 1984, three years after Cardew's death. *The Great Learning* is a cycle of compositions

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<sup>1</sup> CD, track 1, features an extract from the premiere of *CONSTRUCTION* at the Huddersfield Festival of Contemporary Music, November 2011.

on texts from Confucius for a large collective of improvising performers that takes two evenings to perform in its entirety; it was written between 1969 and 1972 for the Scratch Orchestra, an experiment in collective musical creativity of which Cardew was a founder member and whose aesthetic identity was to a great extent defined by *The Great Learning*. This work consists of seven “paragraphs” corresponding to the divisions of the original text, the longest being Paragraph 5, of which a typical performance lasts around 90 minutes. I’m not going to describe it in detail except to say that it consists of two halves, the first consisting of a kind of collage of various different types of events taking place simultaneously: songs, improvisations, sonic and structural suggestions, theatrical actions . . . all of which require discipline and the learning of actions by heart, and all of which have a clear and identifiable purpose about them even when several are happening at the same time. The second half of Paragraph 5 is a free improvisation by the same performers, who in our performance numbered 30 or 40, including many former Scratch Orchestra members.

One thing that stuck in my mind about this experience was the way that this improvisation, despite being in many different senses “anarchic,” was somehow informed and given particular qualities by the actions that preceded it, by their disciplined nature, without Cardew having to say anything in the score about *how* the performers should approach it. Later I found myself often thinking back to this experience and the way it might create the conditions for the conception of a music whose identity as a composition would have clarity without being defined in advance to the point of giving instructions to performers: they’re given a common point of departure and left to use their imagination and sense of responsibility. This seemed to me, as it no doubt seemed to Cornelius Cardew, to be trying to say something about how a society in balance with itself might become self-organised, so that the idea had resonances far beyond addressing the relationship between spontaneity and preparation in narrowly musical terms.

The central ideas of *CONSTRUCTION*, the central questions one might say, are concerned with the relationship between utopian thinking and reality. It became the outcome of a long process of experimentation, which included the aforementioned *codex* pieces, several of which provided raw materials for it, as well as the experience of performing several components from the eventual work as separate pieces over a period of some years; at one and the same time it was also an experiment in (among other things) applying the lessons learned from the *Great Learning* experience to a work with a very different aesthetic. From the moment it was conceived, we (the ensemble’s director Daryl Buckley and I) realised that a new collective improvisational practice would need to be developed that would go far beyond anything we had previously done, in order to create the conditions whereby over twenty musicians would be able to pool their imaginations into a spontaneously creative ensemble. This took many years working on intermediate stages, which weren’t all successful, but the process of experimentation (both musically and technologically) was something that could only authentically be done under performance conditions with an audience present.

The form that *CONSTRUCTION* takes is of four interwoven strands or cycles, each consisting of five parts, some of which can be and have been performed separately.<sup>2</sup> Two of these cycles relate in some structural/poetic way to utopian ideas, one of them principally vocal-instrumental and the other featuring electronic sounds. The other two cycles represent realities with which these utopias are confronted: one is a highly-abridged setting in ancient Greek of the *Trojan Women* by Euripides and the other is a series of “laments” featuring a solo violin. These four cycles overlap and otherwise touch each other in various different ways over the course of two hours, together forming a complex network of interrelationships that create a single whole out of all these components, the durations of which range between one and twenty minutes and whose instrumentations range from a quartet to the entire ensemble. One aspect of the “experimentation” involved in this composition was to determine whether it was able to sustain its intensity over such an unbroken total duration.

On the day in 2005 when the entire shape of *CONSTRUCTION* first occurred to me, an important feature was the idea that it should end with around twenty minutes of free improvisation by the entire ensemble. In other words, a necessarily provisional conclusion to all the many confrontations between musics and ideas that have articulated the previous one hundred minutes is found by the entire performing ensemble as a collective, and found anew in each performance, each time evolving in a different way from the previous music and—I dared to hope—discovering a new music that couldn’t have been brought into being any other way, certainly not through the imagination of a single person. My feeling is that finishing the score and giving the first performance have the nature more of a beginning than an ending—particularly this last part of the work, which seems to open perspectives for the future development of thinking and practice both in musical terms and beyond. In other words, this time it isn’t the result of an experiment but the experiment itself.

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<sup>2</sup> A more detailed essay on *CONSTRUCTION* (Barrett 2011) may be found at [richardbarrettmusic.com](http://richardbarrettmusic.com), where the full score may also be downloaded in pdf form.

# Artistic Research and Experimental Systems

## The Rheinberger Questionnaire and Study Day - A Report

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### 1. INTRODUCTION

When discussing experimentation in artistic research, one could simply relate it to experimental art practices of the twentieth century, pointing out that this is a well-established paradigm in the history of art. However, the problem of epistemology remains: how does experimentation—in particular when it comes to art, music, or design—contribute to knowledge and understanding?

This is particularly difficult in light of the work of Karl Popper, who, in *The Logic of Scientific Discovery* ([1959] 2002), claims that there is no logical basis to induction, that is, the formation of universal statements based on singular observations. In short, Popper's theory suggests that knowledge does not somehow emerge from experimentation, but rather that it can only be achieved through the empirical testing of universal statements. While it is possible to falsify any such statement through a single test, it is impossible to verify universal statements once and for all, since it cannot be guaranteed that future tests may not falsify those statements that were believed to be true. Falsification thus delivers a degree of certainty that verification does not.

As a consequence, for Popper, “the logic of scientific discovery” starts with the making of universal statements (i.e., the formulation of a proposition or theory), while their empirical testing (i.e., experimentation or practice), important as it may be, can only happen after this. Popper suggests a theory-first approach, giving experimental practice a secondary role in the development of knowledge. Although this position is quite persuasive, it is unclear whether it reflects even the way in which scientific discoveries are made—that is, are empirical scientists really simply thinking up statements that they then aim to falsify, or is there some other dimension to their practice?

Indeed, one may argue that because Popper narrowed empirical science to a problem of logic, a counter movement has become possible, which since then has been called “the practice turn in contemporary theory” (Schatzki, Knorr Cetina, and von Savigny 2001). In this context, Andrew Pickering (2008, vii), for example, suggests that a theory of the development of knowledge is needed that “has a truly evolutionary character, rather than a causal one.” Hans-Jörg Rheinberger adds an important voice to this context through notions such as “experimental system,” “epistemic thing,” and “technical object,” all of which he developed in the context of his major case study on the “discovery” of transfer RNA and the development of the new field of molecular genetics (Rheinberger 1997).

For Rheinberger, however, a notion such as “discovery” must be put into inverted commas or even totally omitted, since it suggests that something such as transfer RNA existed before it was made manifest in the experimental system (*ibid.*, 133). Following Jacques Derrida, he believes that this process is more complex. According to this position, when knowledge is produced, its origin is co-produced along with it. This necessarily makes us believe that what is made has been there all along. Derrida spent much of his professional life deconstructing such origins in the field of philosophy. With this in mind, Rheinberger is careful not to suggest origins of knowledge outside knowledge-generating experimental systems, since these origins could, in turn, be deconstructed. It would also mean turning a blind eye to the way in which, in his opinion, experimental systems actually work and produce knowledge. This means that the complex artificial settings of experimental systems tend to naturalise their findings. As Steven Shapin (1984) suggests, following Robert Boyle, experiments produce “matters of fact,” that is, self-evident realities in the material itself rather than simply statements about reality.

As Henk Borgdorff (2012) proposes, artistic practice may produce works that have similarly self-evident and material meanings, which—following Rheinberger’s proposal—he takes as yet unknown entities that are instrumental for future knowledge. The suggestion is that within what is not (yet) known, artistic or aesthetic operations may be in place that can be called “research,” not because they deliver findings but because they allow future knowledge to be anticipated.

In what may be called a small “pilot study,”<sup>1</sup> I interviewed a number of ORCiM researchers to understand better how Rheinberger’s notions might be employed productively in the context of music research. At the same time, limitations have also become apparent, which need further investigation to shed new light on the practice shared by experimental artists and scientists and the

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1 This “pilot study” and its interviews constitute a simple reflexive tool that allowed me to open up and illustrate questions; there was no serious methodological ground to this study, since the sample size was very small, knowledge about Rheinberger’s theory was limited, and the disciplinary and personal background of the researchers was neglected. Thus, what follows has to be taken as a rhetorical device rather than a scientific claim. Because of this, interviewees have been made anonymous. Thank you, though, to K, P, S, and V (and also G, whose contribution, coming from a different perspective, is not quoted in this chapter).

difference that discipline makes to the type of knowledge that is produced and the processes that are employed.

## 2. THE QUESTIONNAIRE: DEFINITIONS

### *2.1 Experimental systems*

Experiments require a context, which needs to be coherent and finely calibrated to lead to original results. Despite the high level of control, these results can surprise the experimenter, because a successful experimental system becomes increasingly independent of the “researcher’s wishes” (Rheinberger 1997, 24). Experimental systems “are systems of manipulation designed to give unknown answers to questions that the experimenters themselves are not yet able clearly to ask” (ibid., 28).

The experimental system is set up materially (e.g., through the kinds of instruments that are used) and also socially, institutionally, financially, geographically, etc.—in short, in dimensions that are usually overlooked when the focus is placed on individual experiments. At the same time, experimental systems are “the smallest functional units of research” (Rheinberger 2012, 92) and as such need to be as coherent as possible to produce a surprising difference.

### *2.2 Technical objects*

Technical objects are key operators in an experimental system and are brought into a particular constellation in order to conduct experiments. Technical objects often result from previous experimentation and “embody the knowledge of a given research field at a given time” (Rheinberger 1997, 245). In an experimental system, these objects are ready-to-hand and function to conduct and control the experiments. The fixity that comes with technical objects limits the variables in an experimental system, but technical objects may again be put into jeopardy.

### *2.3 Unpredicted events and epistemic things*

An epistemic thing is the research object that emerges from an experimental system. Epistemic things “present themselves in a characteristic, irreducible vagueness. This vagueness is inevitable because, paradoxically, epistemic things embody what one does not yet know” (ibid., 28). Thus, before having “discovered” “new knowledge,” the experimenter is presented with phenomena that are unknown, unpredicted, and still unexplained.

According to Rheinberger, the knowledge of an epistemic thing lies in its future. The term “epistemic thing” is used to indicate the unknown as it arrives in a knowledge domain, in the experimental system, or in science as a whole. Rheinberger seems to suggest that research is a process separate from science, whose products—epistemic things—science transforms into knowledge, allowing for new technical objects that are in turn used to further develop existing experimental systems.

### 2.4 Expositions

Due to the scientific bias toward text, Rheinberger (2010, chapter 13) sees within science an “economy of the scribble” that plays a part in the transformation of epistemic things into proper scientific pieces of writing via laboratory notes, posters, conference papers, etc. Although this might be the case in the arts, there may also be other modes of recording, transformation, and presentation that settle epistemic things in a discursive context.

The notion of “exposition” is not used by Rheinberger. It is meant to indicate all possible forms of transformation that bring out (“expose”) knowledge from the experimental system and the unpredictable events it produces. Without exposition, one may argue, there might be unexpected events, but we may fail to form them into epistemic things. The “writing systems” that are used are thus crucial to the formation of knowledge.<sup>2</sup>

## 3. THE QUESTIONNAIRE: FINDINGS

From the questionnaire and the interviews I conducted, it is not possible to make any claims regarding the existence (or not) of experimental systems in artistic research practice. First, we would have to be certain that we are indeed dealing with artistic research, which is not easy given the still on-going debates regarding its definition. In comparison, by investigating a historic case, Rheinberger may have been less troubled by an assessment of the validity of the source material for his study. Second, one would need a deeper investigation into the detailed workings of those projects: what people think about them may be different from how those projects actually operate. More complex, multi-layered research needs to be conducted, which relies on historic data rather than simply the memory of individual researchers.

I can thus report only on statements about a selection of research projects in relation to Rheinberger’s thinking, rather than assess those projects.

### 3.1 On experimental systems

It is difficult clearly to delineate experimental systems because historical distance is lacking. It is obvious, however, that references are made across “projects” and that one project often leads to another. It is also obvious, though, that a simple notion such as “my practice” is too wide. One researcher (P), for instance, made a clear distinction between learning to play an instrument (learning a practice) and responding to problems of practice. There is, however, a sense that something akin to experimental systems also exists in music and art, and that this “something” is equally complex, involving, for example, material, social, monetary, geographical, and institutional dimensions.

Despite problems of definition, all participants made it very clear that their experimental system was set up in response to problems inherent in performance practice:

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<sup>2</sup> For a further debate on expositions and their relevance to artistic research in the context of experimentation, see my other chapter in this book, “The Exposition of Practice as Research as Experimental Systems.”

P: [with reference to Gilles Deleuze (1968; see also Ott 2010)] I think we've greatly lost affectivity in the last two hundred years due to the excessive way of narrowing classical music down to the final text and the final performance and the final recording—we've reduced all these possibilities and we're not entering the sphere of the affect.

V: Finally, what I'm searching for is the form with which I'm also struggling, this form of concert or Liederabend, because I really find the form very bothering. I do feel it's dead.

K: I found the constraints in classical music so hard that classical music becomes very unexperimental in the end. Often these constraints are not only material but also ideological.

However, despite such a critical tone, the researchers whom I interviewed seem to be unwilling to suggest that traditional performances do not work. Rather, it seems that they are concerned by the comparative ease with which traditional performances can be produced and consumed without any further relevance to themselves and the audience.

This may be explained with reference to Gaston Bachelard, whom Rheinberger also references, and who, in his *The Formation of the Scientific Mind*, lists a number of obstacles to science, most importantly the “first obstacle: primary experience,” which is “the experience we place before and above that criticism which is necessarily an integral part of the scientific mind” (Bachelard 2002, 31). Intensified production of primary experience through performance practice can be seen as such an obstacle for a researcher, while, at the same time, also being a prerequisite. As one researcher says:

P: This is a little bit strange, but we need this common opinion in order to show that we're able to fight it and that we want to create perforations for other possible worlds.

### 3.2 On technical objects

Initially, “technical objects” seemed a suitable name for all the types of materials brought into a performance setting, including scores, musical instruments, computer equipment, habits, and institutional parameters such as location or funding. It seems that, depending on the desired accuracy, researchers will be able to produce virtually infinite lists of “stuff” that they use or rely upon within their experimental systems. In turn, this begs the question of whether such lists will actually contribute to the understanding of an experimental system if one does not foreground those technical objects that are crucial for the performance in a specific setting, since otherwise the results could not have been achieved. In effect, the more important a technical object is for the experimental setting, the more detailed its description needs to be to understand its particular relevance.

In doing so, one may be able to trace what one researcher (V) called “the point of convergence” at which new solutions and/or experiences may emerge. For this to happen, two aspects seem to be particularly important. First, inti-

mate knowledge of the key technical objects is assumed. As was pointed out again and again, for the researchers an experimental situation was not one of “free” play and association but of tight control:

V: My performances are not experimental in [the sense] that I have no idea what’s going to happen, which could be the case . . . But that’s not exactly what I’m doing. I have a lot of spontaneous action related to text and related to movement or gesture but there’s a pretty rigid frame of pieces we know we’re going to perform in such and such way.

S: That’s one of the suggestions that I would make: the unknown is much less unknown than you think . . . when we get into it, it doesn’t have the sense of walking into the unknown. I think when we start playing what you . . . hear sounds like three people knowing what to do.

Second, the setting up of those “specific time and space conditions” (K) include degrees of distortions and misappropriations where the function of an element can fluctuate during a performance, which in turn requires a description of technical objects in not only stable but also unstable states. A distinction between technical object and epistemic thing may thus be difficult to make, as Rheinberger also suggests when he says that between them there is only a functional and no structural difference (Rheinberger 2010, 30), since the one may slip into the other. Furthermore, when a score, for example, is performed as part of an experimental system, it is unclear whether this score can ever only be a technical object, since as artwork it may escape a reduction to technology. In turn, this may mean that the building blocks of artistic research are actually open, which makes a distinction between technical objects and epistemic things potentially impossible.

V: I feel it [a particular way of performing] is not a technical object in the sense of Rheinberger because within the arts we’ll never know whether it works exactly the way we want it to work. If I have three or four performances in a row of the same piece and I have the feeling . . . after the first one, “Oh, I found this epistemic thing and I’m going to think about it and I’m going to use it as a technical object in the second one,” it might not work at all.

However, it seems that at the “point of convergence” the researchers insert precisely those technical objects that represent the historical problems alluded to in section 3.1 (a score, a particular performance form, a cultural setting, etc.) to give them potential for transformation. In other words, the “historical problems” can only be seen as problems from a particular epistemic horizon that does not require solutions so much as the ability to “wrap” those problems into quasi-functional technical objects that may in time disintegrate and open up new possible futures.

### 3.3 *On epistemic things*

There is substantial evidence that the researchers believe their practice to be epistemically motivated. When compared to Henk Borgdorff's analysis (2012), there is, however, less emphasis on the artwork as epistemic thing, while a performance of a work seems to be sought that exposes the work's epistemic potential.

S: If you look at epistemic things in the development of the music you find them in those moments when you decide "This is how this ten-minute piece should go" or "This is the way it should progress from here to there."

P: For me, it's not a question of playing the piece better or worse. It's a question of opening up more horizons. In this specific concert situation, things become in a way self-evident. It's a gain situation for everybody. The cultivated listener recognises this and the not-so-informed listener has this experience of something happening there that he wants to listen to.

V: I believe that in a successful, authentic performance the score and the performer and the audience come together in one moment, which gives the audience the possibility to grasp an idea of how this piece, which is a historic piece, is relevant to this person living today.

K: This project allowed me to merge something which maybe I didn't do before—at least not at that level—to merge private and public life. It's a kind of exploration of possible worlds and of an experience that I haven't had.

At least two things have to be said here. First, when discussing epistemic things during the interviews, the participants generally referred to particular types of intense experiences rather than an initial lack of understanding that would lead to future knowledge. One may conclude that Rheinberger over-emphasises a negative experience regarding knowledge (the not-yet knowing) against a positive experience regarding aesthetics. This bias may be explained in at least two ways: the personal experience might be lacking from the documents Rheinberger analysed, and the scientists themselves, by focusing exclusively on the knowledge-outcomes, may have disregarded aesthetic implications.

Thus, while the researchers clearly report forms of epistemic gain, there seems to be less lag or deferral, that is, phases of not knowing. As one researcher put it:

S: In the lower level of the development, these cycles are perhaps very quick, in a sense, so an epistemic thing turns into a technical object even before you've finished the process of making a piece.

Or to put it positively, there may be artistic solutions that operate before propositional knowledge is reached, which may even make that knowledge less desirable.

This ties in with the second point. In Rheinberger's understanding, history is projected by research insofar as the unexpected event has to be caught up and realised as scientific knowledge. While some researchers whom I interviewed were also looking for new artistic forms, there is also a sense that a potential experienced in the material through performance may need to be protected as potential rather than converted into a reality of knowledge. One researcher (P) referred to Nietzsche's term *Unzeitgemäss* (untimely), which not only has the potential for a future but also has the potential to transgress the historic order of past, present, and future and thus the need to *make history*.<sup>3</sup>

#### 3.4 On expositions

In comparison to the other questions, the section on "expositions" raised very few concerns and a limited debate, which seems to be because expositions are what performers actually make when they perform. The primary site for the exposition of research is thus the performance, which may also be made available on CD or DVD as a derivative. All researchers report that they are comfortable with the production of performance-lectures, conference papers, and academic texts. It is striking, however, that despite questions of form as reported above, there seems to be a desire to solve problems of form *within* the form rather than by breaking it.

However, two aspects deserve further attention. First, the role of documentation as an instrument for reflection seems to be of particular importance, signalling a change in the function of the performance and, moreover, to the very way in which it is constructed—with additional equipment to be taken care of and considered. How documentation may affect a performance is a question that deserves more detailed attention. Regardless of this, however, it seems that as performance moves into experimentation it becomes a generator of data as well as of experience. This, in turn, raises questions of data management and analysis, and of how such analysis may be (re)presented.

The second important aspect is a consequence of this shift to data. Once data is available, events may—through editing—be traced and/or reconstructed in the data itself, which in turn may lead to changes to the experimental system and thus future performances. According to Rheinberger, rather than speaking of data, one should thus speak of "facta in the sense of primary products of the research process. They acquire the horizon of their possible meaning within spaces of representation in which material traces and inscriptions—graphemes in a very general sense—become recorded, articulated, dislocated, reinforced, marginalized, and substituted. Researchers 'think' within the confines of such spaces of representation, within the opportunistic and hybrid context of the representational machinery at hand making up the technical conditions of an experimental system" (Rheinberger 2004, 6).

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<sup>3</sup> For a more extended discussion of the problem "history" see my introduction to *Experimental Systems: Future Knowledge in Artistic Research* (Schwab 2013).

From the few interviews that I conducted, however, no general picture emerges that supports such a position. There may be many reasons for this. In part, it may be because documentation was not at the centre of my investigation; or, it may be because clear distinctions between performance and research practice do not (yet) exist and that, as a consequence, the latter are not (yet) sufficiently developed; there may, however, also be the distinct possibility that Rheinberger's thinking is less relevant to this context.

Despite such doubts, working with "data" has proved productive, as this quotation indicates:

P: I needed a visualisation of the written information I'd generated—written reflections, written articles, written essays—but I didn't come to the visual representations that I came to years later . . . And this was the moment when I realised what I'd produced.

While this quotation does not explicitly consider documentation on the same informational level as written texts (and thus may contradict the point made above), it nevertheless makes clear that for P, despite being a music performer, his research is very much dependent on information, and more specifically the editing ("visualisation") of information in ways that produce "facta," that is, matters-of-fact that are considered to pre-date the moment of realisation.

Situating expositiveness within the paradigm of information does not, however, say much about the possibility that it may also be traced within performance itself. Unfortunately, I did not gather enough evidence—nor did I ask the right questions—to address this issue, which must be left for a future study.

#### 4. DISCUSSION

During a study day at the Orpheus Institute in June 2012, ORCiM researchers had the chance to discuss with Hans-Jörg Rheinberger their understanding of his work. It was also an opportunity to invite him to consider some of the issues that arose from the questionnaire and the responses that were given. Needless to say, while we were able to narrow the gap between scientific and artistic understandings of "experimentation," it was not possible ultimately to decide whether a theory of experimental systems can actually be applied to artistic experimentation.

This may also be because, as Rheinberger explained, his theory and the notions he uses (in particular "experimental system," "epistemic thing," and "technical object") are explicitly situated in a particular historical (predominantly twentieth century) as well as disciplinary context (molecular biology), and that even within the sciences, they may not be applicable to other contexts. It is thus important to look through the particular, situated elements of the theory and the notions that Rheinberger uses and try to trace what scientific experimentation might be when it is transposed into art. An attempt to do so by using his notions may necessarily challenge artists to use a language that is not theirs to explain what they do. At the same time, the questionnaire has

shown that it is possible, in principle, for artists to enter this challenge and that, moreover, a more considered understanding of artistic experimental research practice can be achieved.

P: Rheinberger's ideas seemed to me to be very effective. They have the potential to effectively help me to be more precise . . . So my first goal with the idea of experimental system was to use it in a pragmatic way and to use the terminology of Rheinberger in [my] project.

We may thus characterise the "Rheinberger Questionnaire" as a conceptual "technical object" that was introduced into on-going artistic research practice to trace epistemic processes. So, what may have been traced?

Until more conclusive research on the role of experimentation in artistic research has been carried out, I suggest that we work with the hypothesis that a theory of "experimental systems" may be applicable to artistic practice if one focuses on processes around the unknown (research), while, in regard to processes of the known (science), there seems to be only limited usefulness. In other words, a notion such as "epistemic thing," which refers to what one does not yet know, is much less problematic than a notion such as "technical object," which suggests not only functional neutrality but, with technology, also a particular form that knowledge is supposed to take as it emerges.

While Rheinberger may be right in noting the dominance of technology in the science that he studies, technology may not be as central to the knowledge-future that artistic research produces. In fact, if we were to generalise technological determinations of science and expect artistic practice to be explained likewise, we would potentially lose a critical angle against the dominance of technology that, for instance, Heidegger (e.g., 1977) detects within the very notion of (modern) science. This is not to say that art needs to be sketched in opposition to technology; rather, in the present context, it suffices to say that the development of technology cannot credibly be seen as artistic research's (sole) objective. If this is the case, the term "technical object" is misleading if used to indicate how outcomes reappear in research. Moreover, as suggested in section three, if outcomes were of such technical quality, it is questionable whether they would remain of artistic interest.

At the same time, the notion of "technical object" occupied an important place and point of reference in my "experiment" since it was neither impossible nor particularly difficult for the researchers to think of a score or presentation form, for example, as such an object. Rather than simply using those technical objects in an experimental setup, they all seem to want to suspend precisely the technical character of the object in question. This holds true even for their own output, which is conceptualised essentially not as a new object but as the giving of a future to existing objects that are deemed overdetermined, closed, or understood.

It is important to remember that Rheinberger's thinking particularly supports such functional fluctuations, where the epistemic horizon of technical objects may be reopened; the question, however, is how much determination

(i.e., technicity) artistic research can afford, and if there is not a proto-technical, epistemic stratum that is aesthetically rather than propositionally secured. Aesthetics here, however, needs to be understood as a complex interrelationship of sensation/perception (*aisthesis*) and artistic practice, while avoiding the post-Hegelian established meaning of aesthetics as philosophy of art, which proposes a philosophical (that is, a propositional) destiny for art.<sup>4</sup> One may argue that artistic research, in providing a producer's approach to knowledge, serves to stabilise such aesthetico-epistemic processes outside a philosophy of art.

In the comments of all researchers there is thus reference to what may be described as the aesthetic suspension of the epistemic *for epistemic reasons*, that is, to affect an audience's understanding of a piece of music and its relevance in the respective contemporary context (see quotations in section 3.3). It is because of this epistemic purpose that the term "epistemic thing" may have proved useful to the researchers, since being different to "work" or "composition," it allows the voicing of a concern that may be overlooked when artists "perform" a "score."

These scores (or artistic traditions in general) are the material that re-emerges as again epistemically open in a meaningful artistic experimental system. It is set against a perceived epistemic closure that happens when such scores or traditions are simply re-performed as if new negotiations need not be entered into. At the site of the performance and under the conditions of tradition, an artist continually experiences and even produces epistemic loss, which the researcher in him or her attempts to suspend in ever new iterations. As Rheinberger (2008) suggests, quoting Thomas Kuhn, artistic research is also very much driven from behind, that is, driven forwards by the material and not pulled into the future through intellectual projection or speculation. The artistic researcher—perhaps more than his or her scientific counterpart—makes the future with eyes cast back, like Benjamin's angel of history, caught in a storm that "irresistibly propels him into the future to which his back is turned, while the pile of debris before him grows skyward. This storm is what we call progress" (Benjamin [1968] 1999, 258).

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4 One may want to construct a difference between Romanticism and Idealism along these lines. According to the latter approach, art requires philosophy as its ultimate reflection (Schelling [1806] 1985, 573; Hegel 1975, 1:1), while for an early Romantic approach art may be imbued with the ability to provide for such reflection directly (Benjamin 1996; Lacoue-Labarthe and Nancy 1988). Naturally, a *philosophical* description of this artistic option will run into difficulties. For a recent discussion of the question of aesthetics see Halsall, Jansen, and O'Conner (2008, particularly the chapter by Wolfgang Welsch). For my own attempt to link early Romanticism with artistic research see Schwab (2008).

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## Section II

# The Role of the Body: Tacit and Creative Dimensions of Artistic Experimentation

In devoting a strand of work to the role of the body within the larger topic of artistic experimentation, ORCiM confronted one of the most problematic aspects of artistic research in general: the potentially idiosyncratic and even solipsistic accounts that might be presented by practitioners endeavouring to describe their own ways of working, observing their own physical and mental interfaces within the materials of that work, and trying to articulate this in language that may feel genuine to them but can often raise questions for the reader. The confrontation seemed worthwhile because here we are operating at that site of potential where musical artist and work interact. The verbal shortcomings are symptomatic of this being the locus for the development of tacit knowledge, in the sense of experience and insight which can somehow be known but not articulated using language (since to do so would remove its tacit qualities).

Much is made in the artistic research sphere of finding a way to access such knowledge, but the attempts to do so are seldom satisfactory because of the compromise at the core of the endeavour. So, what is the value of an emphasis upon tacit and embodied knowledge as an adjunct to artistic experimentation? And are there ways to avoid both the embarrassment of much first-person artistic research reportage and the aporia of a knowledge that declines to articulate what it is that it knows? First of all, in most cases, the body is the site of the creative musical act, mediated by a complex situational interface. Composition, performance and improvisation all engage mind and body in forms of interplay, and these, at least, can be observed and commented upon. While, taken in isolation, accounts of the singularity of individual experience might seem less than convincing in research terms, a growing awareness of the shared scope of concerns amongst many researchers begins to point up similar threads, reframing the exemplary instances of music-making as bound together by specific, unifying, but hidden points of commonality.

That musicians might share such experiences is hardly surprising; the model of Western music training has particular practices that are spread across the world, whether for good or ill. And the other thing they share is the central role of their bodies as both locus and agency for their artistic creations. It is in and through their bodies that they somehow make their translations back and forth between the apprehension of theory and the realisation of music in real-time.

Within artistic experimentation, therefore, the role of the body must be better understood. Moreover, this goes beyond a mechanistic view about how the body might function within the context of making art. It also concerns how the role of research itself, as it is internalised by the artist-researcher, alters the embodied situation. This kind of understanding is also a concern within the sciences; once again, the observations of Hans-Jörg Rheinberger and those who have responded to his work reveal laboratory situations in which, far from somehow observing reactions within a test tube at a mental distance, researchers become part of the system of reaction. They turn out to have affective reactions to what they apprehend and, in a wider sense, to become simply a part of the entire experimental system that has been set up in the first place. Far from

offering *carte blanche* for artist-researchers to make extravagant claims, this commonality of experience becomes a prompt for the development of more precision, greater transparency and the evolution of more sophisticated and specialist modes of dissemination.

With the development of such resources, those who are involved in making art can also have a stronger voice in how the nature of that art is communicated using language. This, in turn, opens the door to a reconsideration of the history of the arts, of reception theory, and of other aspects of what might be called the “music sciences.” Some of this work is already in progress, and is exemplified by specific items within this Section. But the challenge remains for these disciplines to become more “real” by considering the first-hand accounts of those who perform and compose, to allow those accounts to sound out authoritatively—where this is appropriate—and to consider that how the past might be reframed in light of new, shared understanding.

The articles in this section share this focus upon the questions raised by the notion of embodied knowledge, presenting first-hand accounts of artist-researchers who are endeavouring to contextualise their own experiences of practice to create useful approaches for others.

EMBODIMENT AND GESTURE IN PERFORMANCE: PRACTICE-LED  
PERSPECTIVES – CATHERINE LAWS

The word “embodiment” has in recent years become commonplace in practice-based research, both in relation to music and more widely. It is sometimes used simply to draw attention to the role of the body in musical practice. However, when considered in the light of recent developments in phenomenology, neuroscience, and body theory, a more specific and significant context emerges, one that lies at the heart of artistic research and at the nexus between doing and understanding. Catherine Laws argues for a determined focus upon the idea of embodiment—not physicality, corporeality, or simply the body—in order to avoid persistent Cartesian dichotomies and effect an integration of the active and reflective sides of the artist and his or her practice. The artistic research context prompts a questioning of the notion that the instrumentalist’s body is simply a *vehicle* for the realisation of cognitised musical intentions and suggests a role for it that is both more integrated in this realisation and more crucial in determining its nature.

ORDER MATTERS: A THOUGHT ON HOW TO PRACTISE –  
MIEKO KANNO

Tasks in the practice of musical performance may range from learning notes and rhythms, through getting “up to speed” and getting gestures right, to achieving the right effect, coordinating with other musicians, understanding style, and performing from memory. The question about how to structure these tasks into a sequence involves a further subset of questions such as how one task conditions another, how a sequence of finite tasks determines their rela-

tive effectiveness within the same sequence, and how changes in the structure of task-sequence influence the overall outcome. In her short article, Mieko Kanno examines how order matters in violin playing and in learning to play contemporary music. The ultimate aim is to understand the structural relationship between tasks, which underpins all effective practice strategies in musical performance.

ASSOCIATION-BASED EXPERIMENTATION AS AN ARTISTIC  
RESEARCH METHOD – VALENTIN GLOOR

We often speak of the meaning of methodology within a research field and about the incompatibility of some principles of scientific methodology with artistic research. This article challenges some of those incompatibilities through the demonstration of a modified understanding of “experiment,” introducing association-based experimentation as a method for conducting artistic research. Although voluntary association is a broadly applied method in art practice, questions remain about how we can distinguish association-based experimentation in art practice from its application in artistic research. There is not yet a generally accepted answer to this question within artistic research discourse. Tröndle writes: “[Artists] ‘feel,’ when they are right, meaning they have embodied their methodological know-how. Artistic research is *embodied*.” Gloor argues that we must challenge this statement, because to accept it without qualification would make artists synonymous with artistic researchers.

ASSOCIATION AND SELECTION: TOWARDS A NEW FLEXIBILITY IN  
FORM AND CONTENT OF THE LIEDERABEND – VALENTIN GLOOR

Treating the development of new *Liederabend* performance settings as an “experimental system” as defined by Hans Jörg Rheinberger allows us to identify the creative process itself as an “epistemic thing.” This creative process is dominated by association and selection, and could also be described in a more general way as “thinking” in the broad sense of connecting intellectual, emotional, and corporal (embodied) problem solving capacities. In this accompanying text to his article “Association-based Experimentation,” Valentin Gloor explores these possibilities.

IL PALPITAR DEL CORE—THE HEART-BEAT OF THE “FIRST  
OPERA” – ANDREW LAWRENCE-KING

This article reflects on a research, education, and performance project the author undertook with students from the Royal Danish Academy of Music and invited guests, a production of Claudio Monteverdi’s *L’Orfeo* (1607) in the Christians Kirke, Copenhagen, in January 2011. The article explores the research background leading to that project, and reflects on the results of the experiment. Through the building of knowledge, experience, and expertise that the project facilitated, Andrew Lawrence-King proposes such activities as

a means of arriving at the level where we can approach Historical Action in a similar way to continuo realisation. He argues that the best of today's continuo players have so internalised the period rules of harmony, voice-leading, and accompaniment aesthetics that they can improvise their realisations spontaneously and creatively, whilst remaining within the historical style boundaries. He demonstrates that many familiar historical documents as well as newly-examined sources continue to reveal fresh insights in the light of our revised understanding of rhythm and recitative. All this research feeds into continuing practical experiment and professional productions, gradually shaping a new understanding of how Renaissance theories of emotional communication might be relevant to modern-day performance.

TECHNO-INTUITION: EXPERIMENTS WITH SOUND IN THE  
ENVIRONMENT – *YOLANDE HARRIS*

The notion of techno-intuition emerged from Yolande Harris's artistic research into how one's relationship to the environment is established and enhanced through sound and listening. With the aid of sonic technologies and awareness-enhancing practices, she demonstrates that we can re-experience environments we know and access ones beyond our physiological abilities, such as those underwater. These experiences are mediated both by our technologies and by our interpretations—our techno-intuitions. Rather than considering technology as antithetical to the environment, she argues the case for experiments that blend the use of technological instruments with bodily experiences of the environment, using sound to provoke a sense of direct involvement. These experiments lead back to considering human scale, and our physiological and emotional relationship to different environments through examples of walking, swimming, and sailing. Such an embodied approach, driven by the use of sound, challenges us physically and emotionally to expand beyond ourselves.

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# Embodiment and Gesture in Performance

## Practice-led Perspectives

Catherine Laws

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The word “embodiment” has in recent years become commonplace in Practice-led research, in music and beyond. It is sometimes used simply to refer attention to the role of the body in musical practice. However, considered in the light of recent developments in phenomenology, neuroscience, and body theory, a more specific and significant context emerges, one that lies at the heart of artistic research, at the nexus between doing and understanding. Below, I argue for a determined focus on embodiment—not physicality, corporeality or simply the body—in order to avoid persistent Cartesian tendencies. The artistic research context prompts a questioning of the notion that the instrumentalist’s body is a *vehicle* for the realisation of cognitised musical intentions.

As Deniz Peters (2011) points out, despite the growing discourse on the phenomenology of music, it is still the case that “sensual qualities are often associated with ‘the body,’ whereas intellectual qualities with ‘the mind,’ and that, respectively, research appears to often fall into two categories: bodily aspects of musical experience, such as ‘chills,’ are investigated as *physical* phenomena, *empirically*; mental aspects (such as semantics, musical ‘understanding’ and imagination) are more likely to be topics of *theoretical analysis*, *hermeneutics*, and *philosophical* argument.” However, as Mine Doğantan-Dack (2011, 244) comments, the emergence of performance studies in its own right in music *has* actually coincided with challenges to Cartesian dualism from both phenomenology and, more recently, particular discoveries in neuroscience.

Numerous studies have now confirmed that even non-experts demonstrate quite detailed associations of musical sound and corresponding sound-producing gestures (Godøy 2011, 68). This is one aspect of the neuroscientific developments that have, in the last two decades in particular, led to deeper examination of the relationship between reasoning and the emotions, and especially between mind and body. As Antonio Damasio (1994) writes, it is now generally accepted that “the reasoning system evolved as an extension of the automatic emotional system, with emotion playing diverse roles in the reasoning process” (xvii); and (more interestingly for our context) “the body, as represented in the

brain, may constitute the *indispensable frame of reference* for the neural processes that we experience as the mind; that our very organism rather than some absolute external reality is used as the ground reference for the constructions we make of the world around us and for the construction of the ever-present sense of subjectivity that is part and parcel of our experiences; that our most refined thoughts and best actions, our greatest joys and deepest sorrows, use the body as a yardstick” (xxvi). Effectively this is a neuroscientific mapping of what certain phenomenologists, especially Merleau-Ponty, had already proposed, supporting the notion of the phenomenological lived body as entwined with mental representations, not simply informing them.

There is, now, plenty of evidence in support of Liberman and Mattingly’s motor theory of perception; over thirty years ago, this theory set out the idea that the perception of sound is linked to simulation in the brain of the movements we assume to have produced the sound (Godøy 2011, 70). The supplementary motor area of the brain has subsequently become a particular focus of scientific study, since it is active in perception as well as action: as Albrecht Schneider (2010, 83) puts it: “there is a mutual correspondence between perception and action for which the supplementary motor area might provide the neural substrate.” Some sound-motor couplings appear to be “hard-wired”—there are direct neurophysiological couplings in the brain—but it seems we have great capacity for learning these (Godøy 2011, 70).

As Rolf Inge Godøy (2010, 108) discusses, from this has developed an important aspect of embodied cognition, focusing on the spontaneous tendency to imitate mentally the movements we see others making and those we assume others to be making if we can’t see them (such as when listening to a recording). This basic idea has been elaborated by Arnie Cox in particular (2001, 2006, 2011). Cox’s concern is to understand musical affect, and his argument, rooted in recent scientific discovery and theories of perception, is that emotional states are often connected to muscular states, with muscular states being influenced by mimetic participation with the perceived sound. Cox argues that listeners undertake forms of mimetic participation, whether obviously (for example, through foot-tapping), or through less obvious physical movements or sub-vocalisation of instrumental melodies. He contends that we “understand human movement and human-made sounds in terms of our own experience of making the same or similar movements and sounds,” and that “this process of comparison involves overt and covert imitation of the source and visual and auditory information” (Cox 2001, 196).

This might be more obvious for musicians—someone who plays the piano may experience stronger and more specific forms of mimesis when watching or listening to a pianist, compared with someone with no experience of the motor actions involved in piano playing—but is not exclusive to direct physical experience: mimetic participation is often the result of a “basic feeling of exertion that does not belong to a single mode of physical experience” (Cox 2001, 204). Additionally, this argument now seems to be supported by recent research into the functioning of mirror neurons (Cox 2011).

Partly in relation to this research, a number of those studying musical gesture now refer to the idea of body-image schema: the idea that we make sense of musical phenomena by metaphorically mapping onto music the concepts derived from bodily experience of the physical world. All this research seems to underline what most musical performers know—that our intellectual and affective responses to music are not separate from our physical activities. Nor does the physical experience simply provide information that feeds into a higher mental representation of musical ideas. Instead, as Arnold Berleant (2004, 86) says, “In embodiment meanings are experienced rather than cognized.” To again quote Peters (2011), “music becomes meaningful experience *via* bodily involvement (not *affecting* the latter as a consequence of cognitive acts, but being *created* by it, hence turning *into* cognitive acts).”

It is this intertwining of lived bodily experience and mental representation that is meant by embodiment; not simply paying attention to the body; *not* a matter (in the performance context) of an ability to physicalise cognitised musical intentions. In this respect embodiment in music performance is only tangentially concerned with matters such as efficient technique or ergonomics; only so much as these things feed into our experiencing of the music. It is my contention that this intertwining cannot be fully understood without the perspective of the musician, without considering the subjective experiencing of embodiment in action. Artistic research might, therefore, offer a way to help us to “get to grips” with embodiment (not just with the body); to reiterate, we need to find ways to problematise the notion that the instrumentalist’s body is a *vehicle* for the realisation of cognitised musical intentions—this is our concern.

#### GESTURE

Elaborating the concept of embodiment helps to contextualise another key term in this field: gesture. This is, of course, a word with a complex history and usage. It appears in a range of fields (linguistics, sociology, musicology, robotics, human-computer interaction) used somewhat differently, and in the field of music can be used to reference purely sonic objects with certain characteristics, purely physical phenomena (i.e., a particular movement of a musician), or an entity that combines the physical and sonic.

However, in the field of gesture studies the important feature is the combination of extension and intention (Leman and Godøy 2010, 5); here a gesture is not simply any physical movement, but one that carries intentional meaning and expression. Robert Hatten (2006, 1) puts it succinctly: human gesture is “any energetic shaping through time that may be interpreted as significant.” Thus musical gesture is not simply concerned with the physical production of sound, but with the relationship between musical intention and physical extension—how one informs and transforms the other. Put simply, gesture blurs the distinction between movement and meaning (Leman and Godøy 2010, 5–10); gesture is not a physical phenomenon, but an *embodied* one.

As Anthony Gritten and Elaine King (2011b) write, gesture, then, operates holistically and multi-modally, with overlaps between musical and other gestures. Gestures are immediate in perception and form, and interaction is an innate component of gesture-making. Moreover, “Not only is gesture tied up in issues of agency and intention in musical practice, and not only is it figured within the concept of creativity . . . but it is the site and vehicle for a crucial flow of energy between domains and, as such, the entropic loop-hole of music-making—that event through which, and at which point, and by means of which music happens” (ibid., 2). This is a big claim, but one that is shared by Rolf Inge Godøy, Marc Leman, and others in this field: that essentially there is no music without gesture, or even: music is gesture.

Importantly, this confirms that gesture is deeply entwined in questions of subjectivity and expression in music, and in the nature of interactions between composers and performers, as well as performers and other performers.

#### METHODOLOGICAL CONCERNS

The above is intended to consolidate the significance of embodiment and gesture to the understanding of music, particularly when working from the musician’s perspective. One issue that arises from this is the relevance of musicoscientific studies of musician’s gestures. In recent years there has been a proliferation of research in this field, facilitated by developments in video and motion capture technology. There are now quite a number of studies of performers’ gestures, many focusing on pianists. Studies such as that of Simone Dalla Bella and Caroline Palmer on anticipatory motor action (2004), L. H. Shaffer on timing (1984), and especially Jane Davidson on the physical manifestation of expression (particularly 1994, 2005, 2007, 2009), are extremely interesting, revealing aspects of performers’ gestural repertoires and also confirming the extent to which the visual influences our perception of everything from musical form to judgments about a performer’s abilities. Davidson’s (1994, 2005, 2007) studies of piano playing are particularly useful; she argues that performers’ physical gestures form part of a nonverbal system of representation comparable with our development of thoughts as part of a verbal representational system of communication.

However, there are limitations to these approaches. As is stressed above, when we consider gesture as a carrier of musical meaning and expression it has to have two components: extension (the movement of the body in space) and intention (what we imagine) (Leman and Godøy 2010, 5). In many of these recent studies of the performing body, intention is reconstructed, considered outside of the act in both space and time. Moreover, a complex *embodied* process is split into bodily and mental components. The body is the object of study examined empirically: we can measure extension, movement in space, by looking *at* it, using video and motion capture technology. Intention, of course, is not measurable. It has to be constructed, *inferred*, *construed*, *interpreted*. In these studies it is usually derived from two things: an idea of the expressive content of the piece, based on the score (i.e., an account of what the expressive content of

the performance “should” be), and the comments of the performer, verbalised and, of course, communicated before or after the act itself: what did I hope to do, what do I think I communicated.

This process of reading back from gesture to score assumes that the embodied aspects of musical performance are formed entirely in response to that score, or understandings derived from it, and that one can therefore trace a one-on-one connection between the two, explaining the physical gesture in terms of attributes of the piece as encoded in the notation. However, the score itself is a purely intentional object. Moreover, while for many musicians, and most classical musicians, the score is an important starting point, mapping gesture primarily in relation to features of this graphic representation avoids the trickier question of how our long-term physical engagement with musical sound in general, and with the specifics of an instrument in particular, inform our musical intentions. It also ignores that the embodied experience of the music might change or provide different versions, at different times, of the sense of musical shape, form, or expression. Put simply, in playing music we feel it in different ways, and this is part of our musical representation as much as any score-based reading of musical features.

In these studies, asking the performer to explain their musical intentions is presumably meant to balance out the reliance on score-based analytical mappings. However, from the perspective of the performer, intention is complex. It is constantly constructed and reconstructed, before the performance, through practice, but also during the performance, in relation to what really happens, and it is then reconstructed afterwards when we try to work out for ourselves what happened. Moreover, this dynamic intentionality operates at different levels and in different modes; we think of it, and represent it to ourselves and others in different ways at different times, but it also often takes place without apparent explicit conceptualisation, through apparently instantaneous embodied actions and reactions. Furthermore, the instrument is not purely a means of self-expression, but as Kathryn Woodard (2008, 128–31) writes, a technology that shapes the self; the body is disciplined, not an unfettered tool of expression. And beyond this, of course, intention is perceived differently by performer and audience, imaginatively produced through what Alva Noë calls “embodied enaction” (2002). As a result, a singular, post facto account along the lines of “what I intended musically” is insufficient and simplistic.

For example, Davidson’s (1994, 2005, 2007) studies of pianists (initially in the early-mid 1990s, but later revisited and extended) form an attempt to differentiate between the movements necessary to produce the sounds of a piece and those “additional” movements bound up with expressivity. Davidson asked pianists to play the same piece but to vary the expressive intentions, playing in three different ways: “without expression,” with “normal” expressive content, and with exaggerated expression. The performances were filmed by video cameras, with a video position analyser tracking movements by following markers placed on the pianist’s face, shoulder, and hands. As one might expect, Davidson found little difference in the hand movements, presumably due to the technical demands of playing the notes, but considerable difference in the

action of the upper torso and head. Here—again as one might expect—the differences were not so much in the kind of movements, but in the *degree* of movement, the performance of “exaggerated expression” not surprisingly providing the biggest gestures.

This offers empirical evidence for the association between bodily movement and expressivity in musical performance. However, transferring the observations from the broader, more general level to more detailed relationships between sound and movement is problematic. At this point, the research needs to—but currently does not—take account of the complex intertwining of individual and enculturated aspects of piano playing, especially the intersection between the various traditions of bodily expression at the instrument and performers’ recourse to analysis of form and structure in their developing of expressive intentions. The approach makes assumptions about what is individually regarded as “normal” or “exaggerated,” and at a more detailed level has to map movements to score-based analysis. Perhaps more significantly, though, it assumes that the conceptualising self and the body form an uncontested unit; that there is an obvious, one-to-one mapping between the cognitised idea of “normal” or “exaggerated” expression and the pianistic manifestation of expression, and that the body simply realises these concepts, as if responding to or obeying instructions. But the body is not such a naturalised, purely responsive unit. Aside from the complexities of mind-body relationships I have discussed (i.e., the role of embodied experience in *forming* ideas), we have to take into account that the body is not a naturalised entity that acts purely at the will of the mind. The performing body is modified through years of practice, through discipline in relation to the instrument, through the nature of one’s training, by other (non-musical) embodied experience, by social and cultural experience, and by the specific demands of repertoire. To say it again: the body is not simply a vehicle for realising cognitised intentions.

In this respect, just when most music theorists seem to have laid to rest the old linear, communicative model of the composer sending a message through a performer to a receiving, decoding audience, a similar intentional fallacy has effectively been reconstructed in many studies of musical gesture. Gritten seems to be one of the only people to comment on this, noting that gestures are usually conceived anthropomorphically in organicist terms, and that this is yet one more reflection of our desire to “possess music,” as he puts it, to get a grip on what it’s doing (Gritten 2006: 104–25).

Doğantan-Dack (2011, 246) also acknowledges this limitation in her exploration of a phenomenological approach to piano touch. She notes the prevalent “performer as lab rat” tendency identified by John Rink (2004, 39), wherein performance and the performer are the focus of study but the documentation is from the perspective of the listener-researcher. Doğantan-Dack (2011, 246) links this to what she sees as the persistent dominance of the work concept in music, commenting: “While it is certainly true that there has been an unprecedented interest in studying musical performance over the last two decades, it is questionable whether the deep-rooted ontological—and epistemological—primacy of the score and of abstract musical relationships in Western

musical thought has indeed given way to a reconceptualization of music *as* performance.” Moreover, “the continuing dominance of the score is also evident in expressive performance studies, where the variations in tempo, and dynamics observed in a performance are conceptualized to a large extent as functions of abstract musical structures, reinforcing a work-centred ideology and rendering the performer’s role derivative of the score” (ibid.). In this sense gesture becomes an aspect of the realisation of the work, mapped onto mental representations. However, from my discussion of embodiment and the complexities of gesture this is clearly problematic, derivative, and one-dimensional.

Davidson’s studies, for example, have been very important in demonstrating that performers use music to communicate information about structural features of music and expressive intentions (to both ensemble members and audiences). However, this leaves open the more intricate issues of how such representations are formed, the radical ambiguity, uncertainty, and changeability of gestural intention, and the limitations of the implied structures of communication. As Doğantan-Dack (ibid., 259) says, we neglect “how the execution of various gestures actually makes the performer feel—both physically and affectively”; and hence how those experiences and feelings inform the understanding of the music and subsequent performances. Gesture might in some senses operate in relation to a score, or any other atemporal mapping or conception of a piece of music, but gesture is action and, as Cox (2006, 45) says, “our perception and understanding of gestures involves understanding the physicality involved in their production”; gesture cannot be fully encoded by notation, and neither a performer nor a listener simply maps gestures back onto a work concept as part of a linear process of communication.

Instead, then, artistic research in this area might seek others ways to explore and represent the processes of embodiment at work in musical performance and their manifestation in gestural form.

#### “SOUNDING GESTURE, ENACTED SOUNDS”

One example of a practice-led project designed to explore the above issues is “Sounding Gestures, Enacted Sounds,” undertaken by myself (as a pianist) in collaboration with composer William Brooks and percussionist Damien Harron. There is not room to discuss this project in detail; instead, I offer a brief exposition of the key concerns, in relation to the issues outlined above.

For us, the problem has been how, as a pianist and a percussionist, and particularly ones involved in contemporary music and music theatre, we can have a better understanding of our physical relationship with the instruments and the complexities of expression. Clearly the growing body of work on gesture is relevant and in many respects revealing. And likewise, we can use video and motion capture, looking back at ourselves after the fact and trying to relate this to what was going on, attempting to recapture, re-imagine our embodied experience in relation to what is viewed on the two-dimensional screen.

However, this project took a different tack. From the above it should be clear why a practice-led perspective seemed not only interesting but also necessary;

there had to be an attempt to avoid the separation of movement and intention, however complex the formation and manifestation of intention. In a practice-led approach the complexities of the body come to the fore: there is no divorcing of subject and object. The veneer of objectivity has to be discarded. Of course the subjective is no less problematic; indeed, as Leman (2010, 149) argues, the complexity of gesture is perhaps best explored through a combination of first-, second-, and third-person approaches. Nevertheless, in a practice-led approach, with musicians also researchers, one confronts directly the impossibility of being present to oneself; the questions feed from and through the experience of practice, and one cannot avoid that issues of agency and subjectivity are bound up with those of gesture.

As a pianist, I cannot pretend to myself that I am at every level fully aware of my physical activities in performing, any more than I am aware, in a fully present sense that can be extrapolated in words, of my felt, subjective understanding of the music and my intentions in playing it. But the reason for this is precisely the entwining of the corporeal with the various modes of representation: the very nature of embodiment. The question, then, was not how to produce a precise account of the mappings between sound and gesture, but rather to find ways of revealing the complexities of those relationships and their significance in the production of musical meaning.

The attempt was to find both greater awareness and to enrich the field of creative possibilities by exploring the body as a site of imaginative production. The project involved an experimental process of examining, exchanging, and reconstructing vocabularies of gesture, to make strange and disjointed what ordinarily feels (even if it is not) natural (after years of training and experience): to disrupt the habitual, as if to try to catch the performing body-subject in the act of looking at itself.

Naomi Cumming considers the ways in which the production of (usually beautiful) tone through a well-balanced physical adjustment to the instrument is central to creating the impression of a musical personality; it is linked to the idea of a performer's "voice," or (in Cumming's terms) a "sonic self" (Cumming 2000, 23). For the performer there is an "experiential continuity" between tone colour and gesture (Doğantan-Dack 2011, 250). Certainly, for me, sound production is at the heart of piano playing; my sense of myself as a performer with "something to say" is deeply bound to this embodied experience. So one of the questions in my mind was how much, and how, this would be disrupted by the disjointing process; how much of my sense of my performing self at the piano is bound up with an intricate embodied understanding? And if the basis of that understanding is altered, displaced, what happens?

Our project started with detailed practical exploration of the nature of our gestures at our instruments. Initially, Damien chose to use a vibraphone, placed alongside the piano, and we worked by comparing the different ways in which various parts of our bodies are involved in producing similar sonic gestures: chordal attacks or arpeggiated lines, for example. Damien played sometimes with sticks, sometimes with fingers, so as to consider how moving from one to the other affected the similarities and differences in other aspects of our

gestural characteristics (in the use of wrists, arms, shoulders, and overall body position). At times we used pedals, again comparing the impact of this change upon our physical relationships to the instruments. We also experimented with reaching between keyboard and strings on the piano, comparing this with the use of different regions of the vibraphone. Starting from very simple gestural units, we devised a range of experiments to extend the comparative process, producing a series of exercises designed to expose to ourselves the similarities and differences in our gestural vocabularies. Finally, this embodied knowledge was transformed through extension and disruption: a deliberate modification (or “disjointing”) of our gestural vocabularies for creative purpose, deployed in the composition that resulted.

The comparisons took a variety of forms: simple observation of each other, copying and discussing what we saw and felt; third party observation and commentary upon the two of us playing together; use of video playback. Finally, a stage of the research process involved sonifying our gestures. We worked at the Aesthetic Lab of the Institute of Electronic Music and Acoustics at the Kunstuniversität in Graz, attaching sensors to our arms and wrists to map our movements using an infrared motion tracking system. By linking relatively simple sonifications to the movements in space, with sliding pitch or timbral changes, we perceived our gestures differently, both in themselves and comparatively. The process allowed movement in space to be felt as a change in sound, giving real-time (if relatively crude) feedback on the similarities of or differences between movements—qualities one cannot perceive of one’s own body in the moment of enaction (nor, often, by means of retrospective viewing of video footage on a 2-D screen). The Aesthetic Lab set-up also allowed for immediate visualisation of the movements on a large screen, abstracted as points in space across a grid.

Throughout this process various mappings, sketches, and observations evolved. Composer William Brooks observed the experiments and devised various exercises of his own. He then used the experience as the basis for developing a composition in which gesture formed the starting point. The idea was that sound would be consequent upon composed gestures—rather than gesture being necessary for or consequent upon sound—with the piece developing from an understanding of the specific correlations and divergences between gestural and sounding content. For this, Brooks devised a particular layout of percussion instruments that defines a physical space analogous to the piano keyboard, allowing the player to choose the individual instruments but designating their number, the space they should fill, and certain resonant properties.

Overall, the process involved examining composition as choreography, but a choreography in which the intimate relation between the physical and the sonic was embedded. The experiments led to a new piece of creative work that explores and exploits these findings. The result, in addition to critical reflections on the process, was a new composition, *Disjointed*, and a film of that work.

Fundamentally, the process and the piece ask:

What kind of meanings do our gestures afford?

What happens when we dislocate the usual conjunctions of music and meaning; do the affordances change?

Taken as a whole, the process and the piece explore the kinds of meanings that our gestures afford, as well as questioning what happens to these affordances when we dislocate the usual conjunctions of music and meaning.

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# Order Matters

## A Thought on How to Practise

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### HOW ORDER MATTERS

The literature on how to play music is rich in quantity and variety. It ranges from do-it-yourself websites on how to play the guitar in ten easy steps to academic papers on how to enhance performance from a psychological perspective. Each teacher, author, or commentator offers a practice strategy. In any walk of life, strategies address two principal questions: *what* to do and *how* to do it in order to achieve an aim. The “what” question determines tasks to be undertaken and the “how” question explains the method with which those tasks are carried out. While the “what” question relates more significantly to the outcome, the “how” question is equally indispensable if the tasks are to be carried out. I wish to take a moment to consider the “how” question in relation to musical performance, that is, the method by which musicians make music.<sup>1</sup>

Tasks in the practice of musical performance may range from learning notes and rhythms, getting “up to speed,” and getting gestures right, to achieving the right effect, coordinating with other musicians, understanding style, and performing from memory. The question about how to structure these tasks into a sequence involves a further subset of questions such as how one task conditions another, how a sequence of finite tasks determines their relative effectiveness within the same sequence, and how changes in the structure of task-sequence influence the overall outcome. While there are pedagogical reasons to follow a certain well-established sequence of tasks, one observes that (1) there is considerable flexibility in the execution of the sequence, (2) there is variety to the sequence structure—a sequence may possess a tree-like form (where each answer to a question leads to a different question) or consist of circles (where the same questions are answered but in a different order)—and (3) changes in the order of task-sequence often provide a “breakthrough” in learning to perform music. The last point refers to the practice where musicians search for solutions not only through repeated practice but also by changing an

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<sup>1</sup> Video illustrations relevant to this article may be found online at <http://www.orpheusinstituut.be/en/anthology-repository>

approach—that is, by reordering priorities and tasks. In this short article I wish to examine how order matters in violin playing and in learning to play contemporary music. The ultimate aim of my inquiry is to understand the structural relationship between tasks, which underpins all effective practice strategies in musical performance.

The range of tasks involved in the performance of contemporary music can vary depending on the composition, though, in my experience, the majority of these tasks are within the bounds of general musicianship of any trained musician. However, there are some new techniques—often described as extended techniques—that affect the standard routine task-sequence. Two examples may suffice to explain this. First, consider over-pressure in the bow: while many string players regard this as part of right-hand technique, which includes dynamics, its most noticeable influence is on the domain of pitch and timbre; this is the case in the music of Helmut Oehring. Second, consider scordatura: the two main approaches to this technique are either to detune first and then learn the piece with the instrument detuned, or to learn the piece in the standard tuning and detune later to “add an effect.” Despite the significance of these new techniques on the topic, to address fundamental issues about task-sequences in the practice of music this article examines the reordering of basic tasks such as learning notes and rhythms in contemporary music.

#### ORDER MATTERS EVERYWHERE

In everyday life the importance of procedural order is widely acknowledged and attracts interest. An arithmetic operation may explain the question most clearly. We have an understanding that the order in which we perform different operations leads to different results. For example  $2 + (3 \times 4) = 14$  is different from  $(2 + 3) \times 4 = 20$ . In this case the answers differ depending on which of the two operations is performed first. Multiplication is a dominant operator—doing multiplication first is a rule—so brackets are necessary to distinguish the latter expression from the former. Decisions about the sequence of actions can also be found in cooking recipes, such as in the well-known example of how to mix eggs, sugar, and butter in baking. Eggs and sugar are mixed first and melted butter added last in madeleine; sugar and butter first and then eggs in Victoria sponge; sugar and butter first, egg yoke next, and egg white last—after flour—for a Swiss roll dough. The resulting differences are significant enough that different dough types lead to different cakes. Binary code in computing provides another example: 0011, 0101, 0110, 1001, 1010, and 1100 are different codes despite each having the same number of zeros and ones. Each code sequence possesses distinct, specific data-transporting connection by means of different orders.

Musical notation resembles a set of ingredients with a description of—but without a recipe for—a dish. But while following recipes is relatively easy, constructing them is much harder. There are many, many ways in which musicians transform notated music into performance, but this process does not simply depend on personal taste or artistic license. Musicians vary their approach to

notation according to performance context. For example, they prioritise shapes (rather than details) in sight-reading, pay more attention to detail (rather than overall effect on listeners) in recording, and emphasise the character and role of the material notated (over specific qualities in the notation) in ensemble performance. We also observe a similar shift of approach in the manner musicians vary their practice according to the repertoire, from early music through Romantic to contemporary. To identify stylistic features of the music is one of the first steps musicians take in learning a piece of music. A passage of arpeggiated semiquavers in Vivaldi may draw attention to the harmonic rhythm that is to be emphasised; that same passage in Bruckner may represent a colour wash that needs to become part of a smooth, blended ensemble texture; in Birtwistle it may be a timbral backdrop where the character of the register is to be brought out. In each case the understanding of the musical function of the passage determines the way in which musicians learn the passage.

Contemporary music enjoys a wide range of styles, which raises questions about its performance practice. Do musicians vary their practice according to each style, genre, or context? What distinguishes each practice? Does it come with a distinct task-sequence? Does a task-sequence relate to a compositional method? Some techniques (such as finger slapping and “white-noise” bowing strokes on stringed instruments) were created in the search for new musical sounds; compositions that feature these techniques—such as those by Helmut Lachenmann and Gérard Pesson—oblige the performer to follow a radically different task-sequence. Given the variety of new techniques that are becoming common in contemporary music, assessing the sequence in which musicians process tasks may become essential in learning new works.

As for violin playing, most schools start by instructing how to stand and hold a violin, how to put a bow across the string, and how to finger the left hand. The last part, the left hand training, then develops into a preoccupation: many exercise books have been produced on playing scales and all possible permutations of left-hand fingering. These left-hand exercises start with fingering on one string and develop into fingering on all four strings across the instrument. String crossing is therefore learned in conjunction with the crossing of the left-hand fingers to ensure coordination between the two hands. One study, however, considers the separation of the two hands strategically. Michelangelo Abbado’s *Come studiare i Capricci di Paganini* [How to study Paganini’s Caprices] (1973) structures practising in three stages: first the left hand in easy rhythms, second the right hand with open strings, and then both hands together. After dividing a phrase into segments Abbado’s methodology proceeds as follows: (1) do and repeat the left hand exercises for each segment until satisfactory, then proceed to the next in the same manner until all the segments are practised for the left hand, (2) do and repeat the right hand exercises for the same segments, and (3) put both hands together and practise each phrase as it appears in Paganini’s score. In other words, the second stage is the added section to the standard practice routine and the strategic novelty of Abbado’s approach.

The note-first preoccupation of violinists is in striking contrast to, for instance, the practice of percussionists, who learn gestures first and then add

notes. In an attempt to experiment with an alternative approach, I separated left-hand learning from right-hand learning in preparing my performance of Salvatore Sciarrino's *Per Mattia* (1975) (audio-video files A, B, and C). Audio-video file A is the "play-through" version corresponding to the first stage of Abbado's methodology, where the left hand pitches are executed correctly but without any right hand techniques; audio-video file B is the second stage equivalent where the right-hand techniques are executed without the left hand—the neck of the instrument is covered with a cloth to prevent open strings from ringing; audio-video file C shows the last stage where the two hands are combined together in a performance. The resulting performance consists of the two parts, A and B, though in this instance it is easier to see the contribution of right-hand techniques than it is those of the left hand. This is representative of the importance of right-hand techniques in Sciarrino's violin music, or, more precisely, of the decisive influence of the parameters controlled by the right hand (envelope, pressure, and dynamics) on the musical character of the piece.

This experiment is a simple example of the difference that order makes: the combination of left-hand notes with right-hand techniques is not the same as right-hand techniques with left-hand notes. Learning the right hand first and the left hand second produces the effect heard in the resultant performance. Learning the left hand first and the right hand second leads to having to "read-just" the left hand at a subsequent stage. This is because the learning process is algorithmic: the first task conditions the ground for the second task. Had this music placed more emphasis on the pitch domain—as is normal in most classical music—learning the left hand first would have led directly to the desired effect. But what is important in this musical context is the envelope and timbre rather than the notes—making every note speak is less important and so learning the right hand first makes the task-sequence simpler. Knowing the difference the task-sequence makes is critical: it is information that goes hand in hand with the aesthetics of this music. It constitutes an integral part of the performance practice.

#### WHY ORDER MATTERS

In proposing that learning right-hand techniques first simplifies the task-sequence in the Sciarrino piece, I wish to emphasise that this experiment is a creative undertaking; I do not imply it is the "best" or most appropriate approach. After all, the simple way is often convenient but not always best. Rather, in constructing an alternative procedure, I strive to articulate the critical function of internal logic in the act of music-making as research. The knowledge of the critical function of right-hand techniques in Sciarrino's violin music provides me with a means to orientate my learning process around these techniques: to prioritise the dynamic envelope and timbral quality, and map out the effectiveness of all other articulations as secondary. *Per Mattia* does not use any new technique. I have used Sciarrino's piece to examine how reordering tasks may influence an outcome, rather than as an example of how a new technique may influence an existing sequence of tasks (and thus the outcome). Implicit to

this approach is the view that performance is a combinatorial art the quality of which depends on the manner of assembling finite information and skills. Hence I seek elegant and effective solutions from resources within the practice by finding new combinations and sequences, rather than aiming to bolster the practice by introducing something external to it. This view also draws attention to the need regularly to reconfigure musicians' skills. Unlearning is one such process and is a significant part of the larger learning process in a performer's practice: unlearning bad habits, unlearning a practice of one tradition or genre in order to learn another, and unlearning just enough to enable effective learning. Unlearning has a particular importance in the performance of contemporary music because of the need to acquire new means for new expression. Much is still to be understood to enable a constructive critique of unlearning in the production of dynamic performance.

Equally related to the question of procedure is the question of musical aesthetics. Much existing research on pedagogy strives to help musicians and improve performance, yet it takes for granted that there are set standards for excellence. But the usefulness as well as appropriateness of such standards varies according to context. Sciarrino's piece makes it clear that pitch has to play a subsidiary role to timbre, and that perfecting the harmonics—as violinists are trained to do—is beside the point; absolute pitch is often useful in contemporary music (where sequential pitch relationships may be such that intervals are hard to grasp) but detrimental in many other contexts (ensemble performance and early music are two such examples); achieving bow strokes at the optimum position on the string is fundamental when playing any string instrument, but no string player would perform a piece of music playing at only that position. These are aesthetic matters: selection and ordering of tasks have aesthetic consequences, and no one but musicians can make these decisions.

I have argued that the order in which musicians process tasks bears greater significance on the performance outcome than has been considered until now, and that clarity in this matter will further our understanding of the way we map strategy and outcome in musical performance. Such an understanding will assist performers and composers, but may equally benefit cultural theorists and anthropologists, for whom this research provides an example of implicit knowledge that forms a building block of a global practice of musical performance.

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# Association-Based Experimentation as an Artistic Research Method

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Artistic work processes are neither “rational” nor linear, and they cannot be planned. They’re dominated by selection, variation, and stabilisation.<sup>1</sup>  
—Martin Tröndle (2012, 191, my translation)

Even though there be a mental spontaneity, it can certainly not create ideas or summon them *ex abrupto*. Its power is limited to *selecting* amongst those which the associative machinery has already introduced or tends to introduce.  
—William James ([1890] 1983, 559)

Questions of methodology are of major importance to all inquiry claiming to be research.<sup>2</sup> It is only with knowledge of the method applied in a certain research project that the research outcomes can be appreciated and—crucial to all scientific research—can be verified or falsified by other researchers. Therefore, any new research field will have to cope with questions of methodology at an early stage. Due to the lack of specific knowledge in the new field known as artistic research, researchers from other fields will not be able to judge the quality of the outcomes in most cases, but they will make interim assessments about the research field by evaluating its methodology. Artistic researchers may or may not accept this approach, but they are unlikely to build up a field worthy of respect within the research community if they do not respect the “rules of the game” by presenting clear methodologies.

In artistic research discourse, three basic possibilities for connecting art and research have been established within the past few years: research into art, research for art, and research through art (Frayling 1993).<sup>3</sup> The first category

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1 In the original: “Künstlerische Arbeitsprozesse verlaufen weder ‘rational’ noch linear, und sie sind auch nicht planbar. Sie sind durch Selektion, Variation und Stabilisation gekennzeichnet.”

2 “Scientific method is the process whereby scientists, working concurrently and over time, investigate and acquire knowledge with the aim of obtaining a clear and precise representation of the world in ways that translate back to the world and shape its manner of operation” (Coessens, Crispin, and Douglas 2009, 50).

3 The three basic approaches are widely used in artistic research discourse.

covers traditional research in the humanities about the arts. “Research for art” can develop new artistic means through extra-artistic research practices—often applied in design, for example. In this article, I shall limit myself to “research through art.” This is “the most recent, and without doubt also the most controversial approach . . . carried out within the arts themselves . . . in which the object of research is the artist’s own art or artistic process” (Coessens, Crispin, and Douglas 2009, 46).

If the artist is simultaneously the researching subject and the researched object (or at least part of it), standard scientific research methodologies cannot be applied to research through art, because the “exclusion of the observer” as one of the basic rules of scientific research is not respected (*ibid.*, 50). Objectivity is not a primary goal of artistic research. This profound difference in methodology makes it necessary to redefine research methods if they are to bring any results in this new field.

#### ASSOCIATION

“Association” as artistic resource has not yet been sufficiently appreciated. It has been discussed in philosophy and psychology, but it is not yet prominent in artistic research discourse. Nevertheless, I claim that association in the sense of William James’s ([1890] 1983, 549, 556) “voluntary association” is already a broadly applicable and accepted method of art practice and artistic research.

James, an American philosopher and psychologist, developed a neurobiological concept of association *avant la lettre* in chapter fourteen, “Association,” of his magnum opus *The Principles of Psychology* (*ibid.*, 519–569). He does not agree with the formerly applied categories of association by similarity, association by contiguity, association by habit, etc., but sets up his own approach in clear contrast to the overview given of the association discourse that started with Aristotle,<sup>4</sup> came to life in seventeenth century English philosophy, and was broadly discussed in the so-called English School<sup>5</sup> of the nineteenth century. “I shall try to show, in the pages which immediately follow, that there is no other *elementary* causal law of association than the law of neural habit” (*ibid.*, 533).

The amount of activity at any given point in the brain-cortex is the sum of the tendencies of all other points to discharge into it, such tendencies being proportionate (1) to the number of times the excitement of each other point may have accompanied that of the point in question; (2) to the intensity of such excitements; and (3) to the absence of any rival point functionally disconnected with the first point, into which the discharges might be diverted. (*Ibid.*, 534)

In its reliance on brain processes rather than on terminological similarities, this “mechanical” model works for any category of association. James uses it for two different association settings: spontaneous and voluntary association. Whereas in spontaneous association “the train of imagery wanders at its own

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<sup>4</sup> See Aristotle (1984).

<sup>5</sup> See James ([1890] 1983, 565–568).

sweet will” in “revery, or musing,” “great segments of the flux of our ideas consist of something very different from this. They are guided by a distinct purpose or conscious interest” (ibid., 549). This conscious interest—James uses the German word *nachdenken* to make himself clear—uses *voluntary association* for the solution of problems and for the recollection of forgotten things.

#### PART OF THE CREATIVE PROCESS

In the James quotation at the beginning of this article, James relates the process of solving intellectual problems to the selection of the “right” elements from among the many objects association brings up in our mind as we think about something. This model is fully applicable to creative processes in the arts and even encloses embodied processes, as it sets (any) neural habit in the centre. If we adapt James’s theory to creative processes, we might summarise: *Association is the neurobiological mechanism generating variants in thought and behaviour, from which we are free to select elements fulfilling our (artistic) needs.*

Clearly, the selection process itself would be a broad field for discourse and would depend upon our creative domain, our criteria applied to distinguish “better” from “worse” and our artistic goals. It is open to different methodological approaches. Yet, no matter how we select later on, this creative process of generating variants and selecting from them is a highly experimental setting. However, we are not able to relate to scientific terminology at this point: any non-replicable experiment within scientific research loses its credibility. In total contrast, the experimental quality of the associative process in artistic research is not only inimitable, it must also necessarily lead to different results if carried out by different researchers. This is due to a very different measure of quality: if we strive to judge the quality of artistic research carried out by association-based experimentation, we may only do so by including the researcher, who, with his or her “associative machinery” is one central, non-replicable part of the research. Quality in artistic research can only be measured with regard to coherence.

Interestingly, in the other quotation at the beginning of this article, Martin Tröndle uses Jamesian terminology to describe the artistic process. He stresses the point just discussed: “The traceability of the ‘experimental setting’ is of no interest—even though it would be crucial to any scientific experiment—only the coherence of the whole is”<sup>6</sup> (Tröndle 2012, 190, my translation).

#### ART PRACTICE OR ARTISTIC RESEARCH?

I have discussed the meaning of methodology within a research field and the incompatibility of some principles of scientific methodology with artistic research. Furthermore, I have demonstrated a modified understanding

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<sup>6</sup> In the original: “Dabei ist nicht die Nachvollziehbarkeit der ‘Versuchsanordnung’ von Interesse—wie es von einem wissenschaftlichen Experiment gefordert würde—, sondern allein die Stimmigkeit der Gesamtheit.”

of “experiment” and have introduced association-based experimentation as a method for artistic research. Yet, voluntary association is a broadly applied method in art practice. How can we distinguish association-based experimentation in art practice from its application in artistic research? There is not yet a generally accepted answer to this question within artistic research discourse. I claim that artistic research cannot limit itself to applying methods in order to generate works of art. Tröndle (ibid., 191, my translation) writes: “[Artists] ‘feel,’ when they are right, meaning that they have embodied their methodological know-how. Artistic research is *embodied*.”<sup>7</sup> We should challenge this statement, because it makes artists synonymous with artistic researchers.

Since the method of association-based experimentation (including various techniques of selection) is a basic creative process, I argue that it has always been an essential work approach in the artistic domains. It only becomes a method of artistic research when association-based experimentation is no longer a simple method (unconsciously) applied in order to generate an artistic product of any sort, but becomes itself one focus of our interest. Still I do not want to extract the “associative machinery” to submit it to scientific research. Association-based experimentation within an artistic research context is part of a process that includes the artist *and* the art practice, trying to consider the “coherence of the whole.” Artistic research has to develop a multifocal approach. If our goal is the emergence of an “epistemic thing” in the sense used by Hans-Jörg Rheinberger (1997), then this epistemic thing cannot be a mere product of art; it has to include the whole (process) and render it communicable to others.

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7 In the original: “[Die Künstler] ‘fühlen,’ wann sie richtig liegen, das heisst, sie haben ihr methodisches Wissen verkörpert. Künstlerische Forschung ist *embodied*.”

# Association and Selection

## Toward a New Flexibility in the Form and Content of the *Liederabend*

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### INTRODUCTION

The development of new *Liederabend* (evening of songs) performance settings can be linked to Hans-Jörg Rheinberger's concept of experimental systems. "Experimental systems are to be seen as the smallest integral working units of research. As such, they are systems of manipulation designed to give unknown answers to questions that the experimenters themselves are not yet able clearly to ask" (Rheinberger 1997, 28). Within an experimental system, Rheinberger identifies "technical objects" on the one hand (the known and clearly defined experimental conditions) and "epistemic things" on the other (the "objects of inquiry. As epistemic objects, they present themselves in a characteristic, irreducible vagueness. This vagueness is inevitable because, paradoxically, epistemic things embody what one does not yet know" [ibid.]).<sup>1</sup>

The application of this concept to my development of new *Liederabend* performance settings makes it necessary to define "technical objects" and "epistemic things" for this specific context. Therefore, the components of which the *Liederabend* performances consist must first be identified. I claim those components are (1) the (musical or extra-musical) topic (and any intellectual concepts linked to it), (2) the (musical, textual, spatial, and visual) materials, (3) the arrangement of those materials into one "concert" programme, and (4) the real-time interpretation of the material (the actual performance with its surrounding intellectual concepts). A difficulty in applying Rheinberger's concept to my work lies in the question, What shall we define as the actual experimental system? Is it the whole working context or only the performance (or the performance setting)?

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<sup>1</sup> Video illustrations for this article may be found online at <http://www.orpheusinstituut.be/en/anthology-repository>

THE DEVELOPMENT OF NEW LIEDERABEND PERFORMANCE  
SETTINGS AS AN EXPERIMENTAL SYSTEM

I will test the first hypothesis, which is that the entire working process is the experimental system, and that the Liederabend performance or the new form of Liederabend performance setting is the “epistemic thing.” If this is the case, the technical objects would be the topic, the music, the text, the scene, the programme, and all the setup and preparation processes, whereas the epistemic thing would then lie within the (artistically or aesthetically) successful or unsuccessful performance setting. Yet this performance setting itself would almost immediately become a technical object, too. Its components (music, text, programme structure, etc.) are—in this case—normally fully defined through the preparation. The only unknown factors remaining are the real-time interpretation and the audience reaction. But this is the case in almost any classical music concert, and therefore the epistemic gain that we could draw from new Liederabend performance settings would be extremely limited and not at all unique to this particular setting.

My second hypothesis establishes the Liederabend performance in its new setting as an “experimental system.” This perspective provides a better possibility to structure the working process and distinguish between “technical objects” and “epistemic things” within the working and preparation process—either we define two categories of preparation steps (“technical” and “epistemic” steps) or we try to find technical and epistemic parts within every single preparation step. We therefore have to identify all the work steps connected to the Liederabend performance setting; in chronological order, they are: researching and establishing the topic, searching for (musical, textual, spatial and visual) materials, selecting the materials for the programme, setting-up the materials in a timeline to form a programme appropriate to the performers and the performance space, practising the programme, rehearsing and developing the actual perceptible performance, interpreting in the course of the performance, and evaluating the performance afterwards to redevelop the Liederabend performance setting. For the time being I shall limit myself to these processes (and keep them in this order), even though there are numerous other factors that could equally well question their roles as technical objects or epistemic things (e.g., interpretation concepts derived from study and/or tradition, social concepts of concert settings, the concert hall itself, the musical instruments, etc.).

## “TECHNICAL” AND “EPISTEMIC” COMPONENTS

None of the performance development steps mentioned above can be identified purely as a technical object or epistemic thing since all these processes contain sufficiently defined factors, on the one hand, but on the other also contain components the exact nature of which is yet unknown. We can only find the epistemic thing by understanding those processes in more detail.

Even though these processes do contain very different parts (e.g., social interaction in rehearsals, extraconceptual factors such as economic constraints

influencing the selection of materials, or strong performative aspects within the actual performance), each starts with a three-step creative process involving our capacity to “think” in a broader sense of connecting intellectual, emotional, and corporal (embodied) problem-solving capacities. Therefore, all the preparation processes follow the association concept of William James (on which see James [(1890) 1983] and my chapter “Association-Based Experimentation as an Artistic Research Method,” elsewhere in this volume) and they consist of (1) a “conscious interest” triggering (2) “association” (the bringing up of variants), the results of which are then sorted out by (3) “selection.” Within this article, I shall not analyse the actions following this “thinking” process.

#### THE PROCESS OF “THINKING”

The setup of the chosen material into a performance timeline serves as an example clarifying the three starting steps within this one working process. Once the material is chosen and ready, step one “conscious interest,” is the urge to obtain a perceptible performance with a clear timeline of music, text, and action following one another or taking part at the same time. “Thinking” about possible solutions, in the broad sense of “thinking” explained above, is not a linear process, but an associative, at times chaotic playing with different possibilities or variants, which come up as one applies different approaches to the material. These different possibilities are brought up by association, because the possibilities connect to part of our chosen material and the thoughts arising from it. So we make an unorthodox move: we “externalise” the concept of association or, rather, we mirror it. It becomes external and internal at once. In the history of the concept of association, association only took place among internalised and—in some contexts—even subconscious elements of our mind and our feelings. I claim it is possible to (internally) associate between (external) materials. Therefore in step two, “associating,” we can try to concentrate on musical connections, on textual connections, on contrasts of any sort—the number of possible approaches is unlimited, as is the number of possible variants. Even if we try to concentrate, given the nature of association we will get carried away. The openness of the process and the highly individual and personal character of association make this variant game unique and irreproducible. Specific materials or specific approaches (musical, textual, and others) will very rarely trigger the same variants within the association of two different people because everyone has a different “library” of associable images and ideas. But even one person might come up with different associations if he or she rethinks the setup of the materials again later, since the experiences and the personal association “library” will have changed in the meantime. The third step within the process also is highly individual: selection from among the variants brought up by association, which can follow very different goals and priorities. To take a simple example: we might have a short, funny music piece, a longer, rather melancholic music piece, and an analytic text to set up in a timeline. The approach of forming an overall “arch” might lead to the variant “short, funny piece—analytic text—longer, melancholic piece,” the search for contrasts might lead

to another variant “longer, melancholic piece—short, funny piece—analytic text,” and so on. We can only select the preferred variant, if we “know” what our goals are: What do we want to communicate? How will the audience feel during and after the performance? But can we verbalise our goals at this stage? It is very likely that we feel which variant is right even though we might not be able to say exactly what our goals are.

I want to point out how close this is to Rheinberger’s (1997, 28) statement that experimental systems are “designed to give unknown answers to questions that the experimenters themselves are not yet able clearly to ask.” It is clear that the association and selection process described above cannot be a technical object in its irreducible vagueness and highly individual and personal nature that is subject to almost unlimited factors of constant change. Therefore, these two steps can only be the actual “epistemic thing.” We can clearly define every other factor around this creative process (the choice of material, the setup, the interpretation, the evaluation, etc.) in as much detail as we wish to. But we cannot define the actual process of “thinking” in the broad sense of connecting intellectual, emotional, and corporal (embodied) problem-solving capacities. This proves to be a perfect long-term “epistemic thing” directly in the very heart of our artistic research work.

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# Il palpitar del core

## The Heart-Beat of the “First Opera”

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In January 2011 I undertook a research, education, and performance project with students from the Royal Danish Academy of Music and invited guests, a production of Claudio Monteverdi's *L'Orfeo* (1607) in the Christians Kirke, Copenhagen. This article explores the research background leading to that project and reflects on the results of the experiment.

### RESEARCH QUESTIONS

My ongoing research and the 2011 Orfeo project are part of the performance programme of the Australian Research Council Centre of Excellence for the History of Emotions (CHE). Within CHE's wide-ranging investigation of the historical meaning of emotions, how they shaped social and political change in the period 1100–1800 as well as shaping modern life, the performance programme has a strong focus around the year 1600, on the music of Monteverdi's generation, on the first operas, and on Shakespeare.

One strand of CHE's circa-1600 research concerns historical staging of early opera: How can we better understand the historical meaning of period stage practice? How can we apply that understanding to shape modern rehearsal methodologies that make historical staging meaningful for today's performers and audiences?

Historically informed performance (HIP) of music has become a well-established part of modern-day cultural activity, but relatively few theatrical or operatic productions apply historical practices on stage. Despite the successes of such specialist performers as Toronto's Opera Atelier, the general perception—as we began our preparations in late 2010—was that “authentic staging” might be intellectually interesting and beautiful to watch, but was not dramatic, not emotionally communicative. Many consider it a “museum piece,” irrelevant to today's theatre, simply too boring to succeed with modern audiences.

These criticisms are not unfair. They bring to mind similar criticism of early music in previous decades. The response from early musicians was to raise the

level of academic research, practical training, and artistic performance, with the result that many audiences today find HIP music more colourful, more communicative, more interesting than standard “mainstream” interpretations. Perhaps the problem with “authentic staging” is not that modern audiences cannot appreciate it, but that performers need to do it better.

#### EXPERIMENTAL AIMS

Amongst early music aficionados, the catchphrase for HIP on stage is “Baroque gesture.” This acknowledges the importance of hand gestures as a means of dramatic communication, and reflects the significance of pioneering research by Dene Barnett, whose groundbreaking book *The Art of Gesture* (1987) remains an indispensable resource. Barnett’s painstaking work concentrated on eighteenth- and early nineteenth-century sources, mostly French and English, and his approach when coaching performers was to emphasise precision and accuracy, discouraging experimentation or improvisation.

So in 2010, as we went into preproduction for *Orfeo*, it seemed that our aims should be to transfer Barnett’s scholarly approach to early seventeenth-century repertoire, and to improve performers’ delivery of their Baroque gestures. But by the end of the experimental production four months later, these initial aims had been radically revised. That redirection of aim is itself one of the most fruitful outcomes of the whole project. Our experiment succeeded, but not in the way we had expected, encouraging us to ask rather different questions in ongoing research and future productions.

Barnett drew from his circa-1800 sources a concern for the “stroke” of a gesture, the synchronised timing of the strongest instant of the hand’s movement with the spoken delivery of a key word. It seems plausible that in seventeenth-century Italy too, precise timing of Baroque gesture (as for any stage action) would be essential. But in music-theatre, dramatic timing is determined by musical rhythm. Thus our interest in gesture led us to reassess period evidence concerning rhythm, with surprising results.

#### RHYTHM CIRCA 1600

Rhythm is the beating heart of music, from the powerful throb of heavy rock to the sensual swing of jazz and the “vacillating rhythm” of Romantic rubato. For many musicians and listeners today, the very word *expressive* suggests rhythmic fluidity. And around the year 1600, Giulio Caccini ([1601/2]) makes rhythm a high priority: “Music is nothing else than Text, and Rhythm, and Sound last of all. And not the other way around!”<sup>1</sup> But what did seventeenth-century

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<sup>1</sup> In the original, “la musica altro non essere, che la favella, e ’l ritmo, & il suono per ultimo, e non per lo contrario.” Caccini’s address to his readers, *A i lettori*, is widely accepted by early music practitioners as a guide to period performance practice. Amongst musicologists, the foreword and collection of continuo-songs (which include the famous *Amarilli mia bella*) are nowadays seen not as his own groundbreaking statement but as the published outcome of decades of experiments by many musicians, singing solo to instrumental accompaniment (see Coelho 2003).

musicians mean by *rhythm*? A rock drummer's groove? A jazz singer's swing? Twentieth-century rubato? Just as the design of instruments, pitch and temperament, bowing styles, and ornamentation vary between different periods and repertoires, so the aesthetics of rhythm also show historical change. The very concept of time itself must be studied to understand how musicians were thinking in that pre-Newtonian age.<sup>2</sup> Around 1595, Shakespeare (2005, 365) warns:

Ha, ha; keep time! How sour sweet music is  
When time is broke and no proportion kept. (*Richard II*, 5.5)

And according to John Dowland (1609), steady, measured time is a moral imperative: "Above all things keep the Equality of Measure. For to sing without Law and Measure, is an offence to God himself."

The historical principles of rhythm circa 1600 are generally accepted by academic musicologists, so much so that they are no longer the subject of discussion, except for small details of proportions (where period sources are themselves contradictory). But these same principles are generally rejected by practitioners: attempts at exploratory debate are often closed down as "ridiculous" or "unmusical."<sup>3</sup> Research programmes such as CHE and Orpheus thus offer a rare and valuable opportunity to investigate these questions both academically and in practical, creative experiment, opening up new findings to informed debate.

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- 2 Isaac Newton's *Philosophiæ Naturalis Principia Mathematica* (1687) sets out the concept of *absolute time*. Newton's time is an absolute quantity, like distance, by which we can measure the movement of planets in their orbits, our own heartbeats, or musical tempo. In the early twentieth century, Einstein's theory of relativity established a new concept of time, which can still seem paradoxical and counterintuitive today. We are so comfortable with Newtonian time, that it is difficult to imagine how any other concept might apply. But around the year 1600, the Aristotelian concept of time measured time by movement (not vice versa). The movement of the stars is a cosmic clock, establishing the time upon which all lower, sublunary, movement (including music) depends. When around 1588 Galileo observed the pendulum effect, he timed the swing of a chandelier in Pisa cathedral by the movement of his own pulse.
- 3 The consensus view amongst musicians and music-lovers in general is well illustrated by the article on "Tempo Rubato" on *Wikipedia* (2013), "the free encyclopedia that anyone can edit." A section heading states, unchallenged, that "Accompaniment yields/adjusts to melody," whereas the historically documented description of Chopin's rubato, "the right hand may use a certain freedom while the left hand must keep strict time" is ridiculed as "something like ... a poor blockhead who hammers away in strict time without yielding to the singer who, in sheer despair, must renounce all artistic expression." *Expression* and *rubato* are explicitly linked—one is the source of the other. The most extensive quotations are from early nineteenth-century sources, which are taken as arbiters of absolute taste. An expert and more nuanced appraisal of modern rubato has emerged from the recent Cambridge University CHARM project. Comparison of early and late twentieth-century elite recordings has shown clear changes of fashion in the application of rubato. My personal experience is that most present-day musicians assume that playing rhythmically cannot be high art: this assumption is based not on period evidence, but on personal beliefs acquired in elementary training, supported by conservatoire teaching. Even some early music performers espouse as "basic musicality" the particular style of rubato that CHARM identifies as having become fashionable in the 1950s.

## TACTUS PRINCIPLES

The fundamental concept of *seicento* rhythm is *tactus*—the organisation of rhythm (both theoretically and practically) by a long, slow count. The slow constancy of *tactus* is an imitation of the perfect motion of the stars, whose circular orbits create the heavenly sounds of the “music of the spheres.” It is felt in the human body as the heartbeat and pulse, or measured as a walking step. In practical music making, it can be shown by an up-and-down movement of the hand, or by a swinging pendulum.

*Tactus* counts the slow-moving, large note-values. Fast-moving, smaller note-values are derived by sub-dividing the slow *tactus* count. This contrasts with the modern elementary music-student’s remedy of counting difficult rhythms with a fast beat in the smallest note-value.

Around 1600, the ornamental style of written or improvised divisions or diminutions invites a soloist to divide the composer’s single long note into many short notes. In division playing, the rhythmic structure is set by the original (long note) composition: the soloist’s flourishes must fit into this structure. Thus in general, soloists are guided by the rhythmic structure of the accompaniment. This too contrasts sharply with the nineteenth- and twentieth-century assumption that accompanists should “follow.”<sup>4</sup>

What appear to modern eyes to be time signatures are actually the last vestige of medieval mensuration symbols, indicating semi-permanent division of the underlying long *tactus* into two or three, with further subdivisions shown by smaller note values, and/or by “coloration,” the choice of black or white notation. A change of “time signature” therefore indicates a new proportion: the underlying *tactus* is constant, but the listener senses a change say from binary to ternary metre within the slow beat, together with a change in the perceived level of activity. As an elementary aid, the *tactus* could be shown with a simple down-up movement of the hand. This movement of the hand was intended to maintain a regular *tactus*, *not* to show “interpretative” variations of tempo. In general, ensembles were *not* conducted.<sup>5</sup>

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4 Period sources from Agostino Agazzari’s *Del sonare sopra ‘l basso* (Siena, 1607) and the anonymous *Il Corago* (c.1630) to Leopold Mozart’s *Versuch einer gründlichen Violinschule* (Augsburg, 1756) agree that the accompaniment guides soloists. For keyboard players, Wolfgang Amadeus Mozart writes in a 1777 letter that “in *tempo rubato* the left hand should go on playing in strict time” (Anderson 1985, 340) This practice is preserved into the nineteenth century with Chopin’s accompanying left hand being “the trunk of the tree” which remains still, whilst the “branches and leaves” of the right hand may waver. Richard Hudson (1994) distinguishes between “early rubato” (accompaniment remains constant, i.e., *tactus*) and “late rubato” (generally vacillating rhythm, the accompaniment follows a wayward melody). Barton Hudson (1996) provides a handy summary of Richard Hudson’s book.

5 According to *Il Corago*, the principal continuo-player might show the *tactus* with his hand for large ensembles spread across a wide stage, but even this “conducting from the continuo” is expressly ruled out for recitative. There is no period support for modern-style conducting.

Close reading of well-known sources circa 1600 shows that *tactus* and rhythmic guidance from the accompaniment apply also in recitative.<sup>6</sup> In a stronger version of these principles, the same *tactus* is applied throughout a long work, say, Monteverdi's *Vespers* or an early opera. In the strongest version, the same *tactus*, around one beat per second, is applied to the entire early seventeenth-century repertory, with allowance for different acoustics, and within the limits of human ability. (Of course, in this period there were no metronomes, no stopwatches with which to measure time with super-human precision!)

Within the HIP community, these *tactus* principles have been adopted only in part: the idea of a slow count is widely accepted; proportions are regarded as "hard core" historicism, ignored by many performers; most large ensembles and operas are not "directed by *tactus*" but by a conductor; the possibilities of *tactus* for recitative, of consistent *tactus* for a whole song, let alone for a large work or an entire repertoire, remain largely untried.<sup>7</sup>

#### TACTUS PRINCIPLES APPLIED IN PRACTICE

Back in 1987, Houle (1987, 34) speculated how *tactus*-led music might sound. "It would be interesting to hear fine musicians playing seventeenth-century music conducted according to the techniques of that period. It is possible to imagine that the performers would be less rigorously controlled, and therefore more responsible for the metrical coherence of their own performances. We simply do not know what effect such a re-creation of conducting technique might have." Of course, the essential directorial technique of the *seicento* is *not* to have a conductor at all, but to devolve responsibility for maintaining *tactus* to individual musicians, especially the continuo accompanists. There is still a vital role for a director (a *corago*, in period terms), but the job is closer to that of a modern stage director: musical directions are given in rehearsal, leaving performers to run the performance for themselves.<sup>8</sup>

6 This is highly controversial, but I believe that the period evidence is clear, especially when read in the context of the historical assumption of *tactus* as the norm. (Most modern readers assume twentieth-century rubato as the norm, distorting their view of period source material). The detailed argument depends on close reading of well-known *seicento* texts specifying *how* to manage changes of time—what Frescobaldi calls *guidare il tempo* (guiding, driving time). The results of my CHE research in this area will be written up in a forthcoming article on "Redefining Recitative." An introduction (Lawrence-King 2013) is available online.

7 As co-director of the ensemble Tragicomedia in the 1980s, I led many performances which were *tactus*-led rather than conducted, and which applied slow-counted rhythm even to recitatives. This was radically "hard core" for the late twentieth-century, but in those days our approach to changes of pulse did not correspond to the evidence revealed by more recent close reading of period sources.

8 I was privileged to play *arpa doppia* in Roger Norrington's pioneering production of *Orfeo* during the mid 1980s, which he directed strongly in rehearsal, but did not conduct in performance. (In the Royal Albert Hall BBC Proms performance, Norrington sat amongst the audience in a high balcony, from where he sang the Echo!) The absence of a conductor heightened communication within the ensemble, and gestures (derived from dance movements, rather than from oratory sources) led certain tutti entries. In rehearsal, Norrington assumed the role of a *corago*, with Kay Lawrence as assistant and choreographer. With a carefully prepared edition, historically informed approach, unity of music and staging, and an excellent company of performers including many international-level early music specialists, this production set the standard for the next few decades. However, principles of *tactus* were not applied, and continuo-players had to follow soloists as best they could, especially in the most passionate speeches. I remember that some continuo colleagues considered that not being able to follow the soloist's

For the last twenty years, I have been experimenting independently with *tactus* methods (directing, but never conducting) with the Harp Consort and as guest director of early music ensembles, modern orchestras, choirs, and opera companies all around the world. *Tactus* can be led by any musician with a good sense of steady rhythm, not only by the musical director: it is not interpretive. Performances and recordings have featured *tactus* but no conductor, visual *tactus* beating, audible *tactus* with a stick (Lully-style), orchestras led by a dancer's *tactus*-driven feet, and ensembles conducting themselves with gestures or steps.

In the production of Monteverdi's *Orfeo* under consideration, we extended *tactus* methods to a company of about eighty performers,<sup>9</sup> to the synchronisation of text, music, and acting, and to some of the most expressive *recitar cantando* ever written. And we tried to apply *all* the *tactus* principles, fully, in order to review the results of such a radically historical approach.

#### REHEARSAL METHODOLOGY

I briefly met some of the performers in October 2010, and the following January worked with solo singers for a few days before the project week itself. A new edition was made from the original prints, prioritising clear presentation of text and rhythm and correcting some long-standing errors in previous editions. With six days to rehearse, the outline schedule was simple: one day for each of the five acts, plus a day for final dress rehearsals. Day by day, we worked on music in the morning, split into sectional rehearsals for staging and continuo in the afternoon, and reunited to assemble everything we had so far each evening.

Participants were warned from the outset that there would be no conductor, that the priorities would be text and rhythm, and that they should learn Monteverdi's written rhythms precisely. These instructions were amplified in a "How to Prepare" handout sent to all singers.

Nevertheless, whilst most singers arrived at rehearsals knowing Monteverdi's pitches accurately, many of them were shocked to find how unaware they were of his rhythms. And despite everyone's best efforts, a few tricky moments were never realised accurately. The morning after the second performance, my pro-

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rhythms was a sign of an especially powerful performance! In contrast, nowadays I tell soloists, "Your continuo players are highly-trained accompanists, specialists in the style, who have rehearsed with you and who are carefully watching the score. If they cannot follow you, what chance does the average audience-member have of understanding what you are doing?" During rehearsals in Copenhagen in 2011, I often repeated the tongue-in-cheek reminder that "perhaps the audience might not comprehend every word of the seventeenth-century Italian verse," followed by the serious instruction "to be so clear in your speech and actions, and have such a clear vision of the meaning, that the audience *do* understand." Period sources agree that performers have a primary duty to be understood by the audience: it is not historically appropriate to be so "highly artistic" that no one can understand you! The burden of responsibility for being understood lies with the performer, not with the audience.

<sup>9</sup> Such a large company is unhistorical for *Orfeo*. Modern scholarship agrees that in 1609 the entire work was sung by about eight performers, with each singer taking several roles as well as singing the choruses, one-to-a-part. In Copenhagen, we had fewer strings, but many more singers than Monteverdi had in Mantua—this reflected the educational priority to involve as many students as were available. The experiment of applying *tactus* (with no conductor) was thus all the more challenging, but we had no difficulties at all with the choruses—the few problems we did have were with soloists' rhythms in recitatives.

ject diary notes that “The remaining mistakes in singers’ rhythms seem to be places they learnt wrong before January rehearsals. Wrong memorisation is worse than not knowing it at all! In spite of October sessions, letters, etc., singers didn’t realise that we really meant to do the show in Tactus. I suspect that coaches did not understand the significance of this, either. I know that at least one singer was told [by a coach outside the project] in January ‘you can ignore the rhythms in this style’” (Lawrence-King 2011).

I repeatedly warned the singers *not* to learn from CDs—“they are not ‘authentic evidence’ and most (all?) of them are wrong.” Nevertheless, some soloists memorised the same wrong rhythms that have been passed from one recording to another. Many of the mistakes were familiar to me, from old recordings and other directors’ projects I had participated in! In every single instance, the incorrect or “free” version had *less* contrast than Monteverdi’s notation.

In individual coaching sessions, as well as in ensemble rehearsals, I spent a *lot* of time (fifty minutes in the hour) on text and rhythm. Actors spoke the text in rhythm, trying to approach the pitch contours of Monteverdi’s music in dramatic (spoken) declamation. Only in the final moments of each session would they actually sing: “Sound last of all. And not the other way around!” Nevertheless, my diary comment just before the premiere was that “even more work on speech would have been good” (*ibid.*).

I frequently employed the simple but powerful rehearsal exercise of asking singers to show the tactus with their hands. This helped them concentrate on tactus and on uniting each individual’s tactus with other ensemble members. It also gave me an outward and visible sign of each individual’s inner focus—if a tactus arm faltered, I knew that someone had temporarily lost the vital prioritisation of rhythm.

Another hand exercise was to show the accented syllable of each Italian word with a gesture. This helped singers appreciate the distinction between so-called good and bad syllables, and again gave me a visual indication of what they were thinking about. We then combined the two exercises, asking some to beat tactus, others to indicate good syllables.

A few brave souls tried to do both exercises simultaneously, one with each hand. The challenge is not so much to coordinate flailing arms, as to sustain the mental focus on two, independent variables. Performers with jazz experience found it easier to syncopate verbal accentuation against a constant tactus rhythm. This skill would have been taken for granted in Monteverdi’s time; dedicated training is needed to re-establish it today.

My aim was to maintain a consistent tactus, around MM 60, throughout the whole work. We immediately observed that this produced *more* contrast, by forcing singers to take Monteverdi’s fast notes fast enough, the slow notes slow enough, rather than varying the speed to make life easier! Consistent tactus also gave each participant an objective measure of rhythmic precision, rather than asking them to make arbitrary decisions about “free interpretation.”

However, my own long familiarity with *Orfeo* in the standard early music interpretation and colleagues’ unfamiliarity with this particular tactus principle did produce a few inconsistencies of speed in rehearsals. To clarify this statement,

we reliably kept *tactus* during a particular scene, but in a few instances we did not always keep the *same* *tactus* from one scene to another, or from one rehearsal to another.<sup>10</sup> This was a valuable lesson learnt from this experiment, that it takes a while to establish a secure sense of consistent time, but that it's important to help every participant develop that sense.

It should be emphasised that such strictness in maintaining the *same* *tactus* is a requirement placed on the director in rehearsal. In performance, each participant tries to maintain that familiar *tactus*, but human nature will inevitably produce changes as the emotional temperature warms and chills. Those changes will then be “according to the *affetto*” as period sources repeatedly demand. The desired result is a humanist structure of rhythm, the best imitation of celestial perfection that we mortals can manage, not digital-age precision!

Despite such uncompromising demands, singers responded positively to the discipline of *tactus*: “It changed my whole approach to studying music, for solos as well as for chorus” commented one guest, an experienced professional opera singer. When, afterwards, they listened to CD recordings of other productions, they noticed the difference—“Those singers were changing the rhythms essentially for comfort”—and perceived a lack of contrast and strength in the “free” version. Another similar comparison by a minor-role student singer found the free version to be “strange and shapeless!”

Perhaps the greatest benefit of the *tactus* approach was that it empowered individual performers, giving them also great responsibility for holding the show together (power and responsibility normally arrogated by a conductor). This sense of responsibility and empowerment carried over into other aspects of the production, helping us achieve so much in just one week of rehearsal.

Nevertheless, we were only able to scratch the surface of *tactus* investigation. Much more experimentation remains to be done, and some of this is already being carried forward in other CHE projects. In Copenhagen, it took all our efforts to approach the historical starting point, of sharing across the whole ensemble reliable command of a steady, consistent *tactus* for the entire show. (As far as I know, this has never previously been attempted.)

We began to rethink the role of the continuo, guiding rather than following. But we did not have time to examine fully the “humanist structure of rhythm” mentioned above, the natural, involuntary variations of *tactus* according to the *affetto* experienced moment by moment by individual performers.

We did not even begin to apply historical prescriptions for how to vary the *tactus* deliberately, “driving the time” according to the *affetto* in certain, precisely specified situations. Nor did we attempt Caccini's famous *sprezzatura*, in which the continuo maintains *tactus*, but the singer temporarily (and rarely, only in very particular circumstances) departs from the measure. These are advanced *tactus* skills, which cry out for experimental investigation, but it's

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<sup>10</sup> It should be emphasised that such strictness in maintaining the *same* *tactus* is a requirement placed on the director in rehearsal, to establish and confirm this for every participant. In performance, everyone tries to maintain that familiar *tactus*.

important to emphasise that they function differently in the historical context, which assumes *tactus* by default. It is a sad (but commonly encountered) distortion of the historical evidence to cite *sprezzatura* as an excuse to ignore *tactus* completely and continuously!

#### REFLECTION

As an educational and performance project, the experiment was highly successful. Without any conductor, a large ensemble achieved an excellent level of rhythmic cohesion, across a wide performing area. Individual performers felt empowered by their personal responsibility for rhythm, supported by a strong team spirit, and excited at the artistic results. The audience (much more numerous than expected from previous, less experimental productions) received the show warmly, and many returned the following night for the second performance. The success of this project led directly to the commissioning of a similar, but longer and fully professional production of *Dido and Aeneas* for Concerto Copenhagen, Scandinavia's leading Baroque orchestra.

Whilst the musical aspect of the project engaged chiefly with the application of *tactus*, we also explored questions of historical staging. In this area, early musicians have less collective experience to draw on. This has perhaps the advantage that there are fewer false preconceptions to be fought against, but it should be admitted that we found ourselves on the initial stages of a steep learning curve. Reflecting on the results of this project, we have made significant changes to our rehearsal methodology and performance priorities.

We had begun to prepare for this project somewhat naively, looking for the "correct" Baroque gesture for each significant word of the text. Though there are specific gestures for certain concepts, many highly significant words are not mapped onto a particular gesture. And the effectiveness of the gesture depends strongly on other factors: body posture, personal confidence, individual intention. Our ongoing research explores links also with period dance and historical swordsmanship.

Even the term *Baroque gesture* is unhelpful, since it focuses too much attention on the "ballet of the hands," which easily becomes disconnected from the underlying dramatic purpose. Audiences can instantly recognise a "mere gesture." To refocus scholarly and artistic attention, I am encouraging use of the term *historical action*, recognising the crucial importance of the art of gesture within a wider set of period stage skills. Hand gestures must be linked to full-body acting, supported by elegantly powerful posture and movement. The spectators' attention should be drawn to the actor's face and eyes.

As we build up knowledge, experience, and expertise, I hope we will arrive at the level where we can approach historical action in a similar way to continuo realisation. The best of today's continuo players have so internalised the period rules of harmony, voice-leading and accompaniment aesthetics, that they can improvise their realisation spontaneously and creatively, whilst remaining within the historical style boundaries.

With this aim in view, I have replaced the word *gesture* with *action* in the title of my ongoing research into “Text, Rhythm, and Action” for CHE. Many familiar historical documents as well as newly-examined sources continue to reveal fresh insights in the light of our revised understanding of rhythm and recitative. All this research feeds into continuing practical experiment and professional productions, gradually shaping a new understanding of how Renaissance theories of emotional communication might be relevant to modern-day performance.

My thanks go to the entire *Orfeo* company, to Eva Hess Thaysen and the Royal Danish Academy of Music (DKDM), to the Rector and Verger of the Christians Kirke, to Professor Jane Davidson and CHE, to Stephen Player, and to Katerina Antonenko.

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# Techno-Intuition

## Experiments with Sound in the Environment<sup>1</sup>

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CHARGING THE SPACES BETWEEN TECHNOLOGY, INTUITION, BODY,  
SOUND, AND THE ENVIRONMENT

The notion of techno-intuition emerged from my artistic research into how one's relationship to the environment is established and enhanced through sound and listening. With the aid of sonic technologies and awareness-enhancing practices, we can re-experience environments we know and access others beyond our physiological abilities, such as those underwater. Such experiences are mediated both by our technologies and by our interpretations—our techno-intuitions. Rather than consider technology as antithetical to the environment, I blend experiments using technological instruments with bodily experiences of the environment, using sound to provoke a sense of direct involvement. For example, combining both technical and intuitive approaches, I explored sonic navigations and underwater sound, making the inaudible audible through sonification and audification techniques, and drawing the unconscious into consciousness through deep listening practices and psychological therapy using sound. These experiments led me back to considering human scale, and our physiological and emotional relationship to different environments through examples of walking, swimming, and sailing. I noticed that becoming physically involved provokes an attitude of openness to the presence of sound and the environment, even those beyond human scale. Such an embodied approach, driven by the use of sound, physically and emotionally challenges us to expand beyond ourselves.

I use the term “environment” as an inclusive notion encompassing interactions between natural, human, and media environments. Sound is a fundamen-

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<sup>1</sup> Elaborated and extended from my presentation “Techno-Intuition: Notes on Using Sound to Relate to our Environment” at the International Symposium on Electronic Arts, ISEA12, Albuquerque, 20 September 2012.

tal part of the environment in general and binds us to it, opening up aspects of awareness and meaning that may be overlooked in visually dominant cultures. Sound is contextual: it propagates and exists beyond boundaries of material matter, thus provoking relationships between beings in the human social world, the larger environment, and non-human ecologies. Sound is energy in vibration: its medium is air, water, or solid matter, transmitting information for a receiver about how it came into being. This forms the fundamental basis for interactions between diverse ecosystems of plants and animals. Because sound is both temporal and spatial, it blurs the distinctions between concepts of time and space. And sound resonates beyond the immediacy of something physically sensed and heard in the present moment, to an existence in memory, a trigger for future psychological and associative meanings and behaviours.

Using an experimental approach to my artistic practice, I combine these different forms of knowledge-making with understanding of our environment, the technological and the intuitive. The ORCiM research group refers to the centrality of experimentation in artistic practice as “encompass[ing] the actions that an artist undertakes in developing and constantly renewing personal artistic identity and expertise” (Orpheus Institute 2010). I consider the artworks that I create not as an end in themselves, but as a process that demands extensive research and experimentation, and which subsequently inflects ideas or uncovers new knowledge to feed into further experiments. My practical work is interwoven with research work, each informing the other in constant feedback loops. Such a process—between reflection and creation, analytical steps and intuitive leaps, learning to use instruments and listening techniques in both the field and in the studio—is also characteristic of techno-intuition. Here I offer an approach to working that will allow others to experiment, and to experience such “extended techniques.” The following sections will discuss examples from artists and musicians, including myself, who actively research the area between technology, intuition, and the sonic environment.

Techno-intuition, as a research paradigm, is a work in process. It recognises the implicit coexistence between the creation of meaning and the technologies we use to sense and know (and navigate through) our environment. Through my artistic practice, I explore such a merging between corporeal and technological modes of perception. Here, I will approach it from different angles, first at a bodily human scale, using walking, swimming, and sailing as examples of immediate ways to experience environments and of how technology can engage with this. I will then examine a changing relationship between the body, space, and the technology of musical instruments, introducing ideas of expanded environmental instruments. The following section investigates that which is beyond our immediate experience by exploring both technological and intuitive ways of making the inaudible audible and the unconscious conscious. And finally, I introduce examples of embodied techno-intuitive navigation using sound.

WALKING, SAILING, SWIMMING: EMBODIED EXPERIENCE OF  
MOVEMENT IN ENVIRONMENT

Walking, swimming, and sailing relate one physically and mentally to the space and medium being moved through. What Rebecca Solnit (2001, 291) refers to as a “constellation” of body-imagination-world, is an experiential, first-person relationship to the environment generated by walking (or swimming) through it. This constellation is central to the “sound walks” by R. Murray Schafer and Hildegard Westerkamp of the Acoustic Ecology group, begun in the 1970s, and subsequent generations of sound artists such as Christina Kubisch, whose *Electrical Walks* (2003) make inaudible electromagnetic fields audible via a headphone instrument. In particular, Westerkamp concentrates on heightened listening to environmental sounds within the environment and to identifying group behaviours that develop out of this state of awareness when being guided predominantly by sound rather than sight (Westerkamp 2010). Through walking, participants explore these everyday soundworlds, activating the constellation of body-imagination-world.<sup>2</sup>

Sailing demands a more complex relationship between the body, the instrument, and the environment. The boat is an extension of the sailor—in effect an instrument—and the art of sailing combines the ability to control this instrument with complex, unpredictable, and ever-changing environmental factors. My experiences with sailing laid the foundation for further experiments, in particular the importance of interacting with navigation technologies to build meaning when moving through an environment. Examples from my own work include *Symphony no. 2: Sargasso Sail across the Bermuda Triangle* (1997), *Navigating by Circles / Sextant* (2007), *Taking Soundings: Anchor* (2008), *Fishing for Sound* (2010), and *Pink Noise* (2010). *Swim* (2011) (an installation made up of single-channel video and stereo sound) is recorded from an ocean swimmer’s viewpoint. I capture the rhythm of breathing and physical motion as the sound and image alternate between above and below water, cutting through the surface, exploring the physicality of sound through a direct involvement with the sea. The sound work *You Me Swim Blackbird* (2012) collages “the sound of a body inside a body, a body crossing from water to air, and a body calling through air” (Harris 2011).

These projects lead me to ask: How can I as an artist use technologies (instruments) to expand, complement, and question such experiential relationships to the environment rather than push them away? Through my artistic experiments with sound, could I generate techno-intuitive relationships to our environments?

INSTRUMENTS IN THE ENVIRONMENT 1:  
“INSIDE-OUT INSTRUMENT”

I think of a musical instrument in terms of energy and sonic vibration, and am particularly interested in the impact of instruments and sound technology

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<sup>2</sup> Walking as a means of embodied experience of movement in an environment has featured prominently in my own work since *Walk for an Absent Public* (1995).

on ways of listening and understanding environmental context. In my article “Inside-Out Instrument” (Harris 2006), I describe the reconfiguration of the traditional relationship between a musician’s instrument, body, and technology. Since the development of the loudspeaker and electronic sound technology, sound is commonly detached from the source of the performer’s body and instrument, in effect becoming dispersed in a space surrounding the musician. In my article, the traditionally intimate relationship between body, musical instrument, and sound production is turned inside-out so that the instrument can in effect be *inhabited* rather than held.<sup>3</sup> Conceptually, my own instrument design is based on facilitating techno-intuition by absorbing technologies into an intuitive way of moving through one’s environment.

As a form of energy, sound resonates between interacting elements of complex ecologies. In many cases, human relationships to the environment drawn through sound are profoundly bound up with technology. In order to hear, collect, transform, study, analyse, and intervene through sound, special instruments must be designed. Such a hearing-through-technology raises questions as to how these instruments enable as well as inhibit forms of knowledge. While it is important to recognise the implicit coexistence between the creation of meaning and the technologies we use to sense and know (and navigate through) our environment, the notion of techno-intuition explores a more balanced merging between corporeal and technological modes of perception. I consider an expanded notion of “instrument” that emphasises *context*—an understanding of one’s place as an element within the larger environmental system. Blending the instrument with intuition through physical practice, listening, and experimentation, promotes an attitude to both instrument development and artistic production that, by being more attuned to and aware of context, is potentially more sustainable and sensitive to environment.

#### INSTRUMENTS IN THE ENVIRONMENT 2: SHIP NAVIGATION AND UNDERWATER EXPLORATION

Consider an instrument as situated within and responsive to a larger environment.<sup>4</sup> Recent research into ship navigation and submarine cartography offers further examples that support a conception of an intuitive relationship between the body, instrument, and environment. Although not specifically concerned with sound, cognitive scientist Edwin Hutchins (1995) investigates group collaboration in coastal navigation on a large ship. His research emphasises the importance and the abilities of complex group interactions to develop, absorbing technological interfaces when relating to one another within ever-changing environmental surroundings. Anthropologist Stefan Helmreich (2007) describes similar intuitive collaborations between scientists

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<sup>3</sup> See also Bongers and Harris (2002).

<sup>4</sup> David Dunn (2012) has developed a series of analogue circuits that produce autonomous interlinking sound behaviours. He placed these devices in an isolated environment and recorded the sonic interactions that developed with other species.

immersed in a varied soundscape of navigational aids, background music, and verbal communications as they map the seabed in research submarine *Alvin*. From this perspective a more expansive notion of *instrument* can be developed. By extending our sensory and cognitive capabilities through navigational and scientific research instruments, often in group collaboration, one can imagine the emergence of an environmental or even “submarine cyborg” (ibid., 627) that can experience extreme and uninhabitable environments, such as the deep sea, through the extensions of technology.<sup>5</sup>

#### INSTRUMENTS IN THE ENVIRONMENT 3: LEARNING FROM OTHER SPECIES

By extending our perception beyond the human audible range—by making the otherwise inaudible audible—we can, for example, learn much about the central role of sound in underwater ecologies (see Harris 2012). Alvin Lucier is an example of a composer who has experimented with such concepts. *Quasimodo, the Great Lover* (1970) and *Vespers* (1968), the first inspired by the humpback whale’s ability to send sound over very long distances, and the second inspired by the bat’s ultrasound capabilities, explore not simply the sounds themselves but the processes by which such sounds act within the environments they inhabit. Learning more about how other species use sounds within their habitats may inspire ideas on techno-intuitive approaches for our own interaction within the environment.

#### MAKING THE INAUDIBLE AUDIBLE AND THE UNCONSCIOUS CONSCIOUS

Going beyond the body’s physiological boundaries, and therefore beyond walking, swimming, and sailing, what is not physically perceptible can be brought into consciousness either through technical or mental means. For example, technological methods of making the inaudible audible such as sonification and audification (as in my work *Fishing for Sound*, 2010) can be complemented by practices for revealing aspects of the unconscious such as psychological EMDR treatment using sound, dream work, and Deep Listening techniques (Oliveros 2005). Combining such approaches to sound and listening can expand our awareness of physical and mental boundaries that we set for ourselves. This, in turn, can help us to appreciate our place within larger interacting ecologies.

Sound can be used to create embodied experiences of technically or mentally mediated aspects of environments. Through the manipulation of sonifications and field recordings in performance, sound can conjure up a sense of place that physically touches our bodies and expands our minds.<sup>6</sup> I addressed these issues in a solo show of combined installations and performances from my *Scorescapes* series in the Sonic Unconscious program at the Issue Project Room, New York,

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<sup>5</sup> Ship navigation (Edwin Hutchins 1995), submarine cartography (Stefan Helmreich 2007).

<sup>6</sup> This was my aim in *Fishing for Sound* (2010) and *S.W.A.M.P.* (2009–11).

in 2012. The underwater sounds in *Fishing for Sound* (2010) include insect, fish, dolphin, and human-made sounds (engines, depth finders, and anchors) collected by a simple underwater microphone. Listening via a hydrophone to the soundscape beneath the apparently idyllic surface of the video of a turquoise sea brings to consciousness elements of the environment we otherwise would not see or hear. The electronic sounds of sonified GPS data resonate with the accompanying video looking through the viewfinder of a sextant on board a boat. All these connect in the mind, where a clicking sound moving from left to right once per second refers to EMDR psychotherapy treatments, which use sound to help a patient navigate through associations and memories.<sup>7</sup> *Fishing for Sound* creates a sea of spatial connections between these disparate spatial phenomena—underwater, in the mind, and from outer space—weaving sounds from marine environments, psychotherapy, and sonified navigation satellites. Common to each of these is a mass of background noise—of environment, memory, and information—where listening is like fishing for sounds.

TECHNO-INTUITIVE NAVIGATION 1:  
SUN RUN SUN: SATELLITE SOUNDERS

*Taking Soundings* (2007–8) and *Sun Run Sun* (2008–9) explore historical, contemporary, and animal navigations through sound. They question, What does it mean to navigate? What are the bodily experiences of finding one's way? And how do different modes of navigation shape our understanding of the environment we are moving through? *Sun Run Sun* was a series of works that sonified GPS data to provoke a re-experience of navigation and a renewed sense of embodied location in environment. It included an installation and a set of hand-held instruments to sonify navigation data as one walks, their sounds listened to on headphones. *Sun Run Sun* strives “towards a hybrid between . . . two ways of knowing, between navigation through technology and intuitive embodied navigation—a techno-intuition” (Harris and Dekker 2009). The handheld instruments, the Satellite Sounders, have been called “an intuitive navigator” that “provides people with new experiences not just of space but also of body and mind” (Dekker 2010, 3). The result of such an experience with this work has been described by one commentator as follows: “a different sensitivity to one's immediate surroundings and one's position on Earth arises. . . . A performative practice is necessary in order to understand this new logic of our current calculative world” (Zaragoza 2010, 31).

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<sup>7</sup> EMDR (eye-movement desensitisation and reprocessing) is a technique used in psychotherapy for treating post-traumatic stress disorder.

TECHNO-INTUITIVE NAVIGATION 2:  
FIELD RECORDING, TROPICAL STORM, AND THE DISPLACED  
SOUND WALKS

Field recordings aim to represent environments audibly, but they often neglect the complex layering of spaces and times inherent in the recording and replaying of sounds. I had the opportunity to address this issue from two complementary angles with an installation and an outdoor sound walk at the *Cage100* exhibition at Leipzig Contemporary Art Museum in 2012. The video and sound installation *Tropical Storm* creates a room full of rain; it is loud and immersive yet always present in the here and now. It internalises the environment of a storm, commenting on current practices of field recording and displaced sounds. As the complement to the installation, my *Displaced Sound Walks* (Orpheus Institute, Ghent, 2010, and Leipzig, 2012) further the process of hyper-aware listening while walking. Using a collaborative, workshop-like creative process, I play with pre-recording the ambient sounds of predetermined routes, “mak[ing] the participant extremely aware of the functioning of his [or her] body when feeling and perceiving reality” (Colpani 2010, 55).

## CONCLUDING THOUGHTS

Techno-intuition builds on a desire to be more involved with our multiple environments and to create deeper understandings of our interactions with them. I propose to attempt this not only by direct physical interaction, but also by a level of commitment to listening and instrument design, using a first person perspective and multi-sensory video and sound, to draw one into environments that are unfamiliar. Such an experimental approach can, I believe, move us closer to redefining the role of composers, sound artists, and sonic ecologists as activators of a sustainable attitude towards the sonic environment, one that is less passive than the genre of field recording and more immersed in and committed to our environment.

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## Section III

# Experimenting with Materials in the Processes of Music-Making

Any experimental approach to music necessitates an examination of materials, and poses complex questions about the relationships between material, form, and the process of creation and re-creation. This section focuses on the evaluation of unfamiliar musical situations. The authors pose diverse challenges to the established interactions of performance, composition and improvisation. Sometimes this takes the form of viewing a familiar composer (or other form of artist) in a new light, or of reflecting upon the susceptibility of a whole musical tradition to an experimental approach. What, for example, if we approach the playing of jazz standards from an experimental point of view, as discussed by Steve Tromans?

The materials of music also include those traces that have come down to us from earlier eras, whether historical materials that are over a hundred years old (manuscripts, printed editions, personal reminiscences, sound recordings), as discussed in the article on Brahms performance by Anna Scott; or much more recent, in cases where the original performers may be still very much alive and willing to reminisce, as seen in Luk Vaes's herculean efforts to reconstruct experimental works by Kagel from some forty years ago, and in Paulo de Assis's reconstructive and creative work on Luigi Nono. But historical sources can mislead as well as inform us; none of these documentary traces speaks unambiguously for itself. In the articles in this section we see these materials join with acts of the creative imagination, whether the aim be to construct, to reconstruct, or to deconstruct.

The work of John Cage, further discussed in this section, provokes the essential question of what exactly is the material of music, and how we should best engage with it. Some radical answers emerge in the work of Larry Polansky, who writes about three recent examples of his own experimental practice in which the concept of "material" is enlarged to include the performer's personal preparation for performance as an integral part of the experience of a work of music. His title "what if?"—which is also a personal aesthetic—is equally relevant to William Brooks's creative response to the recitation of poetry, specifically to the idiosyncratic practices of the Irish poet and playwright W. B. Yeats. Hans Roels, observing the creative processes of eight of his fellow composers, is led to ask searching questions about what exactly constitutes experimentalism, both in the making of a single piece and in terms of thought processes that fill a whole life. And Nicholas Brown reflects on his own practice as a composer interested in wider themes in philosophy.

WHAT IF? – *LARRY POLANSKY*

Larry Polansky's paper discusses three of his own recent pieces from one of the classic aesthetic standpoints of experimental music: the simple question "what if?." This standpoint, characteristic of the work of his teacher James Tenney, takes the view of an act of composition as being the testing of a hypothesis in sound. This is a truly experimental approach in that the outcome, as Cage famously argued, cannot be foreseen at the outset. Polansky discusses a piece that flips the notational axes of pitch and time, with considerable conse-

quences for the performer; a piece that necessarily requires almost three years to prepare; and a piece for which the pianist has to learn the rudiments of sign language.

HISTORICAL PRECEDENTS FOR ARTISTIC RESEARCH IN MUSIC:  
THE CASE OF WILLIAM BUTLER YEATS – *WILLIAM BROOKS*

This paper argues the case for the practice of chanting texts, as in the work of the Irish writer W. B. Yeats, as an early form of artistic experimentation in music. Yeats was inspired by, and came to collaborate with, the actress Florence Farr in his adventures in this twilight world between speech and music, leaving numerous documentary traces of their practice in writings, musical notations and sound recordings. Brooks then describes a recent work of his own that responds to Yeats's concepts (famously outlined in his essay "Speaking to the Psalter") by adopting aspects of his method and even his spirit, but deliberately disregarding the actual traces of Yeats's own work—his scores and artefacts. The result is a novel form of composition-as-research, taking a century-old inspiration and finding in it open-ended, "epistemic things" (in the terminology of Rheinberger).

CAGEIAN INTERPENETRATION AND THE NATURE–ARTIFICE  
DISTINCTION – *STEVE TROMANS*

Cage defined interpenetration as "an incalculable infinity of causes and effects" in which "each and every thing . . . is related to each and every other thing" (Nyman 1999, 65). This paper is concerned with exploring the research implications of Cageian interpenetration, in terms of certain of the philosophical notions found in the writings of Deleuze (alone, and with Guattari). In contrast to the distinction that language allows us to make between performer, instrument, composer, score, audience, and environment, *actual* lived experience of performance events bears testament to no such clear-cut categorisations. Deleuze and Guattari wrote of the event that it is "inseparable from the state of affairs, bodies, and lived reality in which it is actualised or brought about" (1994, 159). Crucially, regarding the concerns of this paper, they added: "But we can also say the converse" (ibid.). On this view, Cageian interpenetration would be more in line with the *natural* state-of-play of an event of performance than an *artificial* compositional strategy—as much as a nature/artifice distinction can, or indeed should, be maintained. Steve Tromans proposes that Cage's interpenetrative compositional assemblages can operate in practice-as-research terms, where the subject of that research investigation is temporal becoming—i.e., the process in which things exist/persist in time. He argues that Cageian interpenetration draws our attention to a much larger, and ongoing, interpenetrative process; one that has implications for how we understand our everyday experiences of the world around us, and our place/s within it.

REVISITING LUIGI NONO'S SUFFERED, SERENE WAVES – *PAULO DE ASSIS*

This paper reflects upon the author's long-standing involvement with the music of Luigi Nono, specifically on the composition *.....sofferte onde serene...* for piano and tape. Through a close examination of Nono's sketches, and through the preparation and realisation of his own orchestration of the piece, Paulo de Assis brings both a performer's perspective and a scholar's insight to bear on this well-known yet enigmatic score, and its various possibilities in performance.

ON KAGEL'S EXPERIMENTAL SOUND PRODUCERS:  
AN ILLUSTRATED INTERVIEW WITH A HISTORICAL PERFORMER –  
*LUK VAES*

Luk Vaes's paper derives from an extensive research project, still in progress, in which he examines the problems and perplexities inherent in making performing versions today of the experimental works of Mauricio Kagel from the 1960s and 1970s, works for which there is often no definitive score but a plethora of research material in the form of (occasionally enigmatic) sketches, drawings, diagrams, pieces of verbal or musical notation, recordings, and so forth. In this paper Vaes presents an interview with Theodor Ross, a musician who worked closely with Kagel in the first performances of several of these works, including *Acustica*, which is here the focus of their discussion. Far from solving all the problems, Vaes's detailed conversation with this particular historical performer serves to show how complex is the task of reconstructing the actions and attitudes of Kagel's work, the realisation of which today must involve a combination of solid research and the exercise of creative intelligence.

COMPOSING AS A WAY OF DOING PHILOSOPHY – *NICHOLAS G. BROWN*

Between 2005 and 2009, Nicholas Brown devised strategies for creating new musical works by investigating the conventions and practices of classical music in relation to wider themes in philosophy. He was interested in seeing whether the act of composing could be reframed as a way of understanding what it is we do when we "do" music and how musical experiences affect and help us as we move through our daily lives. This article comprises an account of two of his processes of thought concerning classical music and its conventions that led to the creation of new work.

CYCLES OF EXPERIMENTATION AND THE CREATIVE PROCESS OF  
MUSIC COMPOSITION – *HANS ROELS*

In 2011 the composer Hans Roels embarked on a research project involving eight contemporary composers whom he observed in the process of creating new works. He was struck by one particular composer, his Flemish contempo-

rary Frederik Neyrinck, who at first appeared to be composing without experimenting. Through a process of observation and discussion of the working process with Neyrinck himself, Roels was led to reflect upon exactly what we mean in talking about experimentation in the process of composing, both with regard to a specific act of composition and in the context of the larger repertory of working practices developed by a composer over a period of years.

CHANGING SOUNDS, CHANGING MEANINGS: HOW ARTISTIC  
EXPERIMENTATION OPENS UP THE FIELD OF BRAHMS  
PERFORMANCE PRACTICE – ANNA SCOTT

Anna Scott's paper begins from a strange paradox in the world of historically-informed performance: the apparent reluctance of contemporary pianists to learn from the surviving recordings of Brahms's piano music, as played by his own contemporaries and students. This reluctance seems to fly in the face of practices derived from study of the recordings of slightly later composers (such as Elgar) by historically-minded performers, all too keen to learn from that particular encounter. Scott describes in detail the testimonies of those who heard Brahms play, such as Eugenie Schumann, and examines the recorded traces of Brahms students like Adelina De Lara to reconstruct a sense of the way Brahms would have heard his own music, posing the question of how much longer musicians can justify protecting what today we consider to be historically-informed Brahms performance practice from the practices of Brahms and his circle.

EXPERIMENTS IN TIME: MUSIC-RESEARCH WITH JAZZ STANDARDS  
IN THE PROFESSIONAL CONTEXT – STEVE TROMANS

In this paper Steve Tromans draws on his own practice as a jazz musician to examine the manifold possibilities in approaching jazz standards from an experimental basis, while remaining viable as a professional performer on the jazz circuit. He discusses Bergson's theories of memory, time and perception, and Deleuze's reading of Kant, in his focus on the performer as experimenter rather than interpreter.

ECOSONICS: MUSIC AND BIRDSONG, ENDS AND BEGINNINGS –  
STEPHEN PRESTON

Stephen Preston's career as a flautist began in the 1970s in the era of period instrument practice and the emergence of historically informed performance. He is also a choreographer and researcher into historical dance practices. This paper summarises his more recent investigations into birdsong as a model for developing new techniques and improvisational practice with the Baroque flute. To this practice he gives the name "ecosonics," an approach to improvisation "where human and animal sound making might merge as music."

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# what if?

Larry Polansky

University of California, Santa Cruz

I often write pieces with some kind of question in mind. That question can be just about anything, but sometimes it is simply “what if?”

Some musical ideas beg to be pursued for their own sake, on their own terms, just to see what happens. Asking the right questions—fecund, clear, as profound and ramifying as possible—is important. But the hard work for a composer is to ask elegantly, poetically, transparently, and above all, musically. There are many interesting questions, far fewer interesting pieces.

If a question is pursued with integrity and confidence, the consequences can lead to difficult pieces: difficult for the composer to realise, difficult for the performer to play, difficult for others to understand. It’s true that curiosity can cause problems, but for a composer a lack of curiosity is the more serious problem. If we are to “keep it new” we must take the consequences. Change is hard, but it is everything. The hope is that if we keep sticking our noses where they don’t belong, they will, eventually, detect something new.

## THREE PIECES

I include three of my own pieces as examples: *Christian Music* (four rounds) (2007), *days, weeks, months, years* (for solo pianist) (2006), and “for piano left hand” (#14 from the piano piece במדבר [B’midbar] [Numbers]) (2008).<sup>1</sup>

The idea of *Christian Music* is simple: what if the conventional axes of musical notation—x and y, pitch as a function of time—were reversed? If we “flip” the axes, say, displaying time as a function of pitch, difference and similarities in pitch become those in time and vice versa. Simultaneity in time becomes equality of pitch (and vice versa). A steady rhythmic pulse becomes a chord.

The pencil sketch for *Christian Music* shows this clearly. The “melody” in black noteheads is written in the conventional way, left-to-right, with time along the y-axis. Each “box” is something like a measure. Superimposed on that is the melody in white noteheads transposed by a ninety-degree rotation (counter-clockwise). In other words, the white-notehead melody is written as if the black-notehead melody were rotated to the left, and written in a  $2 \times 3$  grid (or “two measures” per line) rather than the  $3 \times 2$  of the original. Two representations of pitch versus time (or time versus pitch) combine to make something

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<sup>1</sup> A video illustration of במדבר [B’midbar] [Numbers] may be found online at <http://www.orpheusinstitut.be/en/anthology-repository>

new, interpretable in a number of ways. It's a round at the two-measures, and at the pitch/time inversion (rotation) as well.

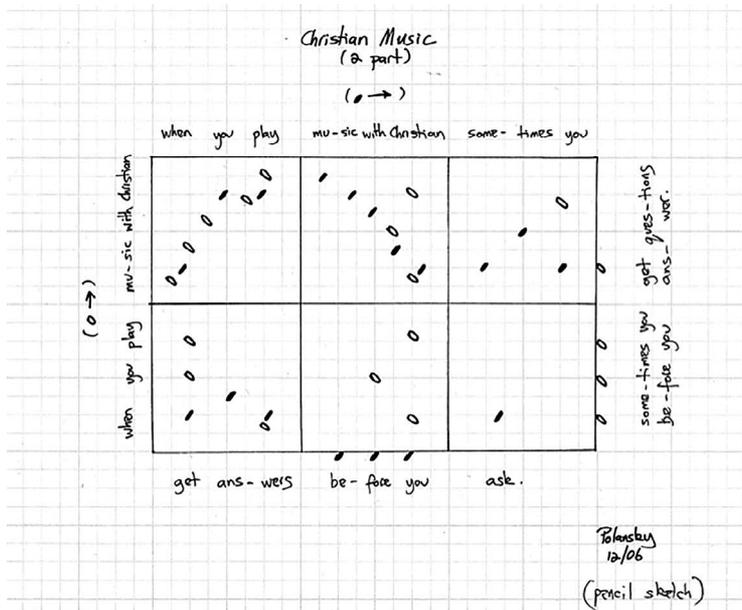


Fig. 1

The final version of the piece consists of four postcards (designed in collaboration with Laura Grey). Different colours designate different voices of each round. Five hundred postcards were made, which I give away. Each set of four is given a unique “numbering” (out of five hundred) that has nothing to do with the order of the “edition,” but refers uniquely to the recipient.

The three two-part rounds are successive ninety-degree rotations (inversions around the axes to different quadrants). The four-part round combines all four rotations. No indications are given to performers—time and pitch (and anything else) may be realised in any way they choose, based on the notation. Apparent pitch or time simultaneities, when the score is considered in conventional notation, are free to be treated as such, even though they result indirectly from the notational idea. The lyrics (a homage to my friend and bandmate Christian Wolff) may be sung or not. If they are sung (these are rounds, after all) the idea of text occurring in the vertical is completely open to performer interpretation. In *Christian Music*, I ask the musicians to ponder my own question, the “what if” of the piece, in their performance.

*days, weeks, months, years* requires a daily activity of the performer, like practising. But it precludes what is most often the direct result of practising: performance. Like many of the most important things in life, this piece is difficult in the long term, relatively straightforward in the short. Both *Christian Music* and *days . . .* are quite personal. But the intent in the latter, inherent in the communication between composer and performer, is not only one of respect, friendship,

and I hope, good humour, but also an audacious challenge to follow the rules: it asks the performer to follow an almost three year process. Since several things change along differing time cycles, the performer must carefully keep track. To me, the piece is a hybrid of diary, meditation, and ordinary daily instrumental practice. By necessity, any realisation is a private one.

“For piano left hand” is from a larger solo piano piece, במדבר, commissioned by Sarah Cahill as part of a collection of anti-war pieces. במדבר consists of seventeen short pieces (in three sections of 5–7–5). Each is optionally preceded by a short, spoken text. במדבר may be performed in its entirety, or its individual pieces may be done in any combination. Several of the pieces are songs (the pianist sings), one is a round (involving the audience singing), one is a “piano lesson” (with volunteer pianists from the audience), and one can involve any number of other instruments to play with the pianist. Most of the pieces require the pianist to do something out of the ordinary.

My reason for this structure was simple: if we truly hope to not have war, we can’t just do what we usually do. We are xenophobic by nature. How we modulate that fundamental part of our makeup with the intelligence also handed to us by evolution is what might make it possible, as the round (#13) in במדבר says, to “put our hands together/and try to make something better.”

In #14, “for piano left hand,” the pianist is asked to learn the rudiments of a new language: sign. This comes from my own experience: I have been involved in the culture of American Sign Language (ASL) for the past ten years. But the pianist may learn *any* sign language (they are as different from one another as spoken languages are). The pianist is asked to find a teacher (preferably Deaf) and learn how to do a few signs (“dead,” “where,” etc.), simple spelling (for names and places), numbering, and dates. These can generally be done with one hand, so the piece is a song *sung* by the pianist in sign, accompanied by the left hand. Signing usually favours the dominant hand, so a left-handed pianist might play this piece with the right hand. Only one performer (Rory Cowal) has performed this particular piece (#14). He found a Deaf teacher to instruct him in ASL, and not only enjoyed that experience, but also became friends with this teacher, someone from a radically different community than his own. Rory told me he was transformed by the experience.

In wonderful polarity, music can be said to be sound without meaning, sign to be meaning without sound. The question “What if we could have music in sign?” was part of the impetus for this piece, as was “What if a pianist’s hands did meaningful things other than playing the piano, or even making sound?”

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# Historical Precedents for Artistic Research in Music

## The Case of William Butler Yeats

William Brooks

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It is treacherous to argue that artistic research in music must necessarily conform to a particular model or template. Every research undertaking seems typically to construct its own method, its own rationale. Nonetheless, there are some properties that seem to be common to all such projects. First, they necessarily entail contributions from artists (musicians) practising their craft—contributions not just of data (which suffices for research *on* or *into* musical practice) but also of insights and judgments (required for research *in* or *through* music practice). Second, the results of the research include not only discourse *about* the problem but also discourse *in* the problem: the research is validated, in part, by new art (new performance) that it has brought into being. Third, artistic research is typically situated in a special environment—a laboratory, in some sense, with received or newly devised tools (instruments)—and in a community of fellow practitioners who are qualified to critique a new art with some authority. Fourth, the research is also situated conceptually, in a research framework often drawn from other disciplines, such as psychology, philosophy, or history. And finally, the research inevitably leaves a trace of some kind beyond the artwork itself: it somehow establishes (often but not necessarily in writing) its purposes, its methods, and its implications.

Often artistic research is interdisciplinary; it is entered obliquely, as a consequence of a problem or proposition arising first in another art form or science. A physicist, having turned to instrument design to test certain principles of acoustics, asks performers to play his (re)designed device; the performers, perhaps working together with composers, produce a new repertoire that validates the *artistic* usefulness of the research that has been done. A psychologist investigating the workings of memory chooses musical scores as a limiting field; performers, initially mere subjects, gain insights from the act of providing data that allow the creation of new performance strategies, new constructions of musical continuities. A poet, imagining a distinctive oral delivery of verse, engages musicians and instrument-builders to implement his ideas; a strangely evocative new sonic art is born.

The last of these examples is in fact a brief description of the work undertaken by William Butler Yeats, most evident in the years 1890 to 1910, but in fact extending from his earliest days until his death.<sup>1</sup> In what follows I want first to trace Yeats's project briefly, emphasising its relationship to artistic research, and then to turn to its usefulness today, with a particular instance taken from my own work; this will lead to some final remarks about "conclusions" in this field of endeavour.

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Yeats recalled chanting poetry even as a youth: "Like every other poet, I spoke verses in a kind of chant when I was making them; and sometimes, when I was alone on a country road, I would speak them in a loud chanting voice, and feel that if I dared I would speak them in that way to other people" (Yeats [1902] 1903, 18–19). As he grew older he did dare to chant more openly, at first only in the safe confines of the Rhymers' Club, a loose association of poets and literati (Schuchard 2008, 15–16). The turn towards truly public utterances—performances, even—came in the late 1880s, when Yeats was in his early twenties. And it was profoundly and eternally associated with his encounters with two extraordinary women.

The first was the aspiring actress Florence Farr, recently separated from her husband and already a member of some of the mystical societies that Yeats would come to embrace. A paradigmatic "new woman," she would go on to an extraordinary life: actor, magician, writer, educator; extravagantly casual in dress and manner, the mistress of George Bernard Shaw, an early champion of Ibsen (Johnson 1975). But in 1890 that life was just beginning, in part through her association with the Bedford Park enclave of radical artists and writers. There, in June, she appeared in a play by John Todhunter, who was also interested in the declamation of verse, and the beauty of her voice and reading captivated Yeats entirely. In reviewing the performance, Yeats wrote that she "won universal praise with her striking beauty and subtle gesture and fine delivery of the verse. . . . I do not know that I have any word too strong to express my admiration for its grace and power. . . . I have never heard verse better spoken" (Yeats 1989, 39). And later he would recall that "she had three great gifts, a tranquil beauty like that of Demeter's image near the British Museum reading room door, and an incomparable sense of rhythm and a beautiful voice, the seeming natural expression of the image" (Yeats 1922, 11). Yeats and Farr would go on to a twenty-year collaboration to explore, develop, and promote the art of chanting poetry.

Yeats had met Farr well before her appearance at Bedford Park, and indications are that he was quite infatuated with her (Schuchard 2008, 18; Johnson 1975, 42). But she was utterly eclipsed by the second woman to appear: Maud Gonne, who arrived on his father's doorstep on 30 January 1889. Of her Yeats

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<sup>1</sup> Except as otherwise noted, all biographical information is drawn from Schuchard's (2008) exceptionally fine study.

was famously to write: “I was twenty-three years old when the troubling of my life began. I had heard from time to time . . . of a beautiful girl who had left the society of the Viceregal Court for Dublin nationalism. . . . Presently she drove up to our house in Bedford Park . . . I had never thought to see in a living woman so great beauty. It belonged to famous pictures, to poetry, to some legendary past” (Yeats 1972, 40). Yeats’s love for Maud is one of the great literary love stories: over the next two decades, he would propose—and be rejected—numerous times; and for, and to, Maud he would write some of his most famous poems and plays. But that too was in the future. Yeats, at the age of twenty-five, had found two companions that would sustain and frustrate him for twenty years; and during those same twenty years, he would develop the practice of “chanting” in their company and with others. The nucleus of an artistic community had been formed.

The community’s conceptual framework arose from Yeats’s other abiding interests. The first and most enduring was the pursuit of a mythical antiquity—that of Ireland, above all, but also of Europe, ancient Greece, even Egypt. It is not coincidence that Yeats found in Maud “some legendary past”; for ten years he had been collecting and publishing Irish tales and verses and speculating about the place of the poet-bard in ancient Irish culture (Yeats 1888). And even earlier, as a youth, he recalled that “images used to rise up before me . . . of wild-eyed men speaking harmoniously to murmuring wires while audiences in many-coloured robes listened, hushed and excited” (Yeats [1902] 1903, 18). For Farr, too, “the music of speech” was “the practice of the bardic art” (Farr 1909, [i]); a magical antiquity was to be remade through the practice of chanting: “The mystery of sound is made manifest in words and in music. In music we know and feel it; but we are forgetting that it lives also in words, in poetry, and noble prose; we are overwhelmed by the chatter of those who profane it, and the din of the traffic of the restless disturbs the peace of those who are listening for the old magic, and watching till the new creation is heralded by the sound of the new world” (*ibid.*, 21).

A related interest also provided the first “laboratory” for the project. Farr, Gonne, and (for a time) Yeats were members of a mystical society known as the Order of the Golden Dawn. In the rituals practised there, according to Mary Greer (1995, 128), “the vowels are sounded in a powerful way to sympathetically vibrate the ether on the astral plane.” And Greer goes on to note that “Florence’s voice—especially low, resonant, trained—was perfect.” However, only Farr remained committed to the Order; Yeats and Gonne eventually turned away from its fabricated mysteries to a spiritual union that was more unsystematic and personal. At the same time, both turned their attention to a more politically constructed antiquity: the hidden culture of Ireland as a source for an emerging nationalism.

With this shift came a second laboratory in which to explore chanting: the theatre. Yeats played a key role in the founding of Dublin’s Abbey Theatre, and from the start he hoped that it would serve to restore the proper practice of declamation to the stage (Schuchard 2008, 193–94; Yeats [1907] 1916, 522–33). Almost from the day he met Maud, Yeats conceived a play based on an Irish leg-

end, *The Countess Cathleen*. Yeats intended that Maud would play Cathleen—the personification of Ireland, much like the female “Liberty” in France—but she turned him down. To act in plays, she wrote to him, “was very well when I was a child . . . but now that I have undertaken a great mission I have to act accordingly” (Gonne 1992, 74). And indeed, thereafter—with one important exception—Maud Gonne would turn her oratorical skills solely to proselytising on behalf of a future Irish state. But in Yeats’s mind she was always “his” Cathleen; and he wrote himself into the play, as well: the young, beautiful Cathleen has a bardic suitor, Aleel, whose memorable lyrics (among them “Impetuous Heart”) were to be chanted in the style that Yeats and Farr had developed.

When *The Countess Cathleen* was first produced at the Abbey Theatre on 8 May 1899, after a decade of delays and uncounted revisions, it was a kind of valedictory to Maud; its conclusion, in which Cathleen-cum-Maud saves the Irish people by selling her soul to the devil, is Yeats’s gloss on the lifework of Maud herself. “I told her,” he recalled, “I had come to understand the tale of a woman selling her soul to buy food for a starving people as a symbol of all souls who lose their peace, or their fineness, or any beauty of the spirit in political service, but chiefly of her soul that had seemed so incapable of rest” (Yeats 1972, 47). In a strange twist of casting, the part of Aleel (representing Yeats) was taken by Florence Farr, in a trouser role; thus Farr came to enact Yeats himself, chanting his poetry as the ostensible suitor of Maud-Cathleen.

Yeats followed *The Countess Cathleen* three years later with *Cathleen ni Houlihan*, a shorter, more flagrantly political work. Undaunted, he again asked Maud to play Cathleen, and this time, through a combination of nationalism, friendship, and confusion, she agreed, playing the title role, Yeats wrote, “magnificently, and with weird power” (Yeats 1994, 167, spelling regularised). Thereafter Yeats’s theatrical interests took a somewhat different direction; but Florence Farr remained devoted to theatrical chanting, taking the practice forward with mixed results in plays ranging from new works to translations of classical Greek drama (Johnson 1975, 111–22).

However, Yeats and Farr together embarked on a major effort to advance the cause of chanting, using a third, less demanding laboratory: the lecture hall. They began in 1902 with semi-public renditions for a largely invited audience and eventually moved on to substantial tours throughout the British Isles. Extensively reviewed, these events were buttressed by a number of essays and communications by Yeats himself, providing a theoretical and practical account of his practices. Farr, too, wrote to papers and journals expounding her method, eventually compiling her own notices and the critical responses in a slim volume, *The Music of Speech* (1909). Yeats’s key essay, “Speaking to the Psaltery,” first appeared in 1901 and was shortly afterward incorporated in a revised form in *Ideas of Good and Evil* (1903). These writings and others constitute the most important contemporaneous descriptions of the theory and aesthetic of chanting: research reports, in effect, that would today be encumbered by the ungraceful term “outputs.”

Farr’s engagement with chanting faded after her American tour of 1908 and the publication of *The Music of Speech*. Although she continued to perform occa-

sionally, she grew more interested in writing, and her interest in mystical practices never waned. In 1912 she left England for Ceylon to teach at a women's school; she never returned, dying of cancer there in 1917. After the Great War, Yeats, too, moved on to other matters: to Irish politics, to balladry, to a new, astringent style of poetry. But near the end of his life, in the 1930s, the bardic impulse reawoke. The advent of broadcasting seemed to offer the opportunity to chant directly to the people; and with broadcasting came a younger generation interested in taking up and reapplying the principles that he and Farr had developed. An actor, Victor Clinton-Baddeley, proved willing and able to be trained by Yeats personally; and from America came the young Harry Partch, who had independently developed theories of declamation that greatly resembled Yeats's. These and others contributed in differing ways to a new research team, a community working in the last of Yeats's laboratories: the broadcast studio. From these we have the only audio traces that remain: a handful of poems read by Yeats and several dozen recordings made by his latter-day acolytes. These are the closest we can get to the experience of Yeats's method as actually practised at the time.

However, these late recordings differ in many respects from Yeats's accounts from thirty years before. As described at the turn of the century, his work appears to have followed a method that emerged from a solitary, "compositional" use of chanting that continued throughout his life. Kathleen Tynan (1913, 191) recalled staying at Yeats's home when "Willie" was barely twenty: "I used to be awakened . . . by a steady, monotonous sound rising and falling. It was Willie chanting to himself." Fifty years later Yeats was still chanting; his son recalled that in his last months "he would come out on the lawn and sit in a chair with a rug over him . . . He'd make a low tuneless hum and his hand would start beating time . . ." (Schuchard 2008, 400).

This chanting was research only in the most personal sense; it served Yeats simply to conceive and test poetic possibilities, as a composer might try out alternatives at a keyboard. It satisfied the initial conditions for artistic research, in that it was dependent on artistic insights and produced an artistic result; but there was no research community, no laboratory, no conceptual framework. Its traces were left only in the poem itself, where declamatory inflections and rhythms were vaguely expressed in punctuation and line-breaks, though no more so than in any other verse form.

But in the 1890s chanting was transformed from a compositional tool to a research project. The proximate cause seems to have been a visit with George Russell ("A. E."), who also chanted his poems. The experience persuaded Yeats of the power of notation:

[Russell] was certain that he had written [his verses] to a manner of music, and he had once asked somebody . . . to write out the music and play it. . . I . . . did not often compose to a tune, though I sometimes did, yet always to notes that could be written down and played on [Russell's] organ. . . . When I got to London I gave the notation . . . to [Florence Farr], and she spoke it to me, giving my words a new quality by the beauty of her voice. (Yeats [1902] 1903, 19–21)

Then, as Yeats relates it, he and Farr

began to wander through the wood of error. . . . we tried, persuaded by somebody who thought quarter-tones and less intervals the especial mark of speech as distinct from singing, to write out what we did in wavy lines. On finding something like these lines in Tibetan music, we became so confident that we covered a large piece of pasteboard, which now blows up my fire in the morning, with a notation in wavy lines as a demonstration for a lecture. (ibid., 21–22)

It is important to note that the *practice* remained paramount: “we tried . . . to write out what we *did*,” Yeats explained (my italics). It was not a question of developing a theory to which declamation would be fit; rather, a declamation that was empirically determined, as before, was to be communicated to others by means of a new notation. The wavy lines resulted, and with this new documentation it became possible to test outcomes, one against the other. Yeats’s project thus moved on from the composition of poetry to the reproducibility of poetic delivery.

Rescue from “the wood of error” came with the addition of another member to the research team: the early-music enthusiast and instrument-builder Arnold Dolmetsch. Dolmetsch contributed not only a more rational, conventional system of notation but also an instrument—a psaltery, designed in collaboration with Yeats and meant to evoke something of antiquity in its simplicity and appearance. The psaltery was, first of all, a tool to ensure accurate reproduction of a chant: by playing key notes at irregular intervals the speaker could remain on pitch. But, secondly, it permitted a new, compositional inflection to be added to the previously unadorned voice. And this in turn invited a new kind of experiment: which words, which syllables, are best reinforced by a sounded note on the psaltery? Successive versions of “Impetuous Heart” (Aleel’s lyric from *The Countess Cathleen*) attest to the many empirical tests that informed the decisions—and also to Dolmetsch’s inclination to press for ever more conventional notation (Schuchard 2008, 52, 53; Yeats [1902] 1903, 23; Yeats 1924, 17). Florence Farr, not surprisingly, created her own method of writing, merely inscribing the letter names for pitches directly above the poetic text (Farr 1909, 23–27).

In its full form, then, the method evolved by Yeats’s team of researchers proceeded in four stages. First, Yeats, Farr, or another practitioner would declaim the text, going over and over it in an intuitive, exploratory way until the reading stabilised into something that could be replicated consistently. Then Farr or Dolmetsch would notate the pitches and inflections, with rhythm sketched only vaguely. An instrument was built—or retuned—to suit the voice in question; Dolmetsch was perfectly willing to tune the psaltery in quarter-tones if required. Then decisions were taken—compositional decisions, really—about the pitches that should be emphasised by means of the psaltery, and a new score was produced. Finally this notation would be given to others for performance, in part as a test of the accuracy of the “score,” in part to test the reading in public performance.

This is, very clearly, an early prototype of artistic research: raw material is discovered through performance, then mediated by notation into something that can be manipulated, then given new shape in a kind of composition, and finally tested in a kind of public laboratory, where the results are assessed. Steps one and three are very much in the domain of “art” or “creativity”; steps two and four partake of the scientific method. Some such conflation of art and science is very typical of many who work today in “artistic research,” not just at the Orpheus Institute but also at many other institutions.

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But the question follows: what does one *do* with such research, once the project in question is completed? In particular, what does one do with research that is so deeply grounded in the persons, the voices, the very bodies of a generation that is long since passed? Research “in and through [musical] practice” is, after all, intrinsically person-based; the study is not conducted from above, as in scholarship into texts or chemistries, but from within—it entails an inextricable mix of feelings, judgments, and perceptions. It is a quintessential instance of “radical empiricism,” as William James would say: the *experience* of research is also the *topic* of research, and both live in the subject, who is also the author (James 1912).

In the present instance the question arose, for me, because of a commission for a composition. The Irish duo Sound-Weave (Nuala Hayes, actor, and Paul Roe, clarinet) wished me to make them a piece. Funding was provided by the Irish Arts Council, and performance support was forthcoming from Culture Ireland. The only conditions were that the work should draw from Irish culture or an Irish author. The combination of an actor with a monophonic instrument brought Yeats to mind, although at that time I had only the most rudimentary knowledge of his work; my vague impressions were given more tangible form thanks to my colleague and friend Roger Marsh, who at this crucial moment dropped into my pigeonhole a copy of “Speaking to the Psalter.” The resulting work, *Everlasting Voices*, turned out to be twenty-five minutes long and incorporated three channels of electroacoustic fixed-media; it was given its premiere performances from September to December 2012 in Urbana and Chicago, Illinois, the Orpheus Institute, Belgium, and the University of York, England. The account that follows has a logic of its own, and it bears only a slight resemblance to the actual chronology of composition. But conceptually it is true to the work, and in retrospect it seems to me to offer a useful instance of the consequences that arise from revisiting artistic research that is a century old.

There are at least three possible approaches to the recreation of Yeats’s practices. One can use the existing recordings by Yeats and his later colleagues; one can work from the musical notations made by Farr and Dolmetsch; or one can apply Yeats’s method to altogether new readings. In composing *Everlasting Voices*, I concentrated on the last of these, but it is useful to look briefly at the first two approaches first.

But even before that, there is the matter of the psaltery. True, I had an actor and a monophonic instrument, but the clarinet (I eventually chose to use bass clarinet) seemed far removed from the “murmuring wires” of Yeats’s childhood vision. Some of the psalteries built by Dolmetsch survive, but they’re in museums. I wasn’t about to commission a new one, and I’m not an instrument-builder myself. It seemed necessary to settle on an alternative, and my choice was the autoharp—an American instrument that, perhaps coincidentally, came into prominence at about the same time as Yeats’s and Farr’s lecture-performances.

The autoharp closely resembles the psaltery, and the playing techniques are similar. Yeats’s description of Farr’s playing in 1901 implies that the psaltery was held horizontally on the lap, with the performer seated: “a friend,” he wrote, “sat with a beautiful stringed instrument upon her knee” (Yeats [1902] 1903, 16). In America, the popularity of the autoharp surged in the 1920s and 1930s in the wake of seminal recordings by the Carter Family and others, and Sara Carter generally held the instrument in her lap or placed it on a table. But in a 1907 photograph of Florence Farr she holds the psaltery vertically, as one would a lyre; that she performed in this manner is confirmed in contemporaneous reports of her late tours (Schuchard 2008, 227 and plate 11). Maybelle Carter, Sara’s cousin, developed an exactly equivalent technique for the autoharp, and it is this that has been followed by present-day performers like John B. Sebastian.

From a practical point of view the autoharp has certain advantages over a psaltery. It’s easy to play; one plays chords or single notes simply by pressing down combinations of buttons, then strumming the strings in the register desired. A psaltery, in contrast, is quite difficult, as the strings are played singly and are undifferentiated. Dolmetsch remarked on this in a late critique of Farr: “Florence Farr had the poetic feeling,” he wrote. “All went well when I played for her—but she could not follow her own voice with her instrument, especially when performing in public” (Schuchard 2008, 353–54). In addition, the autoharp can easily be retuned, to obtain unconventional chords or, indeed, quarter-tones; for *Everlasting Voices* I devised a tuning that permitted both quarter-tone inflections and chords of stacked fourths (rather than the triads for which the autoharp is designed). I have concluded that the autoharp is an excellent—even superior!—substitute for the psaltery.

With the “psaltery” reinvented, it was tempting to turn to Yeats’s own recordings and to those by Clinton-Baddeley and other associates (Yeats [1932] 1955; Clinton-Baddeley, Balcon, and Westbury [1958] 1973). I approached Yeats’s recording of “The Lake Isle of Innisfree” as if I were Arnold Dolmetsch: that is, I notated the tones of his reading on a conventional staff. (For the sake of authenticity I first tried a “wavy-line” notation, but—like Yeats—I found this too imprecise to be useful.) Then I extracted what seemed to be the central, reference pitches; as I had guessed from studying Yeats’s method, this was as much a compositional process as an analytical one. Lastly, I synthesised a psaltery part from sound samples recorded from the autoharp, one string at a time. When this was superimposed on Yeats’s recording, I had, hypothetically, a recording of a performance that might have been heard in 1901.

This was an interesting activity, and I believe the results are convincing; but it did not feel like artistic research. The process was more akin to the restoration of a missing part in a Renaissance motet: there were decisions to be made and variants to be tested, but both the compositional technique and the standards to be applied were known in advance. I was not *building* on Yeats's research project; I was merely recreating a lost fragment from it. Moreover, the future was extremely limited: even if I looked beyond Yeats himself to Clinton-Baddeley and others, there were only a handful of recorded performances with which to work.

The next alternative was to turn to the notated poems. There are many more of these (though the repertoire is still quite limited), and often the notation is precise enough to attempt to recreate a performance from it. I chose "Impetuous Heart," which has a particularly rich notational history. I had my psaltery, and it only remained to learn the score and develop a performance technique. I practised, recorded myself, practised some more, and eventually achieved a level of mediocrity that seemed adequate for my purposes.

This too was interesting and—with more practice or a more talented performer—probably aesthetically convincing; but it too was research only in a limited sense. I was, after all, merely executing a score; and though I certainly learned quite a bit—for example, about how hard it is *not* to "sing"—I didn't advance Yeats's ideas significantly. As with any "historically informed" performance, the combination of scholarship, intuition, and judgment produced unexpected variations and curious difficulties; but no new terrain was traversed, though the ground was somewhat cleared.

There remained the third, most open option: to adopt the method but to deliberately disregard the traces, the scores, the specific artefacts of Yeats's original project. Yeats's method, as I have said, was grounded in *practice*, in the experiential, empirical discovery of a reading, with all else following from that: instrument, tuning, notation, reproduction. I had my artist, my Florence Farr, in the person of Nuala Hayes; I simply asked her to listen to Yeats, read what he had to say, and then to arrive at her own rendition of the poetry. She sent me a recording, and from that I derived an autoharp tuning that suited her voice, together with a notation. I was again acting as Dolmetsch, but this time in response to a living person, who had her own embodied understanding of the text; suddenly the project seemed *alive*.

In the meantime I had been working on a script for the piece as a whole, and I felt strongly that I wanted to include Yeats as a presence: the history of chanting seemed deeply entwined with the story of Maud Gonne, and that was in part the story I wanted to tell. I determined that I would include excerpts from Yeats's *Memoirs* and Gonne's letters; Nuala would read the latter, but for the former I needed a second, male voice. This I found in the talented and responsive Irish actor and playwright Denis Dennehy. I sent him a collection of texts with the request that he, too, listen to Yeats; then I went to Ireland and recorded his beautiful readings. These became the threads winding through the channels of fixed media, and these too I supplied with "psaltery" accompaniments, using the samples I had recorded.

My objective now was to work in the spirit of Yeats, with due regard for his method and thought, but *not* necessarily to “recreate” events that might have occurred a century ago. Hence the project was open-ended: the topic itself, the very “research question,” was being transformed by the answers that were proposed. Again I am reminded of William James: distinctions and decisions that arise as an organism interacts with its senses become themselves part of the sensed universe. The feeling of what we *do* is as real as the feeling of what we touch, and both are apprehended in the same stream of consciousness. So also, the answers that we supply are as much questions as those we have asked, and the whole is folded into the single, continuous process that we call “research.”

*Everlasting Voices* thus became a new research project, with a domain that overlapped Yeats’s but differed from it. I grew preoccupied with the full spectrum of monody, from quotidian speech to abstract music. I assigned the extremes to Maud Gonne, who seemed such a polarised being: Gonne’s letters receive a wholly prosaic reading, while Yeats’s recollections of Gonne are accompanied by arching, untexted melodies on the bass clarinet. In between there is live, chanted poetry (Nuala Hayes as Florence Farr), traditional Irish melody (Paul Roe playing “Yellow-Haired Donough,” a tune explicitly cited in *Cathleen ni Houlihan*), heightened speech (Denis Dennehy reading from Yeats’s *Memoirs*), and theatrical oratory (excerpts from the two “Countess” plays). The psaltery, too, is expanded: from quarter-tones to microtonal and “bent” pitches, impossible on an acoustic instrument but easily accomplished electronically; from single tones to chords and counterpoints; from plucked strings to clarinet samples and electronically derived drones.

But all these details are, in a sense, unimportant; they constitute mere artefacts, the “outputs” of a research process in the twenty-first century, like Yeats’s scores, articles, and recordings over a century ago. The score to *Everlasting Voices* will, I hope, receive additional performances, and there will be new problems to solve: performers will differ, balances will need recalculating, a different “psaltery” will be used. But resolving such matters will not constitute artistic research, any more than did my attempt to perform “Impetuous Heart.” Artistic research, it seems, has more to do with generating questions than with providing answers; it is more a matter of observing and aspiring than testing and achieving.

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And with this I come to a few concluding remarks—about “conclusion.” Research in and through performance is intrinsically ephemeral; either its subject or its manifestation is gone the instant it ends. Even the most elaborate set of traces—the most exhaustive documentation—is never the same as the performance itself. For this reason, to study such research always entails, to some extent, the re-creation of an act—not as an academic exercise but as a part of the research method itself.

This is not necessarily the case for other domains of study. I recall, as an undergraduate physics student, several tortuous hours in a laboratory re-

creating the Millikan oil-drop experiment. I understood the experiment from the texts I had read, and my understanding did not change in the laboratory. I merely practised skills that I might apply later, in a kind of scientific equivalent to the scales and arpeggios that (that evening) I practised assiduously on the piano. In contrast, to understand music one *had* to re-create; though I had read, and listened, and studied, my knowledge of the “Waldstein” Sonata was transformed the moment I began to play it. This was no idle exercise: the performed music could only be apprehended in the moment of performance.

It follows that, in a sense, no research in performance ever concludes; every “output” must be redone to be understood. Do I wish to grasp the thinking behind Clifford Curzon’s fingerings? Then I must perform them. Do I want to understand “chanting”? Then I must *speak to the psaltery*.

But it also follows that no performance is ever actually “re-created”; the traces are only an incentive to bring something new into being. The Millikan oil-drop experiment existed to justify the creation of a trace, a paper, in which conclusions were communicated; but “Speaking to the Psaltery,” the research trace, exists to justify the continuation of a practice without conclusion. And so we have “historically informed” performance—performance defiantly in the present, but acknowledging (as the present does) the past; and we could plausibly have historically informed composition, or even historically informed research. But there are no historically informed oil drops.

Elsewhere in this volume (see the chapters by Michael Schwab), in another publication (Schwab 2013), and in dozens of conversations at the Orpheus Institute, attempts have been made to apply Hans-Jörg Rheinberger’s analysis of scientific research to artistic research. I find his distinction between “technical object” and “epistemic thing” to be particularly helpful in considering my response to William Butler Yeats. What am I to make of Yeats’s recording of “The Lake Isle of Innisfree” or Dolmetsch’s notations for “Impetuous Heart”? If I take these as technical objects—the fixed results of a study that has ended—I can make only new technical objects in response. I can add a psaltery part to the recording; I can perform the notation. These new artefacts may demonstrate the viability of Yeats’s original process, but they also close the conversation; they assert not only that Yeats’s job has been *done*, but that the job of showing that it was done has also been done.

Or I can take those century-old items to be open-ended, epistemic things. In this case I am constructing not new artefacts but new questions, not new histories but new communities. I create “artistic research” in and through *performance*—research that must be encountered *in the present*—research that adopts a mode of inquiry precisely to assert that the job is *not* done. And I do what I can to ensure that the artefacts that I create—the score called “Everlasting Voices,” for instance—remain epistemic, that the questions they ask outlast the answers they seem to supply.

It’s hard to imagine that it could be otherwise. For if it were, what would I have to tell?

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# Cageian Interpenetration and the Nature–Artifice Distinction

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Nothing needs to be connected to anything else since they are not separated  
irrevocably to begin with  
—John Cage (1961b, 228–29)

We are not in the world, we become with the world  
—Gilles Deleuze and Félix Guattari (1994, 169)

## INTRODUCTION

Cage defined interpenetration as “an incalculable infinity of causes and effects” in which “each and every thing . . . is related to each and every other thing” (Cage 1958, 47, quoted in Nyman 1999, 65). This paper is concerned with exploring the research implications of Cageian interpenetration in terms of certain of the philosophical notions found in the writings of Deleuze (alone, and with Guattari).

In contrast to the distinction that language allows us to make between performer, instrument, composer, score, audience, and environment, *actual* lived experience of performance events bears testament to no such clear-cut categorisations. Deleuze and Guattari (1994, 159) theorised events as being complexly interrelated with the various elements that bring them about – and vice versa. From this view, Cageian interpenetration would be more consistent with the *natural* state-of-play of an event of performance than an *artificial* compositional strategy—as much as a nature/artifice distinction can, or indeed should, be maintained (as I will argue).

I propose that Cage’s interpenetrative compositional assemblages can operate in practice-as-research terms, where the subject of that research investigation is temporal becoming—that is, the process in which things exist/persist in time. I argue that Cageian interpenetration draws our attention to a much larger and ongoing interpenetrative process, one that has implications for how we understand our everyday experiences of the world around us and our place(s) within it.

## MODELLING OUR EXPERIENCES IN THE WORLD

Our common-sense notions of the separateness and separability of people and things in the world—and also the distinction between “the world” and its “contents”—is a reflection of the ways in which we model our life experiences. By this I mean that, in research terms, the methods utilised, and the modes of documentation relied upon, effect a transformation of their objects of study that is of a fundamental, rather than incidental, nature. In this, the second decade of the twenty-first century, we are, as music researchers, in a position potentially to benefit from work done in other disciplinary fields on the *meta*-research issues surrounding methods of analysis and modes of documentation. For instance, as the sociologist Pierre Bourdieu pointed out in the early 1970s, any analysis of practices that are temporally grounded (such as music-making, in the case of the concerns of our particular disciplinary field) will effect a *de*-temporalisation on those practices—effectively *spatialising* that which it seeks to understand. “For the analyst,” Bourdieu (1977, 9) wrote, “time no longer counts. . . he [or she] has the time to . . . overcome the effects of time.” For Bourdieu, the “synoptic apprehension” that is the analysis makes possible a forgetting of “the transformation it imposes on practices inscribed in the current of time” (*ibid.*).

In music research terms, this difference in temporality can be demonstrated by the distinction between live music-making in an event of performance and a recording of the same performance that can be studied at leisure, and repeatedly, after the event. The former—the music event itself—is grounded in the time in which it is made, whereas the latter—the recording—is a linear document of certain aspects of that event. A recording is linear, in that it presents a “timeline” of the music event through which we are able to move forwards and backwards in the course of our analyses. In an event of music-making in performance, we have no such luxury—the time experienced in the event is of a different nature to that of the document and its analysis.

In the late-nineteenth-century terms of the philosopher Henri Bergson ([1913] 2001, 90), we can say that the linear temporality of the analytical document is *spatial*—it situates things in space and enables us to isolate distinct entities according to our particular requirements. The other kind of time—the temporal quality of the event, as it is in a condition of unfolding—was what Bergson called *duration* [*la durée*]; he argued that this was the temporality with which we are all familiar in our experiences of being alive in the world. This second kind of temporality—Bergson’s duration—is internal to each living thing, and is differently experienced by each one (*ibid.* 110–11).

In terms of Bergson’s duration, the sense of linear succession that we import into the flow of time by consequence of our use of spatialising documentation is replaced by a process that the philosopher himself, using interpenetrative terms, described as “the elements of concrete duration permeat[ing] one another” ([1913] 2001, 218) and “an inner life in which succession implies interpenetration” (*ibid.*, 228). All of which brings me (in time) to a *Cageian* notion of interpenetration, as found both in his writings and (most importantly for the concerns of this paper) in certain configurations of his major compositional

works—for instance, the simultaneous performance of the *Concert for Piano and Orchestra* (1957–58), the *Song Books* (1970), and the *Rozart Mix* (1965) that was famously given by Cage and others in Paris in 1970. Below, I turn my attention to the temporality particular to Cageian interpenetration, as well as to a consideration of its usefulness to research on the complex temporality of existence—that is, research undertaken in music-making itself, rather than in written or recorded documentation or other spatialising modes of research-practice.

#### CAGEIAN INTERPENETRATION AND TIME EXPERIENCE IN THE EVENT OF PERFORMANCE

In the text of his 1961 lecture-performance “Where Are We Going? And What Are We Doing?” and the introduction that precedes it in *Silence*, John Cage (1961b) frequently expresses opinions of a distinctly Bergsonian nature, some of which would be useful to examine at this point. I should point out that Cage himself was certainly aware of Bergson’s writings, directly referencing the latter’s philosophy in his 1957 essay “Experimental Music” (12). The compositional format of “Where Are We Going? And What Are We Doing?” is of an interpenetrated nature, with four different lectures being delivered simultaneously. Interestingly, in his introduction to the piece, Cage expressed a dissatisfaction with having to present the four different texts in a legible manner in the pages of *Silence*. He called such a linear presentation of what in performance is experienced as an extraordinary intermingling of disparate words and phrases, “a dubious advantage” (ibid., 194).

At times, the experience of a performance of the piece can be frustrating, given our tendency to try to follow the linear progress of a single verbal discourse that is being thwarted by Cage’s deliberate superimposition of three others. However, Cage was clear in his desire to present a sense of the complexity of nature, “in her manner of operation”, rather than what he called “man’s control” of, or attempts to control, nature (ibid.). We are not in the driver’s seat with respect to nature, Cage argued (ibid., 195), and our experiences in the world are, to use Cage’s words, “gotten all at once” (ibid., 194). In experiencing a performance of “Where Are We Going? And What Are We Doing?” (rather than reading its four different texts individually on the printed page), we are presented with a complexly interwoven, temporally-grounded event of music-making. We are confronted by a sense of an enduring permeation and interpenetration, as opposed to a linear succession in spatial time that would admit easy representation in one or other modes of analytical documentation.

So if, in Bergson’s (and Cage’s) view, such complex interpenetrations are closer to the temporality experienced in the various events in our lives—or in an event of performance—what, in our research into the experiential dimension of being in the world, or in an event of music-making, are the implications for our modellings of this? The final section, below, addresses this very question in terms of the practice-as-research methods (and modes of presentation) I consider inherent in Cage’s compositional interpenetrations.

BECOMING WITH THE WORLD AND THE NATURE–ARTIFICE  
CONTINUUM

The late-twentieth-century philosopher Gilles Deleuze was greatly influenced by Bergson's writings, and many of Deleuze's major concepts are of a distinctly Bergsonian nature—in his writings alone, and in his collaborations with Félix Guattari. In line with Bergson (and Cage) on the indivisibility of the various elements in the event of real duration—of real experience—Deleuze and Guattari argued in the early 1990s that “We are not in the world, we become with the world” (1994, 169). The two authors wrote of an event that it is “inseparable from the state of affairs, bodies, and lived reality in which it is actualized or brought about” (ibid., 159). Crucially, and relevant to the concerns of this paper, they add: “But we can also say the converse” (ibid.).

Clearly, there are strong similarities between Deleuze and Guattari's Bergsonian notion of “becoming with” the world (rather than simply “being in” it) and Cage's mid-twentieth-century ideas on the interpenetration of all things in our experiences of nature. In fact, in one of the four texts of “Where Are We Going? And What Are We Doing?” Cage wrote that “Nothing needs to be connected to anything else since they are not separated irrevocably to begin with” (1961b, 228–29). I would argue that, if we are to follow Deleuze and Guattari's notion of becoming to its conclusion—logical or otherwise—we find ourselves immersed in a world that is not only in a constant state of change but is also *in* and *of* us in a fundamental way. In other words, the distinction between “us” and “the world” is a contrived one—certainly convenient as a matter of clarity, but not at all in line with *actual* experience of being alive. “If the living being resembles the world, this is true . . . insofar as it opens itself to the opening of the world,” wrote Deleuze and Guattari ([1977] 2004, 105) in the early 1970s, continuing: “if it is a whole, this is true to the extent that the whole, of the world as of the living being, is always in the process of becoming, developing, coming into being or advancing, and inscribing itself within a temporal dimension that is irreducible and nonclosed.” In this view, Cageian interpenetration would be more in line with the *natural* state-of-play of an event of performance than an *artificial* compositional strategy—as much as a nature/artifice distinction can, or indeed should, be maintained.

Which brings me to my final point: if interpenetration is the *modus operandi* of nature in everyday affairs, then a *Cageian* interpenetration is deeply reflective of that natural state-of-play. In fact, I would go further and suggest that Cage's interpenetrative compositions and performances function on the level of artistic research—in other words, they were, and are, practice-as-research experiments undertaken in the medium of music-making. For this reason—and given the drawbacks associated with documentation and its linearising, spatialising tendencies—I would suggest that a performance of a Cageian interpenetration can enable a theoretical engagement with the research problem of temporal experience that simply cannot be undertaken in the typical media of more traditional research practice. Through the concept of interpenetration, and, more importantly, its temporally-grounded practice in an event of performance, the natural and the artificial *meet*—and we are, in experiencing an interpenetrated

performance, in a position to *feel* with our different senses that which we typically choose to ignore in our research models and modes of presentation. What we are often ignorant of is, to quote Cage (1957, 12) paraphrasing Bergson, the “disharmony” which “is simply a harmony to which many are unaccustomed.” And yet, we *are* accustomed to such an apparent disharmony, even though it is most commonly *felt* rather than articulated discursively—it is the natural state of varied, experiential living, including right here, right now. As Cage (1961b, 195) appealed at the close of his introduction to “Where Are We Going? And What Are We Doing?”: “Here we are. Let us say Yes to our presence together in Chaos.”

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# Revisiting Luigi Nono's Suffered, Serene Waves

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One often hears that to understand a work of art one needs to know its historical context. Against this historicist commonplace, a Deleuzian counter-claim would be not only that too much of a historical context can blur the proper contact with a work of art (i.e., that to enact this contact one should abstract from the work's context), but also that it is, rather, the work of art itself that provides a context enabling us to understand properly a given historical situation.  
—Slavoj Žižek ([2004] 2012, 13)

## AN AESTHETIC OF THE SUBTLEST DIFFERENCES

Luigi Nono's . . . . . *sofferte onde serene* . . . for piano and tape (1975/77) was composed during a period of intense reflection and self-criticism that led Nono to new modes of composing and to renewed perspectives on the arts, on aesthetics, and, crucially, on the political implications of art. Contrary to Nono's pieces of the previous decade, . . . . . *sofferte onde serene* . . . has no direct political message. Its main focuses are the study of Maurizio Pollini's piano sonority and playing techniques and the study of diverse compositional techniques and strategies. To a certain extent it is a renewed exploration of some constructive principles that Nono had learned in the late 1940s from his teachers Hermann Scherchen and Bruno Maderna (see also, Assis 2006, 150–55). In this sense, . . . . . *sofferte onde serene* . . . may be seen as the beginning of a new path, as a piece that opens the door to a new “style”—a style that produced works such as *Prometeo. Tragedia dell'ascolto* (1981/84), *Caminantes . . . Ayacucho* (1986/87), or *La lontananza nostalgica utopica futura, madrigale per più caminantes con Gidon Kremer* (1988/89).<sup>1</sup>

The simple aural comparison of . . . . . *sofferte onde serene* . . . with several of Nono's works that immediately preceded it, such as *Como una ola de fuerza y luz* (1971/72), *Al gran sole carico d'amore* (1972–74), or *Für Paul Dessau* (1975), makes the shift from his “second style” (1960–75) to his “late style” the more obvious. Nono himself stated that:

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<sup>1</sup> A reduced version of this text was published as Assis (2013). All translations from the Italian, unless otherwise stated, are by the author.

Immediately after *Al gran sole carico d'amore* there was silence, an unutterable silence. . . . I felt an urgent need to study—not only regarding my musical language but also my mental categories, and I restarted composing again with . . . . *sofferte onde serene*. . . , a piece that requested a lot of work. (Nono [1979–80] 2001, 2:245).

However, the result of this aesthetic and ideological shifting was not that Nono became apolitical or somehow indifferent to political issues of the day. On the contrary, in 1975 he became a member of the Central Committee of the Italian Communist Party. What Nono realised more and more was that his previous works, with all their explicit political engagement, had been easily misunderstood as bare “pamphlet art,” their political contents shadowing their intrinsic musical features, so that the latter were not properly perceived by the listener. Starting with . . . . *sofferte onde serene* . . . , Nono’s late works bring the inner musical structures and features to the foreground, focusing on small instrumental forces, on subtle harmonic fields and clearly differentiable vertical sound-aggregates, on extreme soft dynamics and fine articulation markings, on fragmented successions of sections, and on a highly elaborated dialogue with old historical forms. The act of *listening* to these works becomes a highly demanding process—the listener being confronted with his or her own capacity (or incapacity) for listening.

The making and the reception of music gains herewith a new dimension: that of enabling a *redistribution of the sensible*, suggesting other possibilities for *things* to be arranged, configured, assembled, and exposed. Following Jacques Rancière’s *The Politics of Aesthetics* (and quoting Gabriel Rockhill’s “Glossary of Technical Terms” in that book), the term *sensible* as I am using it here “does not refer to what shows good sense or judgement but to what is *aisthēton* or capable of being apprehended by the senses” (Rockhill 2004, 85). This broader conception of “the political” opens up wider avenues for artistic practices and activities, pointing to subtle nuances and differences that might function as explosive detonators, first for individual subjectivities, later for assemblages or groups of individuals. There is then a politics of aesthetics that goes beyond Benjamin’s issue of the aestheticisation of politics, or Brecht’s outspoken experimental forms. In Rancière’s words there is “a system of self-evident facts of sense perception that simultaneously discloses the existence of something in common and the delimitations that define the respective parts and positions within it” (Rancière 2004, 12). Challenging such systems to destabilise them and propose new aesthetic assemblages has therefore an intrinsic political dimension. Luigi Nono’s music after 1975 is an example of such politics of the artwork: an aesthetic and a politics of the smallest differences, of the finest details, of the barely audible; an invitation to question one’s identity and a call for courageous change. In the effort to listen, one feels the urgency of finding new balances, new arrangements, new distributions of the sensible. Through listening one discovers new worlds—one might even rediscover oneself. The crucial question is therefore: What is *listening*?

Silence.

Listening is very difficult.

Very difficult to listen to others in the silence.

Other thoughts, other noises, other sounds, other ideas. When one comes to listen, one often tries to rediscover oneself in others. To rediscover one's own mechanisms, system, rationalism in the others.

And this is a violence of the utmost conservative nature.

Instead of hearing the silence, instead of hearing the others, one often hopes to hear oneself once again. That is an academic, conservative, and reactionary repetition. It is a wall against ideas, against what is not yet possible to explain today.

... To listen to music.

That is very difficult.

I think it is a rare phenomenon today.

...

Perhaps one can change the rituals; perhaps it is possible to try to wake up the ear. To wake up the ear, the eyes, human thinking, intelligence, the most exposed inwardness.

This is now what is crucial.

(Nono [1983] 2001, 1:522)

GENESIS AND MAIN CHARACTERISTICS OF . . . . . *SOFFERTE ONDE*  
*SERENE* . . .

In September 1971, Luigi Nono started working with Maurizio Pollini (1942–) at the Studio di Fonologia della RAI, Milan, for the composition of *Como una ola de fuerza y luz* (1971/72) for piano, soprano, orchestra, and tape. Recently returned from an extensive South American tour, Nono was excited about the idea of creatively collaborating with both Pollini and Claudio Abbado (1933–2013), with whom *Como una ola de fuerza y luz* would be premiered almost two years later, on June 28 1972: “Claudio Abbado and Maurizio Pollini: their new musical activity is the development of an artistic partnership into the acquisition and adoption of musical responsibilities that result from the human necessities of our time” (Nono, in Stenzl 1975, p. 143). As this quotation makes evident, Nono was fascinated not only by Pollini’s and Abbado’s impressive musical and technical qualities, but also by their strong commitment to society, by their engagement in socio-political causes, and by their strong, outspoken political positions.

Before and beyond the mere making of music was a human component that proved to be quintessential to Nono's creative collaboration with them.

Four years later, starting in December 1975 and continuing in several diverse shorter recording sessions during the year 1976, Nono and Pollini collaborated on another piece, . . . . *sofferte onde serene* . . . , a fundamental work if one is to understand Nono's late style and his polemically debated aesthetic and ideological turnabout. The working sessions with Pollini at the Studio di Fonologia della RAI, which involved both pieces (*Como una ola de fuerza y luz* and . . . . *sofferte onde serene* . . . ), are extensively documented through working tapes and sketches preserved at the Foundation Archivio Luigi Nono, Venice. The study of these materials opens up illuminating avenues for the understanding of creative collaborative practices in the third part of the twentieth century—a period in which the electronic medium (first through magnetic tape, later through live electronics) became increasingly important for composers. A detailed description and analysis of the concrete modalities of the collaboration between Nono and Pollini is beyond the scope of this paper, though it was treated extensively as part of my research work nearly a decade ago (see Assis 2006). Here, however, I wish solely to focus on . . . . *sofferte onde serene* . . . and point out that in this work several new elements emerge in Nono's musical language, namely a new understanding of the use of vertical sound-aggregates (“chords”), the exploration of complex variational and canonical procedures, and, crucially, new modes of organising “multi-temporalities,” with the piano and the tape following different paths across the same landscape.

This piece—written by Nono in a moment of personal and artistic crisis—marks the beginning of his late creative period. It was conceived experimentally (especially the tape production), and its concert rendering involves various degrees of uncertainty and unpredictability of sonic combinations. Nono achieves this, in the first instance, through the use of “shadow” sounds—similar sonorities that come sometimes from the piano, sometimes from the tape, and that generate a perceptual (con)fusion for the listener. This (con)fusion is enhanced by relatively free time relations between piano (live) and tape, allowing the performer on the piano and the performer controlling the sound-projection to intertwine a great variety of sonic relationships. From an analytical perspective<sup>2</sup> the piece might be seen as a succession of five units, each featuring its own specific sound material and employing different compositional tools and strategies. Taking into account the durations in the tape and the bars in the score, the five sections of . . . . *sofferte onde serene* . . . appear as follows:

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2 For which see Assis (2006, especially 208–37); see also Linden (1989) for a different reading.

	Tape	Bars in the score
1.	0:00–2:32 [2:32–2:45]	1–25
2.	2:45–4:50 [4:50–5:00]	25–49
3.	5:00–9:17	50–101
4.	9:18–11:49	102–37
5.	11:50–13:40	138–55+

Table 1

To provide an example, let us briefly consider the first section. It is made of five different presentations (“variations”) of the basic sonic material—a transparent constellation of twelve pitches (see Figure 1).

Transcription of the sketch ALN 42.04/02 (detail)

Fig. 1

Following the sketches used in the recording sessions (ALN 42.01 and ALN 42.02), Nono asked Pollini to play these pitches in diverse combinations and successions. The results were recorded almost as a basic sample of sounds, which would be mixed and assembled later by Nono at the mixing desk. This means that during the studio recordings there was no “score” in front of Pollini. On the contrary: it was the concrete recorded sounds that slowly, in a constructive way, defined more and more precisely the sequence of sonic events—that is, the score for the pianist playing the piece’s piano part. And if it is very clear that the score and its writing are the complete responsibility of Nono (who remains “the composer” in an orthodox sense), it is also true that the concrete sonic input produced by Pollini was of the utmost importance for the definition of the music.

Beyond the *creative* collaborative practice between Nono and Pollini, another aspect of collaboration must be mentioned—namely, the collaborative *performance* practice between them. . . . *sofferte onde serene* . . . was not only premiered by Pollini, for some years it was performed only by him—normally with

Nono taking care of the tape's sonic projection. There has been much discussion (among performers and sound technicians who play this piece) about how loudly to set the acoustic level of the tape. In recent years the tendency has been to overemphasise the tape, to make the part equally as important as the live piano. This tendency seems to contradict early recordings of the piece, including the world premiere, a recording of which is preserved in Salzburg in Jürg Stenzl's Luigi Nono Archiv, where the tape plays the role of a soft background, a shadow of a shadow. Independent of this important question, a major feature of the piece is the correspondence between tape and live piano and the problem of synchronisation.

Luigi Nono, liberating the music from strict prefixed temporal grids (as he still did in *Como una ola de fuerza y luz*), creates for this piece an extremely flexible system based in eight "reference numbers for the tape" (see Nono 1977). If we consider that between these reference points there are time slots of up to two minutes it becomes clear that there is room for flexibility in terms of vertical coordination. This aspect is extremely relevant, since it creates the basic structure for a concrete multi-temporality where the "live" part (the piano) gains a new dimension—that of being able to generate real differential repetition from one performance to the next. Piano and tape, both built around the same sonic materials (pitches, rhythms, and timbre), enter a dialogue full of echoes and resonances and also of announcements and foreshadowings. That these relations should not be fixed permanently is a consequence of Nono's new orientation, both aesthetically and politically.

Almost four decades after the premiere of . . . . *sofferte onde serene* . . . this work is well established in the broad concert repertoire. However, the performances of many pianists do not reflect the profound component of multi-temporality that pervades this music. Moreover, the question of reconsidering the piece, of critically rethinking the unpredictability of sonic combinations for every new performance, remains widely unaddressed. The majority of the performers simply aim to reproduce Maurizio Pollini's timings following his recording for Deutsche Grammophon. Most critically, however, the issue around the original stereo tape remains unsolved, as the tape distributed with the commercialised score is monophonic. In this respect, my ongoing research project produced a replica of the original stereo tape. This replica of the tape—technically realised by João Rafael (Freiburg im Breisgau) under my direct supervision—can be heard, for academic purposes, at the Orpheus Institute, Ghent. It is the tape used for the recording of the piece that I made, which accompanies this chapter.<sup>3</sup>

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3 CD, track 10: Luigi Nono, . . . . *sofferte onde serene* . . . performed by Paulo de Assis.

Riferimento 1      ATTACCA 3<sup>a</sup> ca. DOPPO Rif. 1      3

$\text{♩} = 54 \text{ ca. rall.}$        $\text{♩} = 44 \text{ ca.}$        $\text{♩} = 72 \text{ ca. rall.}$        $\text{♩} = 54 \text{ ca.}$

Fl. 1.2  
Fl. 3.4  
Ob. 1.2  
Ob. 3.4  
Cl. 1.2  
C. Bsn. 1.2  
C. Bsn. 3.4  
Hn. 1.3  
Hn. 2.4  
Trp. 1.2  
Perc. 1. Xylophone  
Perc. 2. Tubular Bells  
Perc. 3.  
Hrp.  
Vin. 1. Solo  
Vins. gli altri  
Via. 1. Sola  
Vias. le altre  
Vc. 1. Solo  
Vcs. gli altri  
D.B.

Riferimento 1      ATTACCA 3<sup>a</sup> ca. DOPPO Rif. 1      3

$\text{♩} = 54 \text{ ca. rall.}$        $\text{♩} = 44 \text{ ca.}$        $\text{♩} = 72 \text{ ca. rall.}$        $\text{♩} = 54 \text{ ca.}$

Fig. 2



ORCHESTRAL EXPANSION

After dozens of performances of . . . . *sofferte onde serene* . . . as a pianist (between 1995 and 2012), after a doctoral thesis on it (1999–2003), and after the realisation of a critical edition of its score (2009, supported by the Orpheus Institute, Ghent), I decided to revisit this work from a completely new angle, making an orchestration both of the piano part and of the tape. To further explore and develop specific practices of multi-temporality, two completely different scores were written down: one for the orchestra (onstage) playing what had been the piano part, the other for three groups (positioned around the audience) performing on acoustic instruments what had originally been the magnetic tape (see figs. 2–3). The two conductors—reading two completely different and partially independent scores—have to develop the sense of a chamber-music-oriented performance while conducting more than sixty musicians. The focus is thus placed on the *collaborative creative performance*. Every rehearsal and every concert rendering will be concretely different, while retaining the basic musical structure. Beyond the flexible coordination of temporalities established by the two conductors, the individual orchestral musicians have certain degrees of freedom, especially in the many notated suspensions—spots where their creativity is “locally” demanded. In such moments, the conductor stops conducting for a moment and gives space to the individuals.

Another crucial element of the original composition concerns the spatialisation of the tape projection. According to the evidence from the sketches and from the LP produced by Deutsche Grammophon (with Maurizio Pollini), Nono composed a stereophonic tape with some sections in mono. Sections 1, 4, and 5 were (partially) in stereo, whereas the central sections, 2 and 3, were in mono. This means that the return of the sound materials from section 1 in section 4 (which functions as a “reprise”) coincided also with a reopening of the acoustic horizon—from monophony to stereophony. This aspect is currently lost, given that the existing tape is completely monophonic. In my orchestration, I bring it back to life: sections 1 and 4 are played by the two external groups (Left and Right), while the centrally positioned group plays sections 2 and 3. For the last section all groups play together. Table 2 summarises this aspect:

	Bars in the score	Original tape	Orchestral groups
1.	1–25	Stereo	Left & Right
2.	26–49	Mono	Front
3.	50–101	Mono	Front
4.	102–37	Stereo	Left & Right
5.	138–55	Stereo	All

Table 2

This orchestration of . . . . *sofferte onde serene* . . . was commissioned by the WDR Cologne and premiered on 9 November 2012 at the Kölner Philharmonie with the WDR Sinfonieorchester Köln, conducted by Peter Rundel and Léo Warynski. During the rehearsals several possibilities for vertical coordination between the two musical entities (the orchestra onstage and the groups in the space) were tried, explored, and worked out. For all the musicians involved in the project this seemed to be an innovative exploration of different temporalities running parallel to one another but coinciding in basic structural points. By reworking a composition that resulted from a collaborative creative practice and that enacted multi-temporalities through the articulation “piano–tape,” this orchestration suggests new modes of presenting and performing multi-temporal music pieces: works with multiple, independent, smoothly-varying tempi. In addition to the technical challenges, one must find common musical ground on which the different performers may meet despite their lack of a unifying tempo. These concrete artistic investigations—where the practice of art functions as a research tool—may lead to new kinds of collaborative *creative* practices and to extended collaborative *performing* practices.

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For the long-lasting study of the music of Luigi Nono and for their generous insights in Nono’s creative thinking I wish to warmly thank Nuria Schoenberg Nono (Foundation Archivio Luigi Nono), André Richard (Experimental Studio of the SWR Freiburg), Jürg Stenzl (University of Salzburg), Wolfgang Motz (Musikhochschule Freiburg) and Erika Schaller (Foundation Archivio Luigi Nono). For his support in the making of the Critical Edition I am thankful to Peter Dejans (Orpheus Institute, Ghent). For their active engagement and support towards the performance of the orchestral version I am sincerely thankful to Peter Rundel, Harry Vogt (WDR), Helmut Lachenmann, and Giovanni Morelli (to whom my orchestration is posthumously dedicated).

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# On Kagel's Experimental Sound Producers

## An Illustrated Interview with a Historical Performer

Luk Vaes

Research Fellow, Orpheus Institute, Ghent

From 1968 to 1970, Mauricio Kagel worked on *Acustica*, “for experimental sound producers and loudspeakers.” In the introduction to the score, he defines the term “experimental sound producers” by describing the attitude needed by the performers who will play them: “The casting of the piece calls for unorthodox musicians who are prepared to extend the frontiers of their craft” (Kagel 1970, 129). This concept is especially interesting in the light of how the composition was “made.” Kagel did not compose it himself in the strict sense, but rather did so through a particular type of collaborative process with musicians. The sound producers were experimented with in the warehouse that Kagel had shared with members of his Cologne Ensemble for New Music since the mid-1960s. The composer would typically observe musicians such as Christoph Caskel, Wilhelm Bruck, and Theodor Ross as they explored the potential of his ideas, take notes of these often extensive sessions, and then decide on the best way(s) to make music with this or that object, as well as on how and what to notate.

For music that Kagel made on the basis of such collaborative processes, the word “composition” is best understood through the literal meaning that Kagel himself expressed a liking for, namely “put together.”<sup>1</sup> The score of *Acustica* is no more than a catalogue of actions, the choice and structuring of which is left to performers. The often inconclusive way that the actions themselves are notated further shows that Kagel offers the performers materials that require further experimentation. But, however meticulously the performance prac-

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<sup>1</sup> “I consider myself as a composer who takes the word ‘componere’ seriously, namely ‘to put together.’ When one has learnt that, one can use sounding and non-sounding materials. You can compose with actors, cups, buses and oboes, and finally also put together films” (quoted in Kirnbauer 2009, 15, my translation; Ich betrachte mich als Komponist, der das Wort “componere” Ernst nimmt, also, “zusammensetzen.” Wenn man das gelernt hat, kann man klingende und nicht-klingende Materialien benutzen. Sie können mit Schauspielern, mit Tassen, Omnibussen und Oboen komponieren und schließlich auch Filme zusammensetzen).

tice is notated in the score, present-day musicians are quickly confronted with questions regarding how exactly to push their artistic boundaries.

Since Kagel's concept of experimental sound producers was worked out on the basis of personal experimentation that took place almost half a century ago, the key to understanding the performance practice of this type of music-making lies in the experiences of the original musicians. As one of the original performers of *Acustica* and many other works by Kagel, Theodor Ross was happy to elaborate on the performance of experimental sound producers in *Acustica*.<sup>2</sup> The interview is accompanied by a video montage of a workshop on performing *Acustica* that he gave during the Orpheus Research Festival in October 2012, accessible online.<sup>3</sup>

LUK VAES. I want to ask about the idea of "Modell" in the score of *Acustica*. There are actions that are described precisely, that have to be played exactly as notated, and actions that serve as a model. How was it decided that an action is to be performed exactly or as a model?

THEODOR ROSS. Certainly, the concept was that he tried to notate a temporal course of events that is self-sufficient. When, for instance, he makes a model like this [figure 1], he merely describes something.

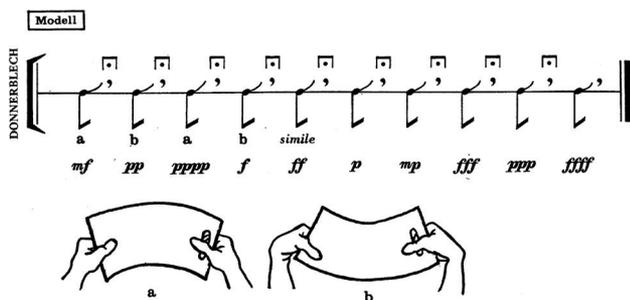


Fig. 1

After each "bluii," there should be a small fermata; one sees a relative regularity but nevertheless slight differences, and the impulse with which one does this should continuously change. *Mezzo forte*, *pianissimo*, *pianississimo*, *forte*, "boaf,"

<sup>2</sup> The interview was conducted at Ross's home on 29 August 2012 and translated from German to English by Luk Vaes in collaboration with Ross.

<sup>3</sup> Video illustrations for this article are accessible online at <http://www.orpheusinstituut.be/en/anthology-repository>.

ah, still louder, “blaff” . . . But where does the musical power lie? The musician that tries to play this—in earnest, away from the score—must achieve a different attitude. The complete body has to express this, while he only has “blaff.” And the resulting sound has nothing to do with it: he can make a *mezzo forte* that comes out as *forte* or as *fortissimo*. Or he will try a *fortissimo* that comes out as *mezzo piano*. Nevertheless, there is a shape, because as a musician he follows a concrete task. And that is where the tension is. So, now he can perform this: it is his job, he’s been trained for it, he knows how to do it and can count on this ability. And when he plays this, this tool in this adequate form, so that it can sound and that he can operate it, then nothing else is to be demanded from him. But, in the moment that one of the other players makes a “chruï chruï bluii,” he can link to that, and, to do so, prolong a pause to now effectively put in a “bluii”—in that moment it immediately becomes music. It belongs to the idea of free interchange. But, there is a rather long series of these “bluiis,” and it could be that, when he stands there on stage, he can’t look at the notes. I got the idea during a performance, as I had not played the part before, to hold the sheet in front of my head. That way, I could play marvellously and still look at the score [*laughs*]. And then Kagel said, “That’s fun, we’ll always do it like that, from now on.” Just hold it in front of the head, then the sheet becomes the head, and so the head says “bluii, bluii.” And so the theatre starts.

VAES. How should such models be studied?

ROSS. You first have to realise it, and when you can do it, you can leave it. Because now you put what you have learnt in relation to all that is around you. And there, freedom starts. But not *before* you have done it, *after*. Because then you can handle it responsibly. Or you can then easily realise this pattern or a remembered form of it. In the moment that I remain alone with the thunder sheet, while a colleague has just decided “Oh, I’ll let him do a solo,” I return back to the model. This preformed, readily available tension can stand on its own. And what I then don’t know, because I don’t look for my colleague’s eyes wondering “What is he doing right now?,” is that he—I don’t know—has taken some instrument and just thinks “This is exciting, I actually don’t really have to do anything else right now, I’ll stay like this, I’ll remain here . . . his solo still works, it still contributes” . . . “Platsch!,” he decides to make a sound. So, at some time, while one is playing this, there is of course another tension that was prepared and built up somewhere else on the stage, which emerges to kick in suddenly. Then it really becomes fun, because one can deal with this so freely.

VAES. But why, in such a chamber-music situation, are not all actions models? Why are some actions precise?

ROSS. There are smaller musical elements that relate to what is on the tape. So, for instance, you have this toy trombone passage—“Didadaadaa, Diedadaaa, Daadadaa, ohhh” [see Kagel 1970, 44]. A very similar thing is sung by [William] Pearson<sup>4</sup> on the tape. And I know beforehand when that appears on the tape, and so I will play it either four minutes afterward or one and a half

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<sup>4</sup> William Pearson (1934–95) was an American baritone who lived and worked in Cologne. His repertoire ranged from Bach to the avant-garde, including works written for him by Ligeti, Busotti, and Schnebel.

minutes before, or start it in such a way that he suddenly continues together with me [*laughs*]. Of course, one has to have heard the tape, more than once, even. But even when you have not listened to the tape, or when you come into the situation—and even after twenty concerts, you can still end up there—where you are so far into the tape, which is over one hour long, that, suddenly, a passage appears that you haven't heard in three years, you can nevertheless deal with it. It is a basic form of making music, based on the possibilities offered by the concrete situation. Imagine that, here, an old clock ticks, and, there, seven people walk by. And suddenly, you think “why am I so fascinated by that guy, now? I mean, I see seven people over there, all walking, why do I focus on him?” Suddenly you notice: because he is coincidentally synchronous with the clock. That's where the tension of the passage comes from: it has nothing to do with him—anyone else would have done it too, as long as he was synchronous. This form of contingency, of things that just happen, of course takes place when three, four, five people are on stage. And this reference is wonderful, and you can make great music with it. One operates the tape, another has been playing the rods [see figure 2]—“plong, plong, plong”—then he takes another rod, throws it in the box, and the tape does “bschbschsbsch.” And he throws one straight in there—bull's eye, great! He takes the next one, bull's eye, wonderful! When he takes the next one, at the moment when it hits the box, the tape is quiet. He throws . . . “klack,” the tape is there again, but now two degrees louder . . . Or the tape stops, only the once, when he misses. Mostly it is so that I could always make a straight hit, but I liked to miss once or twice, because people love a miss, no? [*Laughs*.]

In the score it says to put the impact box at a one-and-a-half- to two-and-a-half-metre distance. During performances it was of course always more: up to six

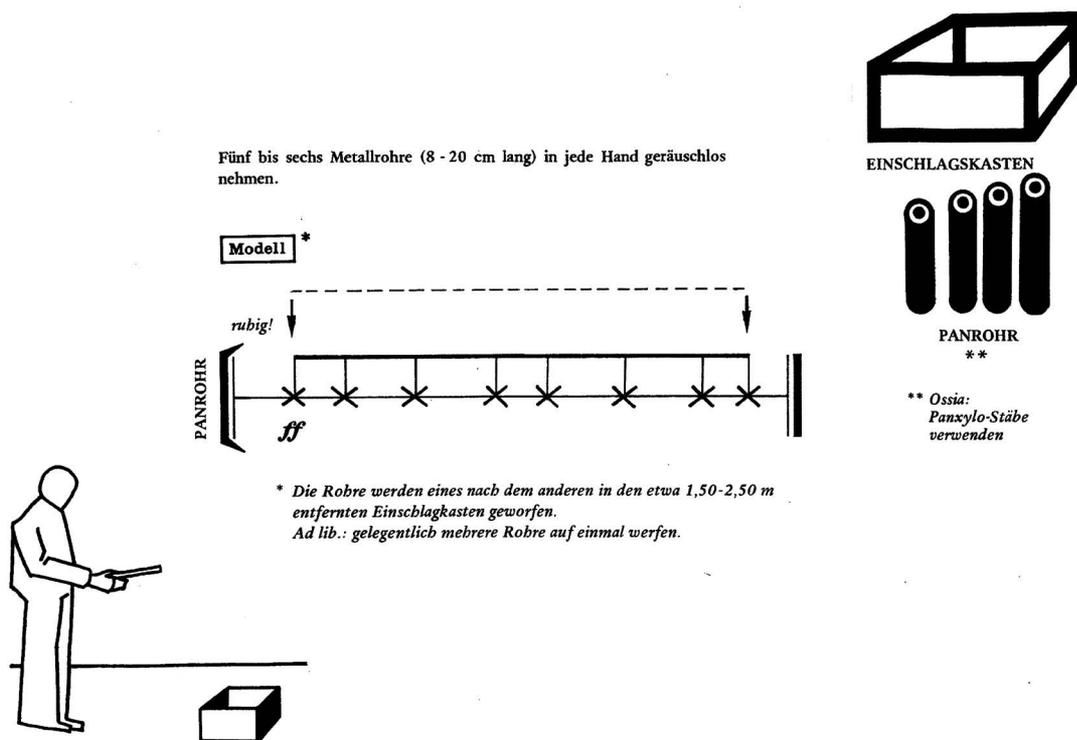
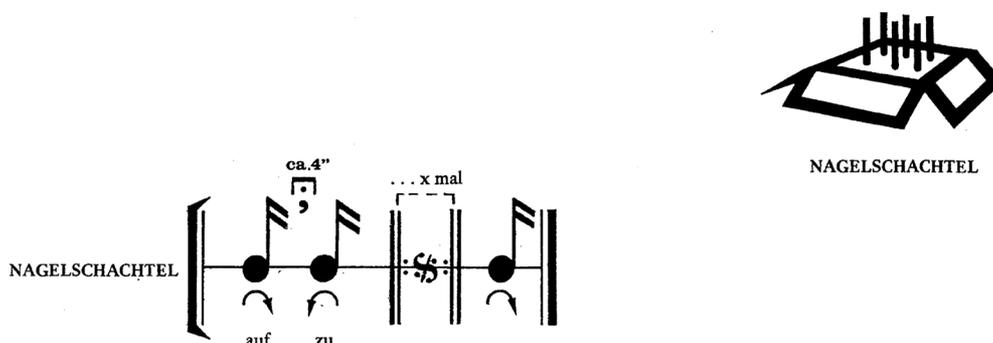


Fig. 2

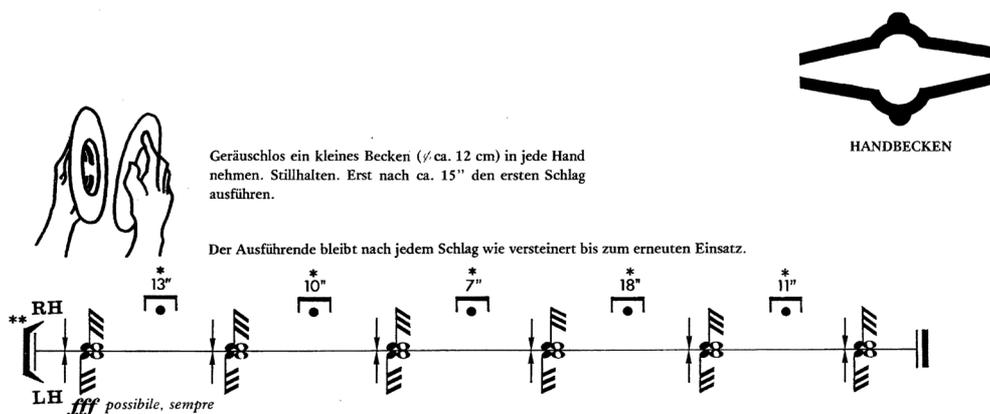
metres, depending on the size of the stage [laughs], because it simply enhances the tension. And Kagel said, "Naturally, as much as there is space, and as much as is fun." But, as simple as the process of aiming and hitting seems, a lot can go wrong in just those simple actions. For instance, when the stick hits the rim of the box, it ricochets off and ends up outside the box. And you have to accept that.

Christoph was a master at it, with his small hand-cymbals on the table [see figure 3]. When someone made something really elegiac, minutes on end, for instance, Christoph was good at waiting for the right moment. Sometimes it took a while, but then, somewhere a simple "klack" comes, and then one does "bloab," the nail box falls open [see figure 4], and the scene ends. That means that someone has decided otherwise.



Die Nagelschachtel wird mit manischer Gleichmäßigkeit geöffnet und geschlossen (einige rhythmische Ausnahmen sind erwünscht). Der Ausführende hält drei Seiten der Schachtel fest und lässt am Ende der Aktion diese Seiten fallen.

Fig. 3



Geräuschos ein kleines Becken (1/2 ca. 12 cm) in jede Hand nehmen. Stillhalten. Erst nach ca. 15" den ersten Schlag ausführen.

Der Ausführende bleibt nach jedem Schlag wie versteinert bis zum erneuten Einsatz.

\* *Mindestdauer der Fermate*

\*\* *Die Anschläge der Becken stets abrupt ausführen:*

1. *lapidar zusammen;*
2. *auf den Tisch;*
3. *unterhalb der Tischplatte;*
4. *das eine Becken auf dem Tisch, das andere unterhalb der Tischplatte anschlagen.*

Fig. 4

For the audience it is completely unclear: “Has he played all the time, waiting until the other one plays?” No, that just happened. And when it does, it has this immediacy, as with humour, right? Humour cannot be enforced: it has to come immediately, so that it has this tension that makes it enjoyable. When one plans it and makes notes, “then you do like this, and when I am there, then . . .”—painful! Right away, it becomes bad new music, because, together with it, you also get the reflection on the way it works. Straight away, this type of composition falls apart. That the performances with larger groups always soon stopped occurring has to do with the fact that there were then always two or three people that brought way too many soloistic vanities into the piece. Too great a challenge for minds that are a little too small. Because it is a big challenge, really, to just stand up and say: “It is possible, in a piece of twenty-five minutes, that a passage comes where I stop playing, and for twelve or fifteen minutes there is no passage where it makes sense that I play. And so, that is what I must do, that is what I have to endorse.” It is the inner freedom to deal with that and not need it at all. Christoph may be waiting for the moment when you make a big accent, and you may never make that. You need a theatrical consciousness to jump in with an action that can be meaningful. You can try and plan, “So, we’ll let those three play with the stop watches until then and then and then, and these, here, play together for fifteen minutes, and you shall each pause for five minutes.” But if you succeed in making a pause of thirty *seconds*, then you had a good rehearsal [*laughs*]. It is incredibly difficult simply to let go, to let it happen, and not to have the feeling “I do too little” or “what am I doing here?” It takes an unbelievable amount of work, listening and observing. One does not get the idea that one plays a part, because one constantly hears the sum.

VAES. In the introduction, it says that the actions are “half-scenic.” What did he mean by that?

◀(R)▶ rechte Hand spreizen – Daumen rechts, Mittelfinger links des offenen Mundes.  
Tremoloartiges Anschlagen beider Finger auf die Backen; währenddessen vokalähnliche  
Mundbewegungen ausführen.

Daumen

♩ = MM 69

BACKENTROMMEL

BACKENTROMMEL

2/8

*p*

*molto rubato: rall. (molto) → acc. (molto)*

circa 18"

simile

(Mundeinstellungen)

Wiederholung: mindestens 4 mal

nur mit rechtem Mittelfinger anschlagen

1 2 3 4 5 6

BACKENTROMMEL

*p sempre* nur mit linkem Mittelfinger anschlagen

simile (langsame Veränderungen der Mundhöhle)

abrupt aufhören!  
Stillhalten.

Fig. 5

ROSS. "Half-scenic" means that there is a scenic dimension, but that the scenic never really dominates. It's not about an actor who feels good and says "huoi" [laughs]. Then you have what I once saw, when seven, eight musicians were on stage, each thinking of themselves as the greatest musical clown of all times. And it was awful, such a mess! [Laughs.] It really had nothing to do with the original idea anymore. When a performer feels good with the cheek-drum and believes that he must perform a nice passage, and that he has to look good, and that he should show what he can do, without realising what is in the score, then it turns into an utter failure.

There is music to be made! There is no musician who, when he doesn't have anything to do, can just put his instrument down. Just as if: "I don't need this pen anymore, I now put it there." It just doesn't work that way. Rather: "I have had this object, I have made 'pff' with it, or 'pip' or 'plip,' and now it is over. And even the moment when I stop handling it must certainly be scenic musically." Not just, "I now stop, because I have been through my model, and here I must . . ." That doesn't work, just doesn't work. "Zack," now an accent sounds, or nothing happens, doesn't matter, but the decision comes and after that you either get the next instrument or freeze. But this is hard, because a musician is not taught this.

VAES. How realistic, then, are the "fifty-six" pages, where the whole group is supposed to play? [See figure 6.]

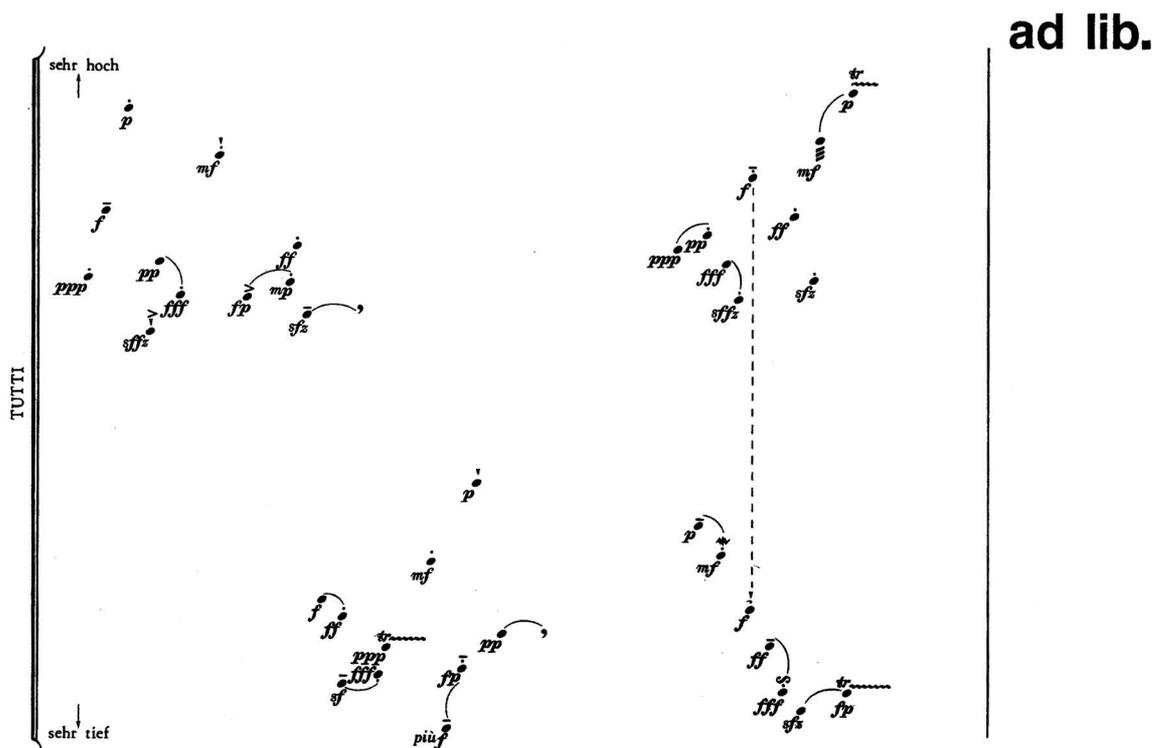


Fig. 6

ROSS. Well, we stopped doing that. I had a really tough discussion with him about it.

VAES. Was it not really meant to be played, then?

ROSS. No, no, it was just that, on the one hand he was very consistent and meticulous, on the other hand also scared. Here you have this man who writes these things and lets the WDR<sup>5</sup> make the sound producers that he invented. On paper, he indicates very precise particulars—shapes, measurements, materials, etc.—though he doesn't really care, only that it sounds, but he has to give the makers the type of information that they need in order to know what to build. There's the danger that the size of a sound producer is based on the shape of his hands, even though he is not going to be the one playing it—the final object may be awkward for me to handle; the whole production is costly and scheduled to happen in the next two weeks. And then comes the moment, “so, what if they can't do it, those six people? They have never done a concert together. What if we now rehearse for three days and I see that the whole concept doesn't work. What do I do then?” The tape alone will not make do, right? The “fifty-six” pages are more a matter of insurance. A composed insurance, like with these optically complex things such as the conveyor belt that carries an instrument from one player to another—the communication between musicians, so to speak [see figure 7]. But what if it falls off, at the end of the belt, which also is funny in a way. We don't use that anymore. It was another additional idea, which was without a doubt necessary in the first performances, but which quickly became something along the line of “OK, but then we can just as well build a big machine.” Or have sixteen technicians working alongside the musicians. It didn't make sense anymore.

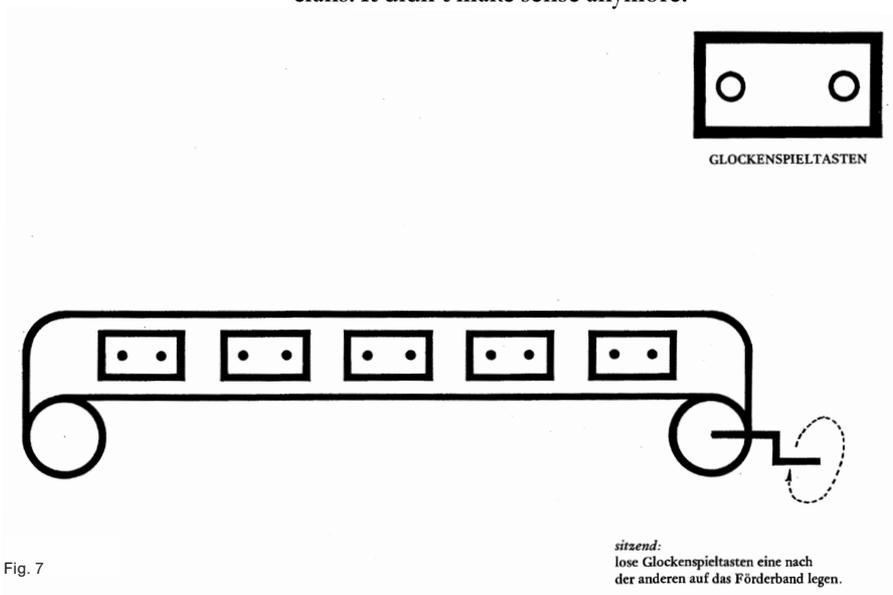


Fig. 7

<sup>5</sup> The WDR (Westdeutschen Runfunk—West-German Radio), with its headquarters in Cologne, commissioned *Acustica*.

VAES. You were critical of such things?

ROSS. Yes. This part [the “fifty-six” pages], which is in fact a somewhat more precisely composed *Prima Vista*,<sup>6</sup> corrupts the idea.

VAES. And the trust in the musicians?

ROSS. The trust in the musicians, yes! Well, he always repeated “yes, but,” “but,” “but still, there can be situations . . .” That was the thing: there can be situations in which it does make sense to do that. I mean, for him, it was a question of having control. Like Stockhausen, controlling the tape and the instrumental amplification from among the audience, so that when something goes awry he can quickly intervene to reshape the whole and reconsider how to go on. The idea of security, so to speak. So we did it once, but at the next concert he left it out. From then on, it was decided and there was no more discussion. It was clear that this didn't belong. Because it was simply stronger when there is trust. And we made absolutely no arrangements: no one knew who'd start, no one knew who'd stop, no one knew how long it would last. Nothing! We came on stage, stood at our tables, and either started or didn't start, and then the thing ran its course. There were no bad performances. There were many very good ones, some good ones, but no bad ones. Really not. Because it was so perfect as a concept. There is no one on stage who can afford to let his personal position gain weight and take effect. The tasks are so easy to master that they can be realised in almost any situation. As long as you can maintain this formal tension. That is the real difficulty. And this goes far beyond the little things that go wrong. It is this carrying of the development as an ensemble, the playing of this development, and then saying “Here we are at the end.” We were almost always together at the end. Or it happened, as a sort of coda, when a misunderstanding came up—very fascinating!—like three of us suddenly thinking “yes, this is an ideal ending, this is it,” and the end is there, but just then Kagel or someone else makes a very thin, small “bsschschschs.” “Ah, it goes on, now. Let's see. Is this the Appendix that makes the end? That would be nice too. But now it is already too long for it to be that way. Now we must add a little something,” “btumbambum” [*laughs*], and then it goes on. And then, suddenly, the end is there, after all. There is no failing. There are only different offers that come from two, three, or four different people. One has to be clear: there are no mistakes that one can make, except not making music. As far as such details go, Kagel couldn't care less: it was unimportant to him if one had messed up in the trombone bit and the fourth tone was the wrong one or hadn't sounded—that was of no interest to him at all. The crucial thing is, how do I deal with it in the situation, and how does it proceed now? The qualities of the material remain. That you can't break. Like in Bach: you cannot ruin it. You can play badly, sure, but the material is there and it is reliable. That has always been fascinating and is still great fun today.

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<sup>6</sup> *Prima Vista*, for slides, at least four performers, and an undetermined number of sound sources (composed 1962/64, first performed in 1969), calls for musicians to interpret projections of score sheets that feature indications of the number of sound events, their dynamics (specific levels, such as *p*, *fff*, etc., and changes between levels), and manner of articulation.

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# Composing as a Way of Doing Philosophy

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Between 2005 and 2009, I devised strategies for creating new musical works by investigating the conventions and practices of classical music in relation to wider themes in philosophy. Accordingly, these musical works were rooted in a process of thinking about music as an activity, situated in a particular culture, rather than direct experimentation with sound itself. I was interested in seeing whether the act of composing could be reframed as a way of understanding what it is we do when we “do” music and how musical experiences affect and help us as we move through our daily lives.

This article comprises an account of two processes of thought concerning classical music and its conventions that led to the creation of new work. There are two, core statements on issues in the philosophy of music. These are interlaced with italicised statements on particular works, which are offered as dialectical responses to the core statements.

## CONCERTS AND WORKS

Stan Godlovitch’s (1998, 11) model of musical performance includes “four primary constituents of the musical sphere.” He writes, “any standard performance consists of sounds made by some musician instancing some musical work for some listener.” It relies on a common method of notation being shared by composer and performer (excepting any “special” notations peculiar to a particular work and defined accordingly). If a composer uses such notation in giving form to a musical idea as a work, then there is the possibility that future performances of that work may be given by any musician who understands that notation and has sufficient mastery over a particular sound-making technology (a violin, for example). This model has had wide application since the late eighteenth century.<sup>1</sup> Essentially, it may be recognised by a division of labour: a “gap” between composing and performing, between conceiving and delivering.

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<sup>1</sup> For an account of the rise of the professional musician in the early nineteenth century, particularly the development of the performing musician as interpreter of precomposed works in the late 1830s, see Rink (2002).

The classical concert environment therefore provides a location for the contemplation of a musical work that is guaranteed by a fixed and stable musical notation. The nature of the aesthetic experience enjoyed by a listener who is prepared to contemplate what they hear is—following Kant—distinguished from rational thinking and the practicalities of everyday life. Such musical experience permits what Kant ([1911] 1952, 179) called “aesthetic ideas” or representations of the imagination, which it puts into flight. And in giving rise to aesthetic experience, it allows us to think without concepts in a way that is ineffable, that cannot be uttered as language. In doing this, it affords “entertainment where experience proves too commonplace” (ibid., 176). This discursive contemplation of musical patterning is at the root of the classical concert tradition: the composer thinks, the performer acts, and what the latter does becomes the referent of the former’s ingenuity, as designator of text. Finally, a tertiary entity—the audience—is listening, attending to the reified idea as sounding object. The concert, then, is an environment for the Kantian notion of disinterested contemplation or the invocation of a “free play” of the imagination. Intellectual activity turns “inward,” towards the configurations and patterns of sound.

My creative practice is rooted in this tradition. But the works that I created between 2005 and 2009 explore and challenge some of its key conventions. For example, *An Audience with the Trees* (2005) makes a parody of a pre-existing notated concert work of mine by turning it into “birdsong.” Furthermore, in *The Bravery of Women* (2006), *Five Actions for a Violinist* (2006), and, more recently, *As I Have Now Memory* (2008), I was particularly interested in challenging the “currency” status of the musical composition. By “currency,” I refer to the open availability of a work for performance by any performer in the context of a concert. Abstractly, works of this status follow a paradigm that might be written: “[title-identity] for [instrument-technology/voice].” The transitivity of “for” (the sense in which [title-identity] passes over to and affects the [instrument-technology/voice]) suggests that where a particular instrument-technology is required for its delivery, a particular performer is not. The possibility of a necessary relation between the circumstances of the work’s creation and the idiosyncrasies of any particular performer’s practice is not asserted. And so the work makes its first presentation to the performer’s sense of sight, in the capacity of notation.

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Vivaldi’s *Menagerie* (2003) / *An Audience with the Trees* (2005)

*In 2003, I was commissioned by the Orchestra of St John’s, London, to write a violin concerto. My response, Vivaldi’s Menagerie (2003), addresses the factitious representations of natural sounds in Vivaldi’s Four Seasons by reworking notated material from “L’Estate” (“Summer”) and “La Primavera” (“Spring”). As mandates for future performance, the musical scores of the Four Seasons set people (with their stringed technologies) the aspirational task of becoming other than they are. They give performative instructions for the control of wooden-mechanical*

*constructions in order that they might summon the presence of birds, generate bolts of lightning, and turn our hearts towards weeping shepherds.*

*The Four Seasons propose the transfiguration of anthrophonic sounds of stringed instruments into biophonic and geophonic effectuations. The technological achievement represented by the mechanics of a seventeenth-century violin aspires to (re)create nature itself. But why should a composer wish to make a violinist sound like a bird? Or is Vivaldi suggesting, with the famous trills that open “La Primavera,” that the sounds of nature are imitations of the idiosyncratic sounds of stringed instruments? Notwithstanding the confusion, Vivaldi’s Menagerie does not aspire to replicate the natural world. Rather, it aspires to replicate the work of the human world of fine art—namely, the Four Seasons.*

*In 2005, I made a sound installation for a woodland environment, An Audience with the Trees, that is simply an electronic “performance” of the notated score of Vivaldi’s Menagerie. An Audience with the Trees was originally designed to be installed across two areas of Addison’s Walk, a wooded forest path in the gardens of Magdalen College, Oxford. At two discrete locations along Addison’s Walk there are two tree trunks in the shape of a chair. At the first site, five bird boxes, each containing a loudspeaker, were affixed to five trees near to one of the tree-trunk chairs. Each speaker emitted the sound of a bird performing one of the lines from Vivaldi’s Menagerie. At the second site, a single bird box containing the bird performing the solo violin part was fixed to a tree near the second chair.*

*An Audience with the Trees makes a critique of the stationary act of sitting—in this case on a tree trunk—and listening to musical works. This act identifies the classical music concert, particularly its history of presenting works as objects for intellectual contemplation. Furthermore, the separation between soloist and ensemble expands a theme of ontological restitution: the solo bird-violin longs to return to unity (the proverbial nest/accompanying ensemble). Similarly, its individuation symbolises the task of An Audience with the Trees, which is to “return” the Four Seasons to nature and resolve its mimetic aspirations. The task is always foiled, though, as the Four Seasons has been mediated through Vivaldi’s Menagerie, which is not a biophonic thing of nature, but a musical work—a product of the human brain’s inclination to elaboration and development. The following quotation is from Plotinus, Enneads, V.8.1 (1991, 41):*

*Still the arts are not to be slighted on the ground that they create by imitation of natural objects; for, to begin with, these natural objects are themselves imitations.*

\* \* \*

#### THE SIGHT OF SOUNDING

Writing on “the austerity of the concert hall,” Harry Partch (1974, 53–4) quotes D. H. Lawrence on attitudes to painting, insofar as they reveal a fear of the procreative body: “In viewing paintings, he maintains, we ‘are only undergoing cerebral excitation . . . The deeper responses, down in the intuitive and instinctive body, are not touched.’” And quoting Lawrence on visual appreciation, Partch develops a connection between theology, epistemology, and the concert: “The history of our era is the nauseating and repulsive history of the crucifixion of the procreative body for the glorification of the spirit, the mental conscious-

ness” (Lawrence quoted in *ibid.*, 54).<sup>2</sup> Within the traditions of classical music, the act of perceiving musical experience has developed into one that has at its root the exclusion of elements of visibility.<sup>3</sup> “To take as music in all instances only what is heard,” writes Alan Durant (1984, 87), “is to abstract, and in that process inevitably idealise, an acoustic dimension of practices always and only realisable within definitions and limits of a given scenario.” This modern inclination to divorce visibility from aural experience has, like Wagner’s mystic gulf, helped propagate a mythology of music’s origin.<sup>4</sup> As music moved away from the reality of the sounding body, becoming an ideal world of the imagination, musical making became acting according to a scientific superego, a task of understanding linguistic-structural notations in a score, rather than conceiving formation through activity.

A compositional project that addresses bodily gestures of music making normally subsumed within very short frames of time returns to the fundamentals of aesthetic experience. With digital video, these figurative actions may be captured and investigated in relation to the totality of the sensory field, as they occur, in a location that is, to quote Roland Barthes (1977, 153), “not the concert hall, but the stage on which the musicians pass.” Video is able to illustrate the bodily expression-responses of the musical performer that are a consequence of prior musical action. The lens allows access to, as Walter Benjamin (1968, 746) put it, “an immense and unexpected field of action.” For Benjamin, “a different nature speaks to the camera than opens to the naked eye . . . Even if one has a general knowledge of the way people walk, one knows nothing of a person’s posture during the fractional second of a stride” (*ibid.*). Furthermore, in commenting on Benjamin’s theory of mechanical art and writing on “the micro-mechanics of meaning,” Noël Carroll (1998, 123) cites the cinema as “training the audience by means of close-ups to be attentive to meaning of small, putatively ‘unconscious’ movements, like agitated fingers.”

The sight of sounding moves towards an epistemological account of music as embodied action that has been forestalled by an emphasis on a notational means of preserving (and reflecting upon) the production of sound. Video is a tool that underlines the significance of seeing in the perception of musical experience and gives access to peculiarities of musico-performative gestures—the subconscious bodily responses enacted as a result of pre-composed compositional ideas. It allows us “to pay attention to the small movements—the slips and gestures that make up the psychopathology of everyday life” (*ibid.*). Effectively, to understand music visually is to reinforce Merleau-Ponty’s thesis that our fundamental contact with the world is pre-reflective. Non-notational appreciation of music as experience echoes aspects of his critique of philosophy

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2 Parth gives an account of the elision of music as a corporeal expression with reference to Christian theology in the same volume (1974, 14–20).

3 See Durant (1984, 86) for a historical overview of the role played by the eye in perceiving musical performance.

4 Durant (1984, 94) evaluates Wagner’s half-covered orchestra pit as contributing to the restoration of “the formerly theological mystery of musical revelation, which becomes subsequently, however, exactly artistic vision.”

insofar as it has ignored “the *experience* of rationality,” which is the way in which thought arises from “the pre-predicative life of consciousness” (Merleau-Ponty 1962, xv).

The visibility of musical performance makes an article of biographical disclosure. It relates to the emergence of the subject who *performed*, showing that subject’s physical encounters in the world of things. The use of video as a technology of contemporary composition arguably continues “the transformation of arts into meta-arts or media” that Susan Sontag (1977, 149) identified in “the tape-based projects of composers like Cage, Stockhausen and Reich,” stating that they offered “logical extensions of the model established by photography.” Video makes it possible to examine the diversity of gestures a person brings into being when making a musical experience, the traces of which are patterns of sound. It illuminates the introversion of individuated, genre-specific musical practice, creating new ambitions for transdisciplinary artistic endeavours and a new sense of unity between formerly discrete kinds of art. Like photography, it challenges the role of the creator-specialist by refusing to place restrictions on our participation in aesthetic pleasure (see *ibid.*, 7). And so it issues a challenge to a musical culture entwined in notational encoding that can only be unscrambled by those who embody the training.

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The Bravery of Women (2006) / Five Actions for a Violinist (2006)

*According to Egyptian legend, Typhon divided the body of his brother, Osiris, into fourteen pieces and scattered them across Egypt. Osiris’s wife, Isis, set out to gather the pieces of the body and put them together again in order to become pregnant. In 2006, I made a transdisciplinary performance-piece, The Bravery of Women, for a violinist, Monica Germino, that uses the legend of Isis and Osiris as a metaphor for the process of rehearsing and performing a musical work. In The Bravery of Women, the violinist reassembles fragmented phrases from a Bach sonata. Just as Isis rebuilt the human form, so the violinist rebuilds a musical work.*

*During the early stages of composing The Bravery of Women, I wrote a series of five text-scores, Five Actions for a Violinist. Monica Germino gave a staged performance of these scores, which I recorded on a digital camera as hundreds of still images. The process of rebuilding the performance by aligning the non-contiguous still images on a computer opened access to a wider “field” of musical action. For if we think about music in terms of physical action and sound as the consequence of that action, we may consider musical performance in relation to the experiences of our daily lives. Sounds may be understood as the result of paths traced in moving from one state of being to another, like the changing frames of a film reel. This reconstructed “performance” on film was subsequently integrated within a longer film that accompanies live performances of The Bravery of Women.*

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# Cycles of Experimentation and the Creative Process of Music Composition

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During a research project starting in 2011 with eight contemporary composers I was surprised by one of the composers who created his music in a linear way with a very low number of revisions, initial plans, or explorations. Although there are popular images of composers who rely on inspiration instead of labouring for expressive solutions, I do not know of any empirical study that describes a creative process with such a low amount of experimentation. Research into the creative process in music composition is a rather young discipline and the number of studies is limited. According to Sloboda in 1995 (Sloboda 2001) there are “still fewer than ten serious studies of the compositional process, involving in total, fewer than twenty composers.” Without doubt this number has grown in the past decade but not dramatically. Apparently, composing with a minimum of experimentation takes place but is not being studied frequently.

In this article I describe the creative process of the Belgian composer Frederik Neyrinck in composing *Aphorisme IX*, after clarifying the method of this study.<sup>1</sup> I focus on the low amount of experimentation and provide a tentative explanation. But a reflection on these results is necessary and I argue that the few, loose experiments in the creative process of this work are possibly connected to previous works and their processes. Thus, the starting question, Is there any experimentation in the creative process of *Aphorisme IX*? is to be replaced by the double question, Is there a meaningful chain of experiments during this process and how does it relate to the creative process of this one composition?

The meaning of the term experimentation in this article should be situated within the context of the creative process of music composition (CPMC), the process during which a composer is composing music and performs a range of mental and physical activities such as forming, realising, adapting, playing or evaluating ideas. A similar use of the term experimentation is found in Katz and Gardner (2012). I consider experimentation to be a dynamic and transformative process between mind and matter. It refers to searching for activities by the composer through which he or she tries to transform an idea or feeling into an

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<sup>1</sup> CD, track 9, is a recording of Neyrinck's *Aphorisme IX*.

expressive figure that can become a (part of a) composition. Experimentation has a double-sided nature: it implies a coming together of cognitive/emotive processes on the one hand and actions on the other. This has important implications for the research method used to study experimentation. An action that is unexpected is not necessarily an experiment; for example, it may have an external cause. A composer can change ideas during the creative process because he or she receives the news that the instrumentation has changed. Thus if one only relies on the data produced by these actions (sketches, score versions, . . .), one risks labelling changes or new elements as experimentation. On the other hand, if one only relies on what composers thought (and thus use verbal accounts or interviews), one risks labelling every new plan or idea as an experiment. Therefore this study builds upon a combination of different data and not just on one kind of data. This data-rich approach is also found in studies by Newman (2008), Donin and Theureau (2007), and Collins (2007).

Moreover, experimentation is not a stationary phenomenon: it changes constantly. This is evident if one looks at the action component of experimentation: the traces (sketches, scores, . . .) of these actions often change visibly during the CPMC. But what the composer thinks, imagines, and feels while composing also changes during the creative process. There are different theories on the CPMC (Bennett 1976, Sloboda 1985, Collins 2005) but the transformative relation between what is going on in the head of the composer and what he or she is doing is a common element. Thus, a researcher needs to be very conscious of time gaps between the traces of an action of an experiment and the reports on the cognitive-emotive component of the same experiment.

#### DESIGN OF THE STUDY

The study of the creative work of Neyrinck, then a twenty-seven-year-old composer from the Flanders region in Belgium, is part of a larger study of the creative process of a group of composers. In 2011 twenty-four composers were asked to produce a short composition for this study. Eight agreed to do so, Neyrinck among them. All the contacted composers were selected because they wrote contemporary-classical or experimental music and because they had substantial professional experience with composing music for acoustic instruments. Between November 2011 and July 2012 the eight composers were interviewed, for the first time before the performance of the short compositions (the “pre-interview”) and the second time after the first performance (the “post-interview”). The study took place in a naturalistic setting: the composer could compose at home or anywhere he or she wished, and could do this in the manner of their own preference. The only unusual element for a naturalistic setting was the requirement included in the commission that the work engages with the subject of polyphony.<sup>2</sup> In the field of Belgian contemporary classical music commissions almost never prescribe musical features or problems: in this case, the task did.

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<sup>2</sup> Studying the CPMC of more than one composer was an important aim of this study and the task had the advantage of creating a common starting point to study the individual trajectories of the composers.

In this study a diverse range of data and traces were collected that shed a light on both the cognitive-emotive and the action-based components of experimentation without intruding into the creative process. Before the composers started composing, they were asked to archive their preparatory compositional material. When they finished the composition, the researcher assisted the composers to retrieve backup files (from notation software) with previous versions from their computer. Most of the correspondence between the researcher and the composer happened via email which also enabled easy storage of these messages.

Another source of information was the two interviews. These were semi-structured and contained a set of questions that was prepared in advance. The actual interview style was open, and there was room for additional questions during an individual interview. In general the pre-interview contained more fixed questions (on the creative process) and gave the sketches and other traces a memory recall function to help the composer remember the phases, decisions, and actions within this process. The post-interview had fewer prepared questions; it tackled issues that arose from the first interview and dealt more with the performance of the short composition. The post-interview also functioned as a verification session. The composer was asked to clarify some data and traces when these were unreadable, obscure or only contained partial information.

Because the creative process and experimentation are dynamic processes and composers and other artists forget previous stages of these processes (Bennett 1976, Lubart 1994), the pre-interview was done as soon as possible after the composer had notified the researcher that the composition was finished. This fast timing was intended to ensure that the creative process of that composition was still available in the memory of the composer. Neyrinck was interviewed by me twelve days after he had sent the first draft of the score (version A2, see below).<sup>3</sup> The data from his creative process consisted of one paper sketch, three digital versions in notation software, five emails, and two interviews.

#### EXPERIMENTATION IN THE CREATIVE PROCESS OF APHORISME IX BY FREDERIK NEYRINCK

To examine the experimentation in the creative phase of *Aphorisme IX*, three features were searched for in the data that capture both the “mind-matter” duality of experimentation and its dynamism. Two features indicate that experimentation can take place:

1. The number of stages and versions in the compositional process (based on the mapping of this process) and the differences between these stages
2. The references that the composer makes to new elements, searches, or experimentations

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<sup>3</sup> This is the same as one day after Neyrinck had sent me an edited score with a title page, remarks, and individual parts.

The third feature indicates the opposite, the absence of experimentation:

3. The references by the composer to the use of existing procedures and concepts

The separate features are not an argument for greater or less experimentation and its small or large impact because they can have other causes,<sup>4</sup> but the simultaneous presence of all three features is a strong indicator for experimentation. Thus, if I found a small number of versions with no big differences between them, not many new elements and the application of existing procedures in the compositional process, I conclude that not a lot of experimentation took place in the creative phase of this work.

The mapping of the compositional process is quite straightforward in the case of Neyrinck composing *Aphorisme IX*. The original idea was to compose a *lamento* because a close relative had died. There are no sketches of this first idea (A1) but the composer says that he played around with this idea on the piano.<sup>5</sup> Approximately two weeks later came the next version (A2), written down in a paper sketch. The original *lamento* idea (A1) had one slow tempo; version A2 has alternating fast and slow sections. The composer explains this change by describing the *lamento* idea as a bit too sentimental, and adds that a composition structure built on two alternating tempi would work better than relying on one. Asking explicitly in the interviews for more details about the *lamento* idea (A1) and for other ideas before A2, delivered no additional information.

The following version (A3), ten days later, is in fact not a real version, it contains almost no changes compared to A2; it is simply a digital copy of the previous one, transcribed into notation software. The next two versions were made three months later, after the first performance (and because a second performance was planned). Again they contain no fundamental changes but refinements, according to the scores and to what the composer says in the post-interview and in emails. The viola da gamba is substituted for the cello<sup>6</sup> but the part itself is left almost unchanged. To improve the resonating quality of the piano, some chords are thickened, transposed an octave higher, or their dynamic level is adjusted. In general the compositional process developed in a linear way with one important difference between the first and the second version.

The next feature in examining the experimentation is the statements by the composer on new elements and searches while composing *Aphorisme IX*. He mentions two elements that were new for him: the viola da gamba and the *pizzicato secco* in the piano part (on the strings inside the piano). But the newness of the baroque instrument did not have serious consequences while composing. Neyrinck himself mentions a previous composition for cello solo that served as a guideline to write for the viola da gamba and the versions A4 and A5

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4 The lack of versions could be caused by the loss of paper or digital sketches, statements by the composer on the newness of his work could be caused by the deliberate creation of an artistic self-image, etc.

5 Possibly one early paper sketch might have got lost. Neyrinck mentions this sketch in the pre-interview and immediately looked for them in his sketch book but without result. It is unclear if the sketch ever existed.

6 The cello was substituted for the viola da gamba because the trio that played in the second performance contained a cello and no gamba.

simply replace the gamba with the cello without any compositional changes. The pizzicato secco occurs twice during the work and clearly is a micro-structural event.

In the post-interview an instance of a searching activity by the composer is found. After the first rehearsal and performance he was dissatisfied with the effect of the piano resonances (obtained by holding silent keys down). These were too silent according to him and this was not unimportant because these soft sounds create continuity within the slow sections. The post-interview took place in the middle of rehearsals for a second performance of the work and the composer talks about attempts at home and in rehearsals to solve this problem (by playing the chords that trigger the resonance louder, by adding notes to these chords or by changing the number of silent keys).

In contrast to the low number of statements on new elements or searching activities, there are fifteen references in the two interviews where the composer says that he used an existing procedure, technique, or concept. Four of these statements are very general, for example: “since a few years I always use the same pitch organisation system.” Three others are a bit more specific because the composer uses a general description of his older works—for example, “in other works I have also used these piano resonances.” On eight occasions he makes a link between the current, short composition and a specific, older composition, of which he mentions the title or other characteristics. The items that he had previously used in other works are numerous and diverse. They consist of both micro- and macro-structural features such as:

- the use of tempo contrasts and tempo relations between sections to structure a composition
- the use of instrumentation to shape the different sections in a composition
- the creation of a sound texture in which the instruments blend together and the creation of small differences within this overall texture by individual sound events
- the technique of creating resonances (sympathetic strings) on the piano by holding down certain keys
- the specific way of composing for the flute (instrumentation)
- the pitch organisation (melodic and harmonic)
- the compositional practice of establishing a time scheme (with sections) at the beginning of the creative process

Moreover the composer also referred to his other works when talking about aspirations that he had while composing this work. He specifically mentioned his fascination with obtaining a brevity of expression (through writing short compositions) and the hope to find an original way of writing for the piano in contemporary music.

To summarise, our analysis has found many arguments that Neyrinck was reapplying many procedures that he had used in previous works and that the creative process of this work was linear with a minimum of searching activities deviating from this straight path. But there were two instances of experimentation (the version A1 and the attempts to solve the piano resonance problem).

In conclusion, while composing this work he was doing this with a low amount of experimentation.

But maybe Neyrinck conceived this composition as a technical exercise and therefore didn't spend a lot of time on searching and experimenting? As mentioned above, the commission to compose this work contained a specific musical task (on polyphony). But on two occasions in the interview Neyrinck clearly says that this composition wasn't just a technical task. Answering a question on the polyphonic task in the commission, he replied: "I didn't always think about these voices, I have mainly thought about the music, how can I create a nice piece, that is my main aim." Moreover, Neyrinck has chosen to have the work performed a second time, a strange practice if he considered it just an exercise.

Another objection against this analysis could state that the short duration of the composition explains why Neyrinck experimented less. Creating a one-minute work demands less effort than one that lasts ten or twenty minutes. However, the link between shortness and lack of experimentation is difficult to maintain because in the same study more and often contradicting ideas and versions could be traced with some of the other composers.<sup>7</sup> Also, for Neyrinck the short duration was not just a practical constraint of the commission, but an artistic challenge: he expressed this repeatedly in the two interviews. Thus one would expect a search to fully realise it while composing.

#### CROSS-BORDER EXPERIMENTATION

The explanation of the low level of experimentation could also be that Neyrinck relied on previously developed procedures that were either personally developed or externally available. The former seems more plausible than the latter, not only because in the interviews Neyrinck declares that he developed some of these techniques in previous works but also because existing handbooks on composition offer some procedures to compose, but not really a personal blend like the one that Neyrinck has developed.

But I believe that the view of the minimum of experimentation and on the experimentation itself in the creative process of Neyrinck is distorted by the design and framework of this study. As mentioned before, it is important to realise that the CPMC is a dynamic process in which both the ideas of the composer and the realisations change frequently. Initially ill-defined problems may be restructured radically or vague plans may become more focused. Within a dynamic process it is difficult to draw conclusions starting from one "frozen" instance. Studying one instance of experimentation separately may lead to absurd observations: the challenge is to find a meaningful grouping of experiments, a cycle of experiments. The cognitive/emotional processes that together with the actions give shape to the phenomenon of experimentation

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<sup>7</sup> This is true for the creative process of six of the eight composers studied. Except for Neyrinck there was one other composer whose creative process can be considered as linear, but this composer clearly stated that the short work he produced should be seen as a study, sketch, or unfinished composition and not as a finished work. He added that this study was made within a research project on polyphony and was different from his previous compositions.

change in time, thus it is also important to reflect upon the referential time one uses when linking an experimental action to a cognitive/emotional process. For example, a sketch of a composer reveals that he suddenly starts using an interior piano technique. Does this mean that this was a new element for the composer compared to what the composer was thinking or aspiring to at the start of this experiment, or at the start of a cycle of experiments, or at the start of the creative process of this particular composition? These considerations lead me to think that in the case of Neyrinck, with so little experimentation during the composition of this one work, I was missing the point. Where is the meaningful group of experiments in his case? This question forced me to look at the limitations of this study and in particular to move beyond the boundaries of studying the genesis of only *one* composition.

Neyrinck composed quite a lot in 2011, thirteen works according to his own list. A closer look at the titles of these works reveals something peculiar: many of them are part of a cycle of compositions. In 2011 eleven of thirteen compositions are part of series, with names such as *Samsa*, *Gestalt*, *Aphorismes*, and *Mischung*, and a number of works entitled *Echo*, which the composer describes as “derivatives” of other compositions (for example *Echo der Gestalt II*). Could it be that in Neyrinck’s case experimentations within the framework of a *series* of compositions should be studied? And that for example in certain works, or in between works of a series, the composer experiments more than during the composition of another work and then applies possible results in the next composition of this series? Studying the creative process of one work within a cycle of works might deliver only limited insight, comparable to studying only one week of creative activity of a composer who works for two months on a new composition. Donin (2012) has drawn attention to a peculiar phenomenon with regard to this compositional strategy of “cycle development”: “a cycle is often the result of compositional ideas stemming from a first piece that compel further elaboration.” He adds: “These are then included in the composer’s atelier as they are applied, over the course of the cycle, to successive pieces through replication, variation and designation, or even theorisation.” This implies that there can be big differences, from pure replications to new explorations, within the creative processes of the pieces within one cycle of compositions.

At this point Neyrinck was asked two questions via email: “What does a cycle of works mean to you?” and “Could you make this answer concrete by giving some explanation about the following two cycles: *Samsa* and *Aphorismes*?” Neyrinck answers that he likes to work with cycles or series of works because he finds it interesting to let a musical starting point clash with a specific instrumentation. He gives a short explanation of the musical starting points of the series *Mischung*, *Processus*, and *Gestalt* and continues with the *Aphorismes* series, of which the short work in this study is a part: “This is a study on ‘how do I write or how do I want to write for a piano?’ And because I didn’t see possibilities in writing a large work, I opted for the *Aphorismes*, in which different possibilities of resonances and layers of resonances are researched.” It is remarkable that he mentions the terms “study” and “researched” in this email, because he had used only a few instances of similar terms in the interviews (as mentioned

above) and in one of these cases he was talking precisely about the same resonances. This confirms that the meaningful cycle of experiments transcends this one short composition. However, to study this in detail, one would need to have sketches and in-time accounts of Neyrinck's creative process while he was composing his previous works, especially the other parts of the *Aphorismes* cycle. Unfortunately these data are not available.

To conclude, in the creative process of *Aphorisme IX* very little experimentation has been found, but just as this work is hard to describe as an "autonomous" composition its creative process is also not a separate entity. Both belong to a cycle, a larger and longer-lasting unit. Studying this creative process without connecting it to the creative process of the rest of the *Aphorismes* cycle is quite meaningless. We end up looking at seemingly separate, loose experiments without being able to describe the connection to the chain of experimentation that shaped the whole cycle (according to the composer). Deliège and Richelle (2006) have already written very briefly on this problem of timing in the study of the CPMC. In the introduction to the book *Musical Creativity*, they write: "One major methodological difficulty in the study of creative acts is the time dimension. Supposing adequate tools are available, when exactly shall we apply them? In other words, at what point in time does the sonnet begin in the poet's mind, or the symphony in the composer's brain? And how does the process develop in time? Is it continuous or discontinuous?" This study was based on a common design in naturalistic studies of the CPMC, namely following the creative process of one composition between the decision to start composing and the first performance, but it turned out that *Aphorisme IX* had a prehistory, a creative phase that took place before the composer decided to write this work and before he started composing this work in a fixed time-span of a few weeks. To find a meaningful entity within the broad category of creative acts of a composer, the notion of experimentation provided an important clue. Compared to general creative acts, which are often loose and accidental, experiments can contain development or form a meaningful whole, but they do not always lead linearly to an artistic product. In this way experimentation hovers in between general creative acts and the creative process of a composition. For the study of the genesis of compositions it is a future challenge to find a method that treats the start and end of the creative process as transparent boundaries and that is aware of how intertwined loose creative acts, cycles of experimentation, and the creative process may be.<sup>8</sup> Finding such a method would enable us to provide a more profound description and explanation of the minimal amount of experimentation in cases such as the composition of *Aphorisme IX*.

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8 To this a more speculative thought may be added: maybe the entanglement of loose creative acts, cycles of experimentation, and the creative process is not the only challenge. The process and product (the composition) of "cycle" composers such as Neyrinck may also be more interwoven. Some *Aphorismes* may not only function as a work within a cycle but also as a preparatory "sketch" or "draft" or "experiment" for the next *Aphorisme*.

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# Changing Sounds, Changing Meanings

## How Artistic Experimentation Opens Up the Field of Brahms Performance Practice

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As the tenets of the historically-informed performance (HIP) movement push ever farther into later repertoires, they have encountered those composers and musicians for whom we have sounding historical traces. Twenty years ago, Robert Philip (1992, 228) predicted that when modern reconstructions of “authentic” Elgar performances met Elgar as he was recorded, there would be “a collision between two worlds, a real world which no longer exists, and a reconstructed world which never wholly existed except in the imagination.” Those of us who may have smugly anticipated this cataclysm in the late piano music of Johannes Brahms have since witnessed a strange stalemate: despite a deep-seated belief in the historical validity of their performances, pianists are still reluctant to play in ways that come anywhere near those evidenced by the recordings of the Brahms circle of pianists.

On the surface, this gap seems to persist because mainstream pianists continue to believe in an unbroken performance tradition stretching back to Brahms’s day, viewing the late-Romantic stylistic devices evidenced by early recordings as remnants of that epoch’s yet unbridled sentimentalism and shoddy technique. Period pianists prefer to rely on malleable documentary sources such as treatises, ignoring what early recordings might teach us about the rational limits of historical recreationist practices in favour of non-sounding traces. Even “off the record” performers tend to selectively apply only those elements of recorded Brahms style that “do not challenge current notions of good taste or that do not take us out of our comfort zone” (Peres Da Costa 2012, 310).

In an attempt to acknowledge these gaps without exploring the deeper reasons behind them, many scholars assert that historicist performance ventures are generally desirable because they make us “sit up and listen” (*ibid.*, xxv) or,

as Bernard D. Sherman (2009) observes: “HIP Brahms is thriving more than I expected, because it continues to rekindle musicians’ passion for Brahms.” But perhaps HIP Brahms is popular *because* it is nothing like the period recordings: it fulfils some ethical duty to the composer and satisfies our appetite for hearing old music with new ears, without destabilising ideas about how Brahms “should” sound and signify in performance.

Our practical application of historical knowledge is indeed “informed”—not by all we know about how Brahms performed, but by a pervasive set of style rules that mediate how Brahms’s canonic identity should be communicated in performance. Philip’s prophesied collision of knowledge, ethics, and act has been sidestepped because any effort to bestow real historical authority on the playing styles encapsulated by the Brahms circle recordings would expose the historical invalidity of the very ideas that mediate our translation of historical evidence into “authentic” musical acts. According to our style rules, Brahms performances should be classically controlled and serious; however, the recordings of Brahms and his students are extroverted, agitated, and decidedly Romantic. Traditional approaches to this type of evidence are thus highly selective because according to our understanding of “authentic” Brahms style, the Brahms circle of pianists themselves would today be deemed historically-*uninformed* Brahms performers.

I therefore propose an open-ended approach, whereby recorded Brahms style at its most extreme is applied and encouraged to unravel these restrictive ideas. Far from advocating more historically-informed Brahms performances across the board, I hope to demonstrate how experimenting with everything we know about Brahms’s playing style tends to produce rather *undesirable* Brahmsian sounds and meanings. It is my belief that only these most “dangerous” sounds have the power to bring about Philip’s war of worlds, leading to either a complete disavowal of our belief in the historical accuracy of modern HIP Brahms, or a fundamental retelling of Brahms’s canonic identity and how it might be communicated in performance. In either case, perhaps pianists may finally begin to produce sounds that, for better or worse, actually make audiences sit up and listen.

Before pianists can be convinced to experiment with the elements of recorded Brahms style, they must first abandon the view that long-extinct unnotated expressive devices such as dislocation, arpeggiation, and tempo modification were merely a “meretricious sugar coating” with few implications for how late-Romantic works were understood and experienced in performance (Crutchfield 1986, 18). While tastes and performance standards have indeed changed in the intervening century, it is no coincidence that the use of such devices became undesirable around the time a pianist’s role transitioned from providing an ephemeral and idiosyncratic performance experience, to one of becoming a disappearing transmitter of canonic works and identities.

Artists born before 1880, like Alfred Cortot, for example, were celebrated for their detailed attention to the harmonic and melodic minutiae of the works they performed. Theirs “was an emotional-pictorial approach to understanding and communicating musical meaning” (Leech-Wilkinson 2009, 252), whereby

unnotated expressive devices were used in highly conscientious and complex ways to set melodic material in dynamic and temporal relief, to underline particularly poignant harmonies or melodic twists, or to impart varied rhythmic interest to particular passages as they saw fit. By World War II, however, artists who had always possessed a more literal and restrained personal approach, like Artur Schnabel, for example, suddenly became famous for their “new, almost mechanical direction towards something perceived to be more faithful to the score” (ibid.). The training of pianists thus became focused on the eradication not only of technical failings but also of the more wilfully eccentric elements of their performance styles.

Once emotional and physical control became symbolic of a performer’s devotion to canonic works and personalities, pianists needed to know what it was about a particular composer that warranted faithfulness in the first place. Indeed, what people think about composers has a lot to do with how they play their works. Daniel Leech-Wilkinson (2009, 246) has shown how the Schubert recordings of Dietrich Fischer-Dieskau “shaped the things people thought and wrote about the composer, bringing to him a new seriousness and psychological depth that was not there . . . for earlier listeners.” Similarly, Kornel Michałowski and Jim Samson (2012) have argued that one can hear the differences between various late-nineteenth-century nationalistic perceptions of Chopin (from French, German, Russian, and English perspectives) in the early recordings of representative pianists from each country.

Equally, modern pianists are the inheritors of powerful ideas about who Brahms was, leading us to shape our performances in ways that probably would never have occurred to pianists born before 1880. As heir to the Baroque and Classical masters who preceded him, Brahms’s classic status is to be communicated by clear, symmetrical, controlled, and structurally-elucidative performances. Morally and intellectually opposed to the total artwork composers and flashy virtuosos of Wagner and Liszt’s New German School, Brahmsian performances are those that are rational, learned, stoic, and absolute. Finally, as the “last” serious composer of Classical music, Brahms is defined in performance by what he is *not*: virtuosic, wild, sentimental, weak, feminine, casual, irrational, extroverted, and superficial.

We believe that these ideas lead to historically valid performances because they are found through nineteenth-century dissections of the composer and his output, having arisen out of contemporaneous debates over the future of German art music and the nature of Brahms’s legacy. While Eduard Hanslick proclaimed that “this strongly ethical character of Beethoven’s music, which is serious even in merriment . . . is also decidedly evident in Brahms” (quoted in Musgrave 2000, 225–26), the New Germans “insinuated that he was play-acting as Beethoven’s successor to the point of duplicating the Titan’s devious ways, [like] frequenting little out-of-the-way restaurants” (Stojowski 1933, 150). And when supporters stated that “in Brahms’s music the intellectual element often predominates . . . he buil[ds] with the most laborious precision, as if acknowledging even in his creative work the validity of the biblical admonition: ‘In the sweat of thy brow shalt thou eat bread’” (Adler 1933, 125), critics accused

Brahms of being devoted to a dead art in the absence of true inspiration. By the end of the century the stakes couldn't have been higher. As *The Musical Times and Singing-Class Circular* (1888, 10) opined, "At a time when men who ought to know better are trying to destroy form without being able to put anything in its place, [Brahms] stands fast by the good old way—the way of masters who were giants, the way worn by the feet of generations."

Deeply embedded in the historical record, these notions continue to be used to assign value to modern pianists' Brahms performances. Pianists exhibiting control of their psychophysical state are awarded the highest praise, like Claudio Arrau's "technical control which comes, not from the fingers, but from the pianist's whole body and spirit, massively poised" (*Gramophone* 1983). Unfortunately, themes related to Brahmsian corporeality continue to be under-explored as his canonic identity seems to have been expressly designed to transcend such concerns—perhaps to distance him from the tragic mind-body disintegration (and overt Romanticism) of his mentor, Robert Schumann.

This theme of "characteristic" Brahmsian control also continues to mediate recent attempts to reconcile the historical documentary and sounding evidence. In *Performing Brahms: Early Evidence of Performance Style*, Michael Musgrave (2003, 307) compares verbal descriptions of the composer's playing style to his 1889 cylinder recording of the *Hungarian Dance in G Minor*, concluding that Brahms's playing was characterised by "a strong sense of the basic musical structure, with strong beginnings and ends of passages, yet an awareness of the distinctive ideas or digressions within them, though not to the detriment of the overall shape; varieties of touch and tone, according to the character of the piece, whether strongly marked or veiled, but always warm, rounded and distinctive; and a strongly rhythmic character where appropriate." Unfortunately, this summary could describe any controlled modern Brahms performance, while the composer's recording evidences a wild, bombastic, and almost cavalier approach that sounds thoroughly foreign to modern ears.<sup>1</sup> Though Musgrave acknowledges moments where Brahms improvises, where he straightens out dotted figurations, and where he rushes, these elements do not explicitly find their way into the author's final summation of the essential qualities of Brahms's playing style. Musgrave (*ibid.*, 305) even acknowledges the presence of some palpable feeling of spontaneous abandon in the composer's playing, but only to dismiss it as "a hasty if enthusiastic response to the recording medium." Alas even Brahms can get a bit carried away from time to time.

Michael Musgrave adopts a similar approach when comparing Brahms's student Adelina De Lara's recordings of the *Intermezzo op. 117 no. 1* in E $\flat$  Major and the *Rhapsody op. 79 no. 2* in G Minor with verbal descriptions of the composer's playing—many of which come from De Lara herself.<sup>2</sup> While little attention is paid to her frequent dislocations, arpeggiations, and asymmetrical local rhythmic alterations in *op. 117 no. 1*, or her precipitous rushing over the quickly

1 To listen to Brahms's recording and for detailed information on its analysis and transcription see Berger (2012).

2 Both De Lara's recordings can be heard on De Lara, Eibenschütz, and Davies (1991).

alternating chordal passages of op. 79 no. 2, Musgrave (*ibid.*, 315) praises her controlled approach to tempo and dynamics, her faithfulness to the score, her structurally-elucidative playing, and her straightforward approach. He asserts that, “altogether her performance reflects her recollections of Brahms’s performance and can thus be taken as having real authority, despite her obvious limitations of technique and occasionally of memory of reading.” Again, De Lara’s historical authority is confirmed only by those elements that support familiar ideas of how Brahms should sound and signify, while the more foreign elements of her style are a result of some weakness of mind (memory) and body (technique).

Aside from the obvious problems associated with judging the historical authority of past musicians’ *actual* performances against agenda-laden, incomplete, and context-dependent verbal reports, many descriptions of Brahms at the piano actually support my suspicion that these musicians possessed a thoroughly “other” approach to performance: one evidenced by the early recordings, yet suppressed in modern analyses. Brahms’s students described his style as “elastic and expansive” and “rugged, and almost sketchy” (Davies 1929, 1:182), and remembered that “he played as if he were just improvising, with heart and soul . . . forgetting everything around him” (Derenburg 1926, 599). Brahms biographer Richard Specht noted that “there was in [his] playing a singing and surging, a flitting of lights and a scurrying of shadows, a glowing and a dying away, self-possessed manly emotion and self-forgetful romantic passion” (quoted in Pascall and Weller 2003, 232), while Clara Schumann’s daughter Eugenie recalled that “[she] never gained the impression that Brahms looked upon the piano as a beloved friend, as did [her] mother. He seemed to be in battle with it . . . it was as though a tempest were tossing clouds” (quoted in Musgrave 2000, 127). Indeed, the precipitous, improvisatory, and thoroughly Romantic recorded playing styles of the Brahms circle of pianists seem to have much more in common with descriptions such as these, rather than with Musgrave’s own assessments and the style rules that inform them.

In *Off the Record: Performing Practices in Romantic Piano Playing*, even pianist Neal Peres Da Costa’s own experiments with recorded Brahms style are a demonstration of the extent to which the parameter of control continues to distance modern “authentic” Brahms from Brahms as he was recorded. While Da Costa rushes during crescendi and other dramatic moments (though not to the same extent or frequency as De Lara), he re-establishes his original tempo afterwards whereas De Lara allowed her local rushing to accumulate over entire sections. This practice tended to unravel the temporal fabric of a musical work: it revealed asymmetrical phrases, uneven note values, blurred structural boundaries, a muddling of Brahms’s complex contrapuntal and rhythmic material, and an increased prevalence of missed notes, improvisation, and truncation of material. By regulating and controlling the destabilising potentialities of De Lara’s local tempo modifications, Da Costa’s performances simply do not leave the same impression as Brahms’s style as it was recorded and described.

In a joint lecture-performance given with Darla Crispin at the 2012 ORCiM Research Festival, I demonstrated how elements of Adelina De Lara’s recorded

style could be applied to highlight the corporeal and psychological conundrums that lie at the heart of Brahms's Intermezzo op. 116 no. 5 in E Minor. In the opening eight bars of op. 117 no. 1 (figure 1), De Lara emphasises the outer boundaries of local phrases with longer note values, dislocation, and arpeggiation. By slightly rushing over the inner material of each phrase without re-establishing her original tempo each time, her speed slightly accumulates, creating one over-arching eight-bar phrase idea. This local emphasis and large-scale tempo modification leads to a performance that seems slightly asymmetrical, rushed, offhand and stilted—especially as compared with the literal readings, consistent tempi, even note values, and controlled symmetrical phrasing characteristic of modern interpretations of this work.

Johannes Brahms, Op. 117  
(Veröffentlicht 1892)

1

Schlaf sanft mein Kind, schlaf sanft und schön!  
Mich dauert's sehr, dich weinen sehn.  
(Schottisch. Aus Herders Volksliedern)

Andante moderato

*p dolce*

Fig. 1

While many performers are intuitively aware of some ambiguous emotional-pictorial content in Brahms's sphinx-like Intermezzo op. 116 no. 5 in E Minor, they try to communicate this understanding only through subtle manipulations of tone colour and attack, while maintaining consistent tempi and trying to cleanly negotiate Brahms's awkward arrangement of the notes of each upbeat chord (figure 2). Here, the thumbs of each hand must be crossed and uncrossed at each iteration—a negotiation rife with the potential for lapses of timing, memory, and coordination, as well as for missed or partially sounding notes.

There is evidence to suggest, however, that physical and psychological discomfort may lie at the heart of what this work “tells of.” In a letter to Clara Schumann describing his *ossia* version, where the notes played by each thumb are exchanged, Brahms (1892, 698) writes: “In the little E minor piece, it’s probably better if you always take the 6th eighth as indicated on the first beat, in parentheses. Of course, the peculiar appeal which is always connected with a

**Andante con grazia ed intimissimo sentimento**

The image shows a musical score for Johannes Brahms' Intermezzo op. 116 no. 5 in E Minor. The score is in 3/4 time and consists of three systems of piano and bass staves. The first system includes markings for 'p dolce' and 'And. sempre'. The second system includes 'dim.'. The third system includes 'p' and 'p dolce' markings, along with first and second endings.

Fig. 2

difficulty is then lost.” Brahms surely knew that Clara would have understood that this “peculiar appeal” lay not just in the bodily implications of a pianist’s crossed thumbs, but also in how a performer’s sense of fallibility translates into aesthetic experience. Brahms had a special awareness of the body, and especially his thumbs: his pupil Eugenie Schumann (1927, 141) once reported that he “gave special attention to the training of the thumb, which . . . was given a very prominent part in his own playing,” while another in his circle, the composer Ethel Smyth (1919, 1:266), recalled how Brahms “when lifting a submerged theme out of a tangle of music [would] jokingly . . . ask us to admire the gentle sonority of his ‘tenor thumb.’”

If the metaphysical implications of this tricky negotiation of a pianist’s thumbs is key to communicating the emotional-pictorial content of op. 116 no. 5, it follows that a provocative performance would be one in which a performer’s unsound state of body and mind is highlighted rather than controlled. A good place to start might be to mimic Adelina De Lara’s local emphasis of the outer boundaries of phrases, her slight rushing over internal phrase material, and her tendency to allow local rhythmic alterations to unfurl into large-scale tempo modifications. In op. 116 no. 5, I propose that the pianist underlines the crossing of her or his thumbs by applying longer note values and increased note intensities when they converge, and by rushing and playing less to the bottoms of the keys when they are pulled apart. If we examine the opening measures of op. 116 no. 5, we notice that these points of emphasis coincide with the outer

edges of couplets grouped in pairs. If the pianist then allows each instance of local rushing to accumulate, she or he is forced to accomplish the more widely-spaced thumb crossings in the middle of the section at a significantly quicker pace—resulting in a palpable sense of risk.

By abandoning our preoccupation with control, performances of this work suddenly take on an improvisatory, sketchy, and ephemeral quality that seems to reflect evidence of Brahms's own playing style, in its entirety. Most importantly, when performances are allowed to unfold in multifarious planes of time, texture, and corporeality, pianists gain access to potentialities of sound and meaning they might have intuitively sensed, yet that have lain just beyond their reach under the edicts and norms of modern "authentic" Brahms performance. Contrary to popular opinion, performance approaches that reflect *all* we know about the playing style of the Brahms circle of pianists tend to produce sounds and meanings that are still largely undesirable. But how much longer can we justify our efforts to protect HIP Brahms from Brahms himself? Until pianists experience recorded Brahms style, not through the nostalgic crackle of early recordings, but in and through modern bodies and minds, this is a question no one is really informed enough to ask, much less answer.

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# Experiments in Time

## Music-Research with Jazz Standards in the Professional Context

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To render time sensible in itself is a task common to the painter, the musician, and sometimes the writer.  
—Gilles Deleuze ([2003] 2005, 45)

The greatest thing I can do to pay respect to a jazz musician of the past is to be a jazz musician of the present.  
—James Falzone (2011), clarinettist and composer<sup>1</sup>

I graduated from music college in the late 1990s and have been a working jazz musician (pianist and composer) ever since, performing in a variety of venues, for varying audience sizes, and in many different performance setups. In addition to performing my own compositions and making music in freely-improvised concerts, I often play, and am familiar with, a number of jazz standards.

Alongside my work as a musician, for the last few years I have also been involved in practice-as-research at doctoral level. This type of research activity has enabled me to bring together the contexts of the professional and the doctoral, with interesting implications for both. In a series of practice-as-research projects undertaken in performances that have arisen in the course of my work in music, I have used jazz standards in a deliberately experimental manner; this has been part of my on-going enquiry into the complex temporalities in operation in the experience of music-making in events of performance. In this document, I elucidate certain aspects of these music-research experiments, from the perspective of one of the musicians involved (myself, analysing post-event); specifically, I investigate a recording session in 2011 that provided my

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<sup>1</sup> The quotation by James Falzone is from the liner notes to his 2011 album *Other Doors*. This recent album documented a fascinating project involving his quartet Klang, in performances with music associated with the famous 20th-century clarinettist and composer Benny Goodman. For more on the various music-making projects of James Falzone and Klang, see <http://www.allosmusica.org>.

first opportunity to work in a duo with the jazz drummer and composer JJ Wheeler.<sup>2</sup>

#### DUO PERFORMANCE OF “JUST FRIENDS”

On 14 June 2011, Wheeler and I recorded a series of jazz standards in the Recital Hall of Birmingham Conservatoire. The recording was made in “live” conditions—we performed as if playing for an audience, without stopping to begin takes again, to overdub parts, or for any of the performance practices typically available to, and used by, musicians working in a studio setting. However, given that there was no audience in attendance (even the sound engineer was absent once the record button had been pressed), the typical processes of judging audience reaction—in the moment and after each performance of a given piece—were not enabled. Accordingly, the music-making with the jazz standards we selected was somewhat liberated from any temptations to adhere to more standardised performing practices. Added to this relative freedom of expression was the desire to experiment with what could be achieved by our combined forces, and through that to develop, and potentially renew, our artistic identities as jazz musicians, thus furthering our expertise in music-making. This attitude is certainly in line with ORCiM’s recent definition of artistic experimentation, which states that “artistic experimentation encompasses the actions that an artist undertakes in developing and constantly renewing personal artistic identity and expertise” (Orpheus Research Centre in Music 2010).

To my mind, the performance of Klenner and Lewis’s 1931 “Just Friends” was exemplary with regard to the artistic experimentation undertaken by the duo. At this point, it is important to listen to the audio excerpt of the opening moments of the performance, since it grounds the analytical and theoretical writing that follows.<sup>3</sup>

The following analysis of the music excerpt just mentioned is written from the perspective of one of the players involved, albeit framed retrospectively according to my research concerns. By this, I mean that the analysis benefits from two different, though related, points of view: the first, written in a reflective register, remembers the music-making processes involved; the second, a research-specific register, selects which of these processes are pertinent to the experiment in question.

In the performance, at the point at which I began articulating the melodic line of the last eight bars of the written melody and the full ‘head’ that followed (from 0’33” in the excerpt), I looped fragments of that melodic line for varying lengths of time, breaking the typical flow of the melody into a series of short, rhythmical ostinati. I harmonised my right-hand reworking of the piece’s melodic line with similar figures in my left hand, which were some-

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2 Full information on JJ Wheeler’s music activities and career to date can be found at <http://www.jjwheeler.co.uk>.

3 CD, track 2, features the full-length performance of “Just Friends” (leading into Monk and Best’s 1952 “Bemsha Swing”); it also features on the album *Blue Room*, released on Mongrel Records in late 2011. See <http://www.mongrelrecords.wordpress.com>.

times synchronised with my right and at other times as part of a canonic “call and response” between the two hands. My left-hand harmony notes did not necessarily always match the typical root-movement of “Just Friends,” and deviated from the well-known, almost textbook, II–V chord progressions that make the piece such a popular learning vehicle for students. Harmonising the melodic line differently to the typical way in which the piece is played, as well as fragmenting the melodic line into a series of looped ostinati, helped move the music-making away from the over standardised, while still grounding it in relation to jazz practice with “Just Friends” and the standard repertoire more generally. For instance, with regard to that disciplinary grounding, my right hand only used the given melody notes in its ostinati, and I gradually worked through the head on a bar-by-bar basis—albeit with the regular four-beats-to-a-bar elongated or reduced by asymmetrical ostinati lengths and varying numbers of repeats of those ostinati.

In these opening moments, I set up a basic  $1/4$  crotchet pulse in relation to Wheeler’s drumming, and worked to avoid stressing a regular  $3/4$  or  $4/4$  division of that pulse. Although there were periods where a  $4/4$  pulse was used, it is important to note that these instances of relative temporal stability arose in the course of the music-making and were not pre-planned to occur at set points in the performance.

On listening back to the opening minutes of the audio recording, I perceive that Wheeler began pursuing a similarly repetitive approach in response to my rhythmical ostinati. With hindsight, I am suggesting that it was this similar reaction that helped cement the separate instrumental contributions into a cohesive duo statement during the opening moments of the music-making. Approaching the end of the introduction (0’28” on the excerpt), Wheeler restricted his playing to the most basic drumkit elements (hi-hat, snare drum, and bass drum); I interpret his playing as mimicking the simplicity of my piano articulations, “locking into” my implied  $1/4$  general pulse, and working through his own variations of rhythmical loops (two, three, and four crotchets in length, in no fixed pattern). In my analysis of this aspect of the duo’s practice, I classify the interplay between the piano and the drums as being both synchronised and independently-oriented. It was synchronised by virtue of the crotchet pulse we set up early in the performance and subsequently maintained. Yet, in contrast to the relational connection provided by the common grounding in a crotchet pulse, our individual playing was oriented towards partial independence: we each chose to articulate the rhythmical loops in asymmetrical fashion, but in different configurations.

It seems likely to me that listeners who are familiar with the typical performing practice of “Just Friends” will be struck by the novelty of the duo’s music-making, irrespective of the aesthetic decisions that inevitably follow; in other words, they will make judgments as to whether they liked it, or thought the experiment worked, based on musical criteria. The principal reason for experimenting with the articulation of this standard was related to my on-going research into the operation of complex temporal processes in events of music-making, as I indicated above. However, given that the boundary between

what constitutes the workings of a musician and the workings of a musician-*researcher* are somewhat blurred (necessarily, in my view), in this paper I will also explore the implications of the duo's music-making in terms of the wider field of jazz practice.

#### AFFECTIVE POTENTIAL AND JAZZ STANDARDS IN TWENTY-FIRST-CENTURY JAZZ PRACTICE

The music-making with jazz standards that Wheeler and I undertook was certainly not of a nostalgic kind. There was no attempt to recreate twentieth-century jazz practices, or to mimic the ways in which various jazz artists have performed "Just Friends" over the 80-odd years of its existence—and why should there be? After all, time has moved on, and the conditions of emergence pertinent to past music-making in jazz have changed. Since the 1930s there have been numerous movements in jazz practice—for example, free jazz and jazz-rock in the 1960s and 1970s (and beyond). I believe that even if a contemporary jazz musician doesn't explicitly reflect the artists and music-making practices associated with prior artistic movements in jazz in their *own* playing, their historical position nonetheless implicates past practices in the emergence of twenty-first-century jazz.

The philosopher Brian Massumi (2002, 24) has argued that "it may be noted that the primacy of the affective is marked by a gap between *content* and *effect*: it would appear that the strength or duration of an image's effect is not logically connected to the content in any straightforward way." In Massumi's terms, "the strength or duration of the image's effect could be called its *intensity*" (*ibid.*); he argued that "intensity would seem to be associated with nonlinear processes: resonance and feedback that momentarily suspend the linear progress of the narrative present from past to future" (*ibid.*, 26). Although Massumi was concerned with the affective capacity, intensity, and non-linear resonance of images, I consider it reasonable to extend his notion of an affective dimension of the visual to the other senses: it is hardly controversial to suggest that music-making in jazz has the potential to affect and to elicit intense emotional responses in listeners.

Affective response is unpredictable by nature (hence my use of the qualifier "potential"): whether affective potential is actualised in an event of performance cannot be predicted *a priori*. However, through purposefully playing with certain more standardised aspects of jazz-standard practice, I suggest that conditions were enabled in which listeners' engagements with the music-making could be affected—at least temporarily. To what end is the subject of the section that follows.

#### JAZZ STANDARDS AND TACIT JUDGMENTS

Jazz standards tend to be regarded in canonical terms by players, critics, researchers, and audience members alike. It is easy to name a jazz standard, and to (relatively) immediately recognise that a musician or band is playing

one, especially if that musician or band is playing the standard in a fairly typical way. In general, there are certain phrases, chord changes, and structural devices, among other performing conventions, that are guaranteed to trigger a recognition response from those familiar with the main body of jazz standards. There is also a similarly conventional set of performance practices that a knowledgeable jazz fan (or musician) would be able to associate with one or other (or several) of the famous movements in jazz history.

That process of judgment—in which a performance is determined to be of an identifiable jazz standard, and/or in a manner associated with the typical practices of a particular jazz movement—is tacitly undertaken by the experienced jazz enthusiast. For instance, if bebop is no longer a shock to the senses, as it may have been on first encounter (as admittedly it was for me, in my teenage years), then a judgment of a given performance as being in a bebop style will tend to be made rapidly. Furthermore, that initial judgment will proceed to ground what follows in bebop terms, although modulated in accordance with that particular person's experiences with bebop. On being exposed to music-making, whether live or recorded, it would seem difficult for a person not to immediately begin judging that music-making according to criteria of both a personal and music-disciplinary nature.

However, being tacitly undertaken, during the majority of its enactment in everyday life and in experiences of more standardised (or immediately recognisable) music-making, such judgmental processes can elude easy identification in research. By working to enable the actualisation of affective potential in listeners' engagement with deliberately non-standardised music-making with jazz standards, I was intent on making explicit those judgmental processes. But how is one to model such heterogeneous processes? The early philosophical writings of Henri Bergson are of particular usefulness in constructing such a model. In *Matière et mémoire*, first published in French at the end of the nineteenth century and translated into English as *Matter and Memory*, Bergson presented his original contributions to what were, even then, long-standing philosophical arguments concerning the temporal nature and operation of memory and perception. Suzanne Guerlac has recently revisited Bergson's early work in the light of contemporary concerns; it is her translations and commentaries on Bergson's early philosophy that I draw on here.

Contra Kant, Bergson radically reconfigured perception in terms of action, not knowledge. As Guerlac (2006, 107) has written: "Perception, [Bergson] maintains, serves action not knowledge. It functions so that we might . . . satisfy our needs." Later, she adds that "actual perception is . . . a process of reduction, or elimination, of what does not pertain to our own actions, which occur in the service of our interests and needs" (ibid., 110). To the context of making (new) music with (old) jazz standards, Bergson's notion of actual perception is, I believe, highly pertinent. Approaching my practice-as-research with Bergson's "actual" perception in mind, then, I have been working to attract the interests and potentially satisfy the needs of the musicians and listeners I make music with and for, respectively. In such a situation it is, of course, impossible to know with any degree of exactitude what motivates the interests and needs of

others. However, in terms of music-disciplinary practice, I suggest that, rather than attempt to replicate an older pattern of knowing, a common ground can be drawn on in the service of new jazz. By this I mean that, given an appropriate background in jazz performance practice with the standard repertoire on the part of the two musicians involved (myself and Wheeler), and given suitably qualified listeners to the recorded album, a certain amount of freedom—a “freedom to”—is afforded the practice-as-research experiment.

In using the term “freedom to,” above, I am making a distinction between “freedom from” and “freedom to.” In other words, I am keen to stress that the freedom afforded expert musicians in their experiments with the making of new music is born of their ability to operate in and through music-disciplinary practices, rather than being entirely independent of them—hence, it is a freedom to experiment, rather than a freedom from disciplinary responsibility. Further, I would argue that such an experimental freedom is inherent in all jazz-standard practice at the expert level. One need only think of the many groundbreaking experiments with the standard repertoire that have marked the history of jazz practice since its emergence as a music-disciplinary field. In terms of Klenner and Lewis’s “Just Friends,” used in my own duo experiments with Wheeler, of the huge number of performances given of this piece during the history of jazz, I would reference as being especially experimental (and influential on my formative years as a student of jazz) that of the pianist Cecil Taylor, which was recorded in 1958 for his album *Stereo Drive* (1959). The album, featuring the saxophonist John Coltrane, the trumpeter Kenny Dorham, the bassist Chuck Israels, and the drummer Louis Hayes, was initially dismissed in the jazz press, and was for many years considered of interest only to obsessive collectors of Coltrane’s and Taylor’s recorded oeuvres.

However, time and jazz practice have moved on since the late 1950s, and to the ears of those who are familiar with the performance practices of the free jazz movement in the 1960s and beyond, there is, I would argue, much of interest in Taylor’s approach to “Just Friends.” There is no room here for a detailed analysis of the quintet’s performance of this jazz standard. However, I would suggest that the unusual (for its time) combination of Taylor’s nascent free jazz music-making techniques with the remainder of the band’s predominantly bebop/hard bop jazz-standard stylings opened new ground for music-making with the standard repertoire—ground that is central to my own experimental undertakings in my doctoral practice-as-research. Taylor’s “Just Friends,” I am suggesting, provides a historical example of an experiment in jazz-standard practice that served his needs and interests in radically altering more established (standardised) ways of playing the standard repertoire. That radical alteration certainly reduced and eliminated (to use Bergson’s terms, quoted above) the dominant aspects of 1950s performance practice with “Just Friends” that were not of interest to Taylor. In the light of the jazz that has followed this early-career experiment (he was only twenty-nine when the performance was recorded), I believe we can say that Taylor’s needs and interests have finally found their intended time and audience—at least among those listeners who have kept abreast of developments in jazz practice in the fifty-plus years since

the release of *Stereo Drive*. His jazz-standard practice on that album has certainly fuelled my own experiments in practice-as-research with the standard repertoire.

The issue of attracting the interests and satisfying the needs of the different parties related to experimental practice-as-research with jazz standards leads back to Guerlac on Bergson, and thus the question of the nature and operation of perception itself and its close relationship with memory. Guerlac (2006, 118) has written that, for Bergson, “memory mixes in with perception all the time for the simple reason that it takes *time* for perception to occur.” This is a vital point, since—because we tend to prioritise the visual mode of perception—we often make the assumption that perception is an instantaneous act: light enters our eye at such a speed that it provides us with the illusion of an immediate perceptive apprehension. If instead, we consider perception in another mode—say, *tactile* perception—it is easier to reconcile Bergson’s temporally-constituted notion of perception. After all, when we touch an object, or run our hands over it, it takes a certain amount of time to carry out that action.<sup>4</sup>

So, in Bergson’s view, since perception “takes time . . . to occur” (ibid.), memory interweaves the past into the present such that it is practically inseparable from perception (ibid., 122). In fact, Bergson’s fully-developed argument arrives at the conclusion that the act of perception “ends up being nothing but an occasion for remembering” (ibid., 120). To remember (re-member) is to “put together again”; thus I conclude that while experiencing the Steve Tromans and JJ Wheeler Duo’s performance of “Just Friends,” someone familiar with that jazz standard would be affected by the experimental nature of the duo’s music-making. I also believe that they would likely be encouraged to undertake a remembering of their preconceptions of how that particular piece of music is typically played. That re-remembering would mix together their memories of previous experiences of the piece and their perceptions in the moment of encountering the duo’s experimental performance. The question of whether that particular listener would consider the performance to be of a quality sufficient to stand comparison with the wider body of professional jazz performance is the last point I address.

#### JUDGMENTS OF DISCIPLINARY PERTINENCE AND QUALITY

In regard to the complex temporal process of remembering that accompanies the experience of music-making (both listening and playing), and with specific reference to my project of experimenting with alternative ways of making music with jazz standards, what of the question of the judgment of disciplinary pertinence? How might a model of such a disciplinary judgment be constructed?

In his early-1960s monograph on Kant, Gilles Deleuze ([1984] 2008, 49) cast the process of judgment as “a complex operation which subsumes the

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<sup>4</sup> My thanks to Dr. James Tartaglia, Philosophy Department, Keele University (UK), for this insight and example.

particular under the general.” That complex operation, Deleuze wrote, is “always irreducible or original,” and “never consists in one faculty alone, but in their accord” (ibid., 51). However, that accord, which results from the complex operation of judgmental process, is of a discordant nature: an “unregulated exercise of all the faculties,” or a “discord which produces accord.” “The faculties confront one another,” Deleuze wrote, “each stretched to its own limit, and find their accord in a fundamental discord” (ibid., xii–xiii).

Anything newly-encountered is potentially perceived in discordant terms, compared with the comfortable familiarity of what is already known (as I hinted at earlier in referring to my initial encounter with bebop). When considered in terms of my research and the disciplinary field of jazz practice, the interesting question is whether that “discordant accord” is judged (ultimately, or more immediately) as belonging to that field and being exemplary of twenty-first-century jazz practice. As with all such judgments of taste and quality, the outcome will emerge in time (though it is, of course, also subject to change over time) as part of that larger process in which one’s art is entered into relation with that of one’s peers and predecessors. In the meantime, what we can do as artists (and artist-researchers) is continue our experiments—both again, and anew.

#### CONCLUDING REMARKS

By experimenting with the ways in which jazz standards can be played, but simultaneously and deliberately grounding such experimentation in professional work in jazz, I would hope, at the very least, that a productive dialogue can be encouraged in which enthusiasts and musicians alike are made aware of temporally-grounded judgmental processes that were previously of a more hidden nature. If a music-research project in jazz practice can bring such processes to the surface by experimenting with pieces from the jazz canon, then I would speculate that similar artistic experiments can—and should—be undertaken in relation to the canon of works in other music-disciplinary fields. Music-disciplinary fields active in the contemporary era are in an on-going process of development, and are not fully-defined, or definable, in their consistency and practice (otherwise they would be “dead” arts). An experimental attitude to the making of new music can provide a means of ensuring this on-going elaboration of the performing practice of the standard repertoire—or at the very least encouraging it—rather than focusing on the reiteration of extant performance practices or interpretative models of the role of performers in their relation to the canon of works pertinent to their particular disciplinary field (i.e., performer as experimenter, rather than interpreter).

#### NOTE

*Practice-as-Research.* In music terms, I define practice-as-research as research conducted *in* music-making itself. Rather than undertaking research *into* music-making, from the position of an observer, practice-as-research ena-

bles musicians to undertake research in the medium of their particular art practice.

This is not to suggest, however, that research conducted in art-practice can directly be recognised as such by those operating in other research-disciplinary fields—which is problematic with regard to its dissemination in the wider research community. In order to address this problem of transferability, research conducted in a particular field of art practice requires a framing discourse to enable wider dissemination. The important issue, however, is that this framing discourse is not taken as being representative of the artistic practice it is composed to companion.

The research work conducted in the artist's own medium of practice remains in that medium, with the inherent complexities, temporalities, and specificities of that artistic field of practice. These complexities, temporalities, and specificities are different for each field of art practice; crucially, such disciplinary differences provide interesting opportunities for research activity—in methodological terms, and with regard to modes of presentation of research. The potential widening of the field of research endeavour implicit in the notion of practice-as-research augurs well for the future development of research in the twenty-first century and beyond.

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# Ecosonics

## Music and Birdsong, Ends and Beginnings

Stephen Preston

What we call the beginning is often the end  
And to make an end is to make a beginning.  
The end is where we start from.  
—T. S. Eliot<sup>1</sup>

In this article I will give a brief account of certain aspects of my research that touch on the problems of prior knowledge and ideological thinking in creating a new practice. To illustrate the problems, I will outline the resources I employed, and the ideas, techniques, and approaches that I have used in my research. At the same time I hope to show how the research subject itself was the means for deconstructing these ideologies, some of which were encultured and others self-constructed.

As one of the pioneers of period instrument and historically informed performance in Britain in the 1970s, I am a musician who has spent almost all his professional career researching and experimenting with ideas relating to interpretation and performance techniques and practice. In addition to my musical career, I spent many years researching historical dance while working as a choreographer and director of two dance companies. Consequently, although the focus was very different, I felt reasonably well equipped to undertake a doctoral research project into birdsong as a model for the development of new techniques and improvisational practice with the Baroque flute (Preston 2004). I began my research with the sense that I had a good understanding of what constitutes music and the conviction that my understanding was more than adequate. From previous experience I believed I was equipped to find and investigate source material and to explore that material methodically as creative practice. I had no qualms in contradicting traditionally accepted mainstream practice. Also I felt reasonably secure in the knowledge that I had at

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<sup>1</sup> From Eliot, "Little Gidding," V.

the very least a basic understanding of avian vocalisation—for example, that the sounds produced by birds consisted of both songs and calls. What would be more problematic for my research was that unwittingly I subscribed to the culturally held views that some birdsong was musical and the rest was noise, including most calls, and that we in the UK were fortunate in having the largest number of the most musical songbirds in the world.<sup>2</sup> I shared the tacit understanding that the sounds produced by birds are called songs because they are considered to be a form of music, as the use of the word “song” attests—a view held not only popularly but also by many in the science community, particularly in the past.<sup>3</sup>

During my research I found the categorisations of avian sound making that are necessary to the scientific consideration of birds were counterproductive to the musical consideration of birdsong, not least because the categories, scientifically necessary as they are, lend themselves to attitudinal distinctions of musical and non-musical qualities. From a non-scientific point of view I now regard all forms of communicative sounds made by birds as birdsong. Consequently all further references to birdsong in this chapter must be understood to apply equally to songs, calls, and non-vocal sounds, that is, those made instrumentally, for example, by beak or wing.

As models for developing the theoretical and practical means of this research, naturally I drew heavily on my experience of (re)creating past performing practices and techniques on the basis of historical sources. This experience encompassed music—the investigation of historical flute technique and performance practice, and dance—and the reconstruction of dances, dance techniques, and choreographies from images, texts, and notations (see Preston 2004, 12–15). What these earlier investigations offered were models for research and the reassurance that I had the ability to create a new practice where there had been none before. I was accustomed to working from a virtually blank slate, which, in the case of music meant there were not the faintest echoes of historical sounds, and in dance no historical moving bodies.<sup>4</sup>

My research fell into two distinct stages, the first of preparation, the second of implementation. During the preparatory stage I worked on creating a language and a vocabulary of sounds to translate birdsong into music, and to establish a basic system for developing improvisation modelled on birdsong.

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2 To give some examples: from the eighteenth century “Experiments and Observations on the Singing of Birds” by Daines Barrington (1773), from the nineteenth century William Gardiner’s *The Music of Nature* ([1832] 1838), to the twentieth century Charles Hartshorne’s *Born to Sing* (1973).

3 The range of popular and scientific work considering birdsong as music is considerable. Usually in such works, however, questions considering what music may or may not be are not raised and typically the subject is explored with the implicit understanding that the measure of music is that of traditional Western culture. Historically this attitude is understandable but from the second half of the twentieth century up to the present it becomes increasingly difficult to take such a view seriously, particularly as it contributes nothing to the understanding of music or to the possible relationship between human music and animal sound making.

4 It is easy to forget that historical performance is historical only in name and in relation to its sources, that all its practitioners, no matter how skilled or convincing, are only representative either of their own practice inevitably shaped by contemporary culture and derived from historical source material of varying quality, or of practice learned from other practitioners.

This came to fruition in the second stage with the development of a systematic approach to developing exercises and improvisation modelled on a range of birdsong types and characteristics. I called this approach *ecosonic*.

The preparatory first stage proceeded in a series of approaches based on my research into historical performance (ibid., 27–28). This involved the development of extended techniques (ibid., 27–49) and the exploration of scale systems,<sup>5</sup> and atonal and microtonal scales.<sup>6</sup> For extended techniques I researched method books and music from the eighteenth to twenty-first centuries (see ibid., 141–42). The flute is rich in such resources. Additionally I created techniques effective only on the Baroque flute, which not being covered in keys and mechanism enables the player to have direct contact with the body of the instrument.<sup>7</sup> After exploring various scale possibilities, including Olivier Messiaen's modes of limited transposition, I worked on the encyclopaedic compilation by Nicolas Slonimsky (1947). Slonimsky's scales, which are based on the equal division of the octave, offered many more possibilities for improvisation, from extreme simplicity to complexity.<sup>8</sup> However, it became apparent that no kind of tonal system would give me what I was seeking, that augmented and diminished intervals would not capture the colour of birdsong even though that was typical of the way it had been translated in the twentieth century, that it was impossible to capture the subtle, indeterminate pitch inflections of birdsong using a vocabulary based on intervals no smaller than a semitone, and that such a vocabulary was rigidly overdetermined.

I moved on to exploring quartertone and microtonal scales (Preston 2004, 54–61). The fingerings for a Baroque flute quartertone scale were given in a mid-eighteenth century French flute method by Charles Delusse, *L'art de la flûte traversière* (1761).<sup>9</sup> It was a tablature I had long known about and studiously ignored as too difficult and superfluous to the requirements of historical performance practice. I was delighted to find a purpose for it as it sat well with other historical techniques I was incorporating into my research (including a fingering chart for playing harmonics also from Delusse) and with my conviction that old practices can always provide a fertile source for new ideas. In conjunction with the Delusse scale I investigated the microtonal scale system of Harry Partch (1974).<sup>10</sup> Although solving the problem of semitone-based intervals, this approach also proved musically and technically unusable on my flute. Shaped by my tonal background, I was unable to improvise spontaneously in microtones and the fingering difficulties posed by playing them were equally antithetical to spontaneity. But the result of these investigations was to open up my traditional conceptions of what constituted the materials of music and the possibilities of treating the instrument as a means to an end rather than as

5 For example, Ernő Lendvai's *Symmetries of Music: An Introduction to Semantics of Music* (1993).

6 For examples of Slonimsky, Partch, and Delusse scales see Preston (2004, 49–59).

7 See figure 1.1 in Preston (2004, 21).

8 For examples of Slonimsky scales see figure 2.2.1 a–b in Preston (2004, 51–52).

9 The section including the quartertone fingering chart and a short illustrative air was possibly not by Delusse (see Reilly and Solum 1992). For the “Delusse” scale see figure 2.3.1 in Preston (2004, 56).

10 For examples of Delusse and Partch scales see figures 2.3.1 and 2.3.2 in Preston (2004, 56, 59).

an end in itself. It led me finally to the intellectual and, more significantly, the emotional realisation that the instrument is simply an object with which we extend our physical abilities to make music; that the inner necessity of music is not necessarily fulfilled by tone-based vocabularies possibly spiced with the special effects of extended techniques. Thus I came to regard the Baroque flute simply as what it is, an object that may be used to make music—that is, an instrument, a conical wooden tube pierced by eight holes one of which is covered with a small metal flap with a spring to keep it closed; and I came to regard music as the sounds I might make with that object. And having deconstructed my conceptions of music and instrument, the first phase of my research moved into its culminating exploration, the mapping of all physically possible fingerings on the Baroque flute—128 in total (Preston 2004, 62–66).

The result of the finger-mapping process was the second phase that began with a hiatus. Although opening up the sonic possibilities for which I'd been searching, the 128 fingerings and the sounds they produced were no more meaningfully related than were items on a shopping list.<sup>11</sup> The systematic organisation of these fingerings, which enabled me to use them and led to the creation of ecosonics, came about by chance. It emerged from what was notably the first unplanned process in my research. Playing for time while becalmed in this hiatus I tried to enlarge my insight into the expressive potential of silence, which is a significant, communicative element in the song of many birds between individual phrases and singing bouts. I believed I might find a useful analogy in the expressive use of space in traditional Chinese painting (see *ibid.*, 145–46). In reading about the philosophy of Chinese painting, my attention was drawn to the ancient Chinese “Book of Changes,” the *I Ching* (see *ibid.*, 151). Here was an analogy but not between space and silence. The analogy was between the six-line figures—the hexagrams or *gua*—that are the basis of the *I Ching* and the six holes of the Baroque flute, between the 128 broken and unbroken line combinations of the 64 *I Ching* hexagrams and the 128 open- and closed-hole finger combinations of the six holes of the flute.<sup>12</sup> The question of how to turn these figures into a dynamic fingering system was answered on further reading about Leibniz's development of binary arithmetic and its relationship to the *I Ching*.<sup>13</sup> The answer lay in transferring Leibniz's digital system of zeros and ones to the six holes of the flute and the six digits employed to open and close them, organising them as a series of finger rows in which three fingers moved and three remained static (*ibid.*, 68–85).<sup>14</sup> Having created a physical system for organising the fingerings, I was finally able to develop improvisations and exercises modelled on birdsong, and ecosonics began to take shape (*ibid.*, 92–108).

It was not far into the first phase of my research that I realised the situation was unlike my early research into historical performance and Baroque flute technique in one important respect: there was no source material beyond the

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11 For an example of a shopping list of fingering combinations see figure 2.4.1 in Preston (2004, 65).

12 SEE FIGURES 3.1 AND 3.2 IN PRESTON (2004, 69–70).

13 A parallel brought to Leibniz's attention by a missionary friend in China (see Schönberger 1992).

14 See table 3.1 and figures 3.5 and 3.6 in Preston (2004, 73, 84) and “Appendix 4” (*ibid.*, 178–80) for graphic and photographic examples.

subject. More gradually I would discover that what I considered to be facilitating knowledge and experience could prove to be more of an obstruction to learning than ignorance. I had assumed, for example, that Messiaen's work and other developments in twentieth-century music had prepared the ground for creating birdsong-inspired music. I looked to the writings of Kandinsky and the Blaue Reiter group<sup>15</sup> as exemplars of originating, cross-disciplinary creativity.<sup>16</sup> I thought I could draw an array of historical and contemporary flute resources to research and develop a musical birdsong vocabulary, and out of the many varied contemporary genres of improvisation and tonal systems I could model an avian-inspired improvisational language. But I was mistaken. These were unquestioned assumptions that initially served as means for exploring ideas. But as each failed to provide anticipated solutions the assumptions seemed merely a process of stumbling from one blind alley into another. It was difficult to recognise that each apparent failure was in fact a step forward, that the formulation of an approach and the investigation of its possibilities to the point where it was clearly no longer feasible led to the formulation of new approaches and new possibilities. Gradually I was acquiring the creative means for an outcome I had been unable to envisage until the moment of its emergence.

In reviewing my research I came to understand that unlearning—the deconstruction of ideas and ideologies—was absolutely vital to discovery and the creation of new work. However, although it is easy to say that only a madman keeps doing the same things while expecting them to change, the problem is one of knowing that this is the bind one is in. For me these changes happened because of the repeated challenges to my (pre)conceptions about music in relation to insistent open-minded listening and the unfolding creative response to birdsong, coupled with profound ignorance about what I was actually trying to achieve. The means I adopted from existing practice proved incapable of realising the different, infinitely varied, and often indeterminate sound world I was conceiving in response to birdsong. Identifying and understanding why existing practice was unsuitable for achieving a particular goal was a major part of the process.

In effect progress was made through a series of small epiphanies. Central to this process was the task of identifying essential qualities of birdsong and the growth of an inner necessity to realise them (see Preston 2004, 86). The necessity to give a satisfying musical voice to these qualities only became more insistent with each failure to capture them. I needed a scale system capable of representing the endless intervallic fluidity of avian voices, one that enabled me to play with the physical freedom and volubility of song and to retain the rhythmic subtlety of song. I needed also to be able to play with a sense of unpredictability, a quality of spontaneity that for me was present even in short repetitive birdsong. The choice of atonal scales with their augmented and diminished intervals was an unconscious attempt to emulate the microtonal inflections of bird song, but they resulted in improvisations that sounded like the worst cli-

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<sup>15</sup> Kandinsky ([1914] 1977; [1947] 1979; [1982] 1994); Kandinsky and Marc ([1974] 1989).

<sup>16</sup> For a summary of interdisciplinary areas of research see Preston (2004, 109–23).

chés of poor 1960s music. Most problematically, I could not help but improvise in a way that reproduced birdsong not as I heard and felt it but as I'd preconceived it from all the birdsong music I'd ever played or heard.

Microtonal scales provided a partial solution in that they offered greater interval flexibility, but the potential complexity and technical difficulty of playing them I found impracticable as a basis for improvisation. (Not everybody agrees! What makes it technically very awkward for fluent improvisation on the Baroque flute is partially covering very small finger holes with reasonable accuracy and at speed—that is, so that you still get a sound and a change in pitch.) But I had progressed to the point where after one final step, the mapping of all possible fingerings, I could move on to evolving a system that did enable me to begin working with what I felt as the essential qualities of birdsong. In this respect two aspects of my previous experience as a musician and as a choreographer were fundamental, both relating to sound and embodiment, the former relating to the sounds being given meaning by the expressive body and the latter the sounds that find meaning in the expressive body. In both instances the source of this understanding derived from historical perspectives, first in the perception of a close relationship between spoken language and music (Preston 2004, 118–23, 126–30), and second in the inseparable connection between music and the dancing body. Without this understanding it is unlikely that ecosonics would have taken the form that it did, as a physical rather than a tonal system, one that simultaneously solved the problems of musical enculturation, and of over-determined interval relationships and tonal qualities. With ecosonics I created a way of improvising with the embodied immediacy of birdsong, an approach where human and animal sound making might merge as music.

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## Section IV

# Sound and Space: Environments and Interactions

It has become clear in recent decades that new ways of thinking about the materials and practices of music necessitate a fundamental reconception of the spaces (both metaphorical and literal) in which that music is presented. This idea has roots in several parallel streams of twentieth-century musical thought. Early in the century Charles Ives imagined music to be performed outdoors, or indoors in a particular spatial configuration. His conceptions were extended in the US by Henry Brant, pioneer of spatial composition, and in Europe by, among others, Karlheinz Stockhausen, whose *Gruppen* (1955) calls for three orchestras spatially separated. But a further source is in the attitudes of the historical performance movement, whose interest in authentic instruments, tunings and performance practices may be extended, as pianist Tom Beghin does in this section, to a consideration of the acoustics in which that music was originally heard.

Any performance environment will shape the music heard there; but this fact may be used deliberately by the composer to create an interplay between material and environment that generates new forms of musical expression. The papers here by Paul Craenen (on Alvin Lucier) and Hans Roels (an interview with Agostino Di Scipio) both focus on the work of sound artists who have given a powerful impetus to the exploration of the performance space almost as a co-composer of the music, equivalent perhaps to an immobile—but far from passive—performer. More specifically piano-based concerns to experimental performance is the subject of the article by Catherine Laws, exploring new approaches to practising the unusual demands of Morton Feldman's late piano music. Juan Parra asks questions relevant to artistic creation as research with regard to his own work; and Kathleen Coessens and Stefan Östersjö offer philosophical examinations of ancient Greek aesthetic conceptions and their relevance to new artistic practices today, with special regard to performance. Unlike the other texts in this anthology, there may be some profit in reading the four texts by Coessens and Östersjö (one of them with co-author Henrik Frisk) in the order in which they are presented here.

#### SPEAKING AND SINGING IN DIFFERENT ROOMS – PAUL CRAENEN

Paul Craenen here examines one of the classics of experimental music, Alvin Lucier's *I am sitting in a room* (1969), for speaking voice and live electronics. Viewing the piece as a work of "conceptual process music," he traces some of the antecedents and kinships of the work in both earlier and contemporaneous artistic practices. He examines such matters as the role of semantic intelligibility in our perception of the voice, and the behaviour of the room in which the work is performed in tracing the psychoacoustic phenomena unleashed by the process to which Lucier subjects his material.

EXPERIMENT IN PRACTICE – CATHERINE LAWS

This paper explores what it might mean to practise a composition experimentally: to approach it with an experimental mind-set. With reference to the last solo piano work of Morton Feldman, *Palais De Mari*, Catherine Laws explores pianistic strategies of touch, tone and resonance, and their relevance to Feldman's pared-down sound world. The use of near-repetition and of what Feldman termed "memory forms" pose challenges for the pianist in giving shape to the twenty-five minutes of the piece, with its subtle use of rhythm and metre in a texture without dramatic incident or contrasts. The paper argues for the "practice of practising as an experimental process," "as oriented towards situations with unknown outcomes."

THE VIRTUAL HAYDN: AN EXPERIMENT IN RECORDING,  
PERFORMING AND PUBLISHING – TOM BEGHIN

This paper reflects on a project to apply "virtual acoustics" to a complete recording of Joseph Haydn's solo keyboard works. Fascinated not just by the pursuit of authentic instrumentation in the performance of these works, Tom Beghin became fascinated by the nature of the acoustic spaces in which these works would originally have been heard, and the effect of such environmental conditions on the music. The paper offers an *ex post facto* reflection on two premises of the project: the abrogation of the principle of "one piano fits all," replacing a single Steinway by a variety of historical keyboards, newly constructed to meet the highest possible standards; and second, the replacement of "the single concert hall," one type of acoustic space—usually designed to "project" the music to "the audience"—with a variety of rooms that may historically not even have been exclusively devoted to playing or listening to music, such as ceremonial halls, salons, or a composer's study.

ON *LIFE IS TOO PRECIOUS*: BLENDING MUSICAL AND RESEARCH  
GOALS THROUGH EXPERIMENTATION – JUAN PARRA

This final paper questions the too easy conflation of artistic practice and research—the claim that what artists normally do in itself constitutes research. Juan Parra argues that for composers, a second trap lurks within the notion that creating a new work and "producing new knowledge" are one and the same thing and, therefore, that the act of creating music is equivalent to that of conducting research. With regard to several of his own works, the paper demonstrates which elements of the research process respond to a fundamental need—or question—that transcends the status of output, and how the formulation of these enquiries shapes the artistic process.

INTERVIEW WITH AGOSTINO DI SCIPIO – HANS ROELS

In February 2012 the Italian composer, sound artist, music theorist, and scholar Agostino Di Scipio visited the Orpheus Institute. He gave a lecture-performance during which he performed parts of his solo live-electronics composition *Feedback Study* and a new work for flute and electronics. The interaction between sound, performance space, technology, and performer has become central to Di Scipio's work, the live electronics reacting to the acoustic characteristics of the hall or to unexpected sounds and, in their turn, changing the sound in the hall. Hans Roels took the opportunity to talk with Di Scipio about his work and his attitudes to sound, space and time.

KAIROS IN THE FLOW OF MUSICAL INTUITION – KATHLEEN  
COESSENS AND STEFAN ÖSTERSJÖ

This text considers processes of artistic decision as both intuition- and expert-driven. The reflection upon the making of Richard Karpen's "Strandlines" offers an artistic entry into the philosophical notions of intuition and *kairos*. From Aristotle, through Descartes to Henri Bergson and James Gibson, the authors argue that musical intuition can be understood as a particular interaction between analytical and tacit cognition, situated in the musician's body.

HABITUS AND THE RESISTANCE OF CULTURE – KATHLEEN  
COESSENS AND STEFAN ÖSTERSJÖ

Starting from the premise that "[m]usical performance demands the re-enactment of previously imprinted and embodied expert practices," the authors discuss the Aristotelian concept of the *habitus*, "a general, mainly tacitly and socially acquired whole of embodied patterns for action and behaviour," and its more recent relevance to the writings of Marcel Mauss, Pierre Bourdieu, Maurice Merleau-Ponty and others. The paper contains observations of the authors' own artistic practices in two projects—*Inside Outside* and *IDIOMS*—offering practice-based studies of their theoretical assumptions.

REPETITION, RESONANCE AND DISCERNMENT – KATHLEEN  
COESSENS, HENRIK FRISK AND STEFAN ÖSTERSJÖ

This paper centres around issues in rehearsing and performing Henrik Frisk's composition *Repetition Repeats All Other Repetitions*, commissioned and premiered by Stefan Östersjö. The collaboration between composer and performer was a complex one, in that the musician had to find a way of negotiating open form in a way that made coherent musical sense of the material. The authors discuss issues of discernment in establishing continuities, and the moments of *kairos* (a concept further elucidated in other articles by these authors in this volume) in musical performance. The outcome, a form of "resonance negotiated by intuition," is described in the paper's conclusion.

INTUITION, HEXIS, AND RESISTANCE – *KATHLEEN COESSENS,*  
*STEFAN ÖSTERSJÖ*

Is there a difference between artistic experimentation and the making of experiments in the sciences? Despite the many ways in which these kinds of action can be said to be distinguishable from one another, the authors avoid identifying a wide range of differences between experimentation in science and in the arts, concentrating instead on the notion that experimental practices in the arts seem not to deal with actions of which the outcome is unknown, but rather with the creation of systems of interrelated forces and agents in which the outcome can be intuitively known, through the tacit knowing situated in the musician's body. Drawing on empirical evidence from the three preceding texts, here, the authors attempt at drawing the theoretical discussion together into a discussion of musical experimentation from the perspective of the embodied knowing of the musician.

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# Speaking and Singing in Different Rooms

## Conceptuality and Variation in Alvin Lucier's *I Am Sitting in a Room*<sup>1</sup>

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I am sitting in a room  
different from the one you are in now.  
I am recording the sound of my speaking voice  
and I am going to play it back into the room  
again and again  
until the resonant frequencies of the room  
reinforce themselves  
so that any semblance of my speech,  
with perhaps the exception of rhythm,  
is destroyed.  
What you will hear, then,  
are the natural resonant frequencies of the room  
articulated by speech.  
I regard this activity not so much  
as a demonstration of a physical fact, but,  
more as a way to smooth out  
any irregularities my speech might have.

The words above are the beginning of one of the most striking works in the history of experimental music.<sup>2</sup> In the first recording, from 1969,<sup>3</sup> Alvin Lucier speaks the words slowly, occasionally interrupted by a hesitation (Lucier has a

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<sup>1</sup> Translated from Dutch by Helen White.

<sup>2</sup> It should be noted that Lucier's score only offers this text as a suggestion; any other text may be used instead.

<sup>3</sup> Lucier has continued to make other versions, each recorded in a different room and with a different duration. All audio examples in this article refer to a new version of *I Am Sitting in a Room*, made by the author. An extract from the original recording (1969) with Lucier's voice has been used as input for 18 new feedback cycles. Lucier's original recording appeared as an addition to the magazine *Source: Music of the Avant-Garde* (vol. 7), edited by Larry Austin and Douglas Kahn. The recording may be accessed on ubuweb: <http://www.ubu.com/sound/source.html> (accessed July 1 2013). Sound examples for this article can be accessed at <http://www.orpheusinstituut.be/en/anthology-repository>.

stutter). Immediately afterwards, we hear exactly what Lucier's voice describes. The same words are heard again, but there is an audible difference in sound colour and an increase in the background noise. The difference in colour is caused by the resonance characteristics of the room in which the original recording is played and simultaneously re-recorded. The same process is then repeated many times. In each new recording, the resonances thicken and the room's own frequencies are increasingly emphasised.<sup>4</sup> Thus the intelligibility of the words slowly erodes to make way for clusters of feedback tones. After about a dozen recording cycles, the voice is completely erased. What remains is a soundscape of ringing, resonant drones whose phrasing provides the only vague memory of the words spoken.

#### CONCEPTUAL PROCESS MUSIC

*I Am Sitting in a Room* is one of the rare examples in twentieth-century music of a work worthy of the label "conceptual music." In the definition provided by Sol LeWitt, a conceptual artwork is characterised by an idea or concept that determines all the aspects of that artwork. The concept "becomes a machine that makes the art" (LeWitt [1967] 2002, 846).

As a young man, Steve Reich took a similar approach in his much-cited article "Music as a Gradual Process" (1968) (and it is no coincidence that it dates from the same period as *I Am Sitting in a Room*). In this article Reich defines "process music" as work in which "the process" determines all the musical relationships, both at micro-level and in terms of the overall form (he offers the principle of the canon as an example). By analogy to the machine-like nature of LeWitt's description of a concept, Reich considers the musical process to be an autonomous, impersonal phenomenon: "once the process is set up and loaded it runs by itself" (Reich [1968] 2002, 34).<sup>5</sup> The composer's role is limited to defining the process and determining the starting conditions. In doing so the composer places him- or herself outside musical time.

Nonetheless, the comparison between process music and conceptual visual art is not totally successful. In LeWitt's view, the concept is the most fundamental element of the artwork, with the actual implementation or craftsmanship being of secondary importance. In most process music however, the performers' musicianship is a crucial element in the communicative process of the piece (*Pendulum Music* is an exception in that respect).

*I Am Sitting in a Room* occupies a special position in this comparison between conceptual art and process music. Lucier's concept is convincing in its own right, to such an extent that even today artists are coming up with alternative

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4 Besides the room's own frequencies, the spatial positioning characteristics of the recording and the playback equipment also play a role.

5 A good example of this is another famous feedback piece, Steve Reich's *Pendulum Music* (1968). Three performers are needed at the beginning of the piece to hold up microphones and then release them at the same time. After that the microphones swing by themselves above the speakers and the performers' task is finished.

performance practices and thinking up translations into other media.<sup>6</sup> The concept of *I Am Sitting in a Room* can be considered a discovery, a formula that can be applied to different contexts. The strength of Lucier's original version lies in the wording of the concept that also forms the basic acoustic material with which the concept is implemented. Lucier links semantics back to acoustics, thus creating an intriguing combination of layers—a feedback loop at a second level. Moreover, the words are spoken by a voice, and this voice has personality. In Lucier's case, it also has a very particular characteristic: his speech defect forms an integral part of the piece's rhythm and gives his words (and especially the final sentence) a very human significance.

Despite the simplicity of the technological setting and the almost playful method, Lucier manages to create a rich listening experience. Conceptual, acoustic, and personal registers end up thoroughly intertwined. The sound process unfolds slowly and regularly, and yet one can observe constantly shifting interactions and complexities. In the following paragraphs, I will use a chronology of the listening experience to look for musical principles that can explain the successful structure of *I Am Sitting in a Room*.

#### A VOICE WITH VARIATIONS

Let us begin by examining a few acoustic characteristics in the initial phase of *I Am Sitting in a Room*. Although the feedback process results in a very gradual transformation, it happens in clearly audible steps. Each time the feedback cycle is restarted, new resonances are added, and their overall characteristics remain the same for the whole cycle. Hence it is not a gradually evolving process, but a series of step-like changes in cycles (recordings) that can be distinguished, each lasting about a minute and a half. Successive cycles sound quite similar to each other; the second cycle sounds almost identical to the first. And yet each recording unmistakably possesses its own acoustic identity or quality. After several cycles, the introduction of the new identity is something the listener begins to look forward to. The slowness and regularity of the cycle thus creates a strong pattern of expectation and gives the listener the time to listen consciously to differences with previously heard versions.

The effect of the feedback loops corresponds to a universal principle of musical variation. To give as generic a definition as possible, the principle can be described as: “something is changing while simultaneously something is staying the same.” The most important thing here is the “while.” Think of the “theme with variations” in classical music: the melodic, harmonic, and/or rhythmic structure of the music can be heard throughout the variations, however complex they become. Variations on a theme are experienced as changes against a background of characteristics that remain stable and recognisable.

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6 Some of the many examples that can be found on the web: Residuum, 2005. *I am sitting in a room*. [http://archive.org/details/residuum-i\\_am\\_sitting\\_in\\_a\\_room\\_mp3](http://archive.org/details/residuum-i_am_sitting_in_a_room_mp3). Accessed on 12/09/2013; Kirkegaard, Jacob: *4 Rooms*, 2006. <http://boomkat.com/cds/22750-jacob-kirkegaard-4-rooms>. Accessed on 12/09/2013; [Laboratuar] performance, research and project lab, 2007. <http://www.youtube.com/watch?v=W8Q-4adwVck>. Accessed on 12/09/2013.

From a purely acoustic perspective, the only direct relationship in *I Am Sitting in a Room* is between a recording being played back and the previous recording. In that respect, it would be more accurate to speak of single variations or transformations that, step by step, take the sound result further and further away from the initial recording. But through this alone, it will already be clear how strongly semantics and acoustics influence each other in the listening experience. If we define the experience of thematic variation as an interaction between stable and unstable elements, the words can be considered the stable factor during the first recording cycles. After all, the voice continues to say the same thing, whereas the audible change is located in the new resonance that surrounds the voice in each new recording. “I am sitting in a room, different from the one you are in now . . .” sounds different every time, but the meaning of the words remains the same. Semantic intelligibility becomes a memory aid for auditory memory, the thematic core that allows us to trace the acoustic variations.

In the first iteration of Lucier’s voice, all our attention is turned to the message it communicates. In the following cycles the voice is still clearly intelligible, which turns the repetition of the same words, again and again, into a mantra with a certain level of redundancy and slowness. This gives listeners the chance to shift their attention from the meaning of the words to the character of the voice, the phrasing, and the accumulating resonance.

After the initial phase, everything seems to speed up. The feedback resonances start to become more and more independent, breaking free from the spoken words. What was initially “acoustically” audible as a secondary parameter emancipates itself into a new phenomenon that nestles irresistibly in the ear. It is as though a conflict were arising between Lucier’s voice and the room in which he is sitting.

It is clear that this experience of heightened dynamics cannot be attributed to an acceleration of the cycle or an external intervention by the composer in the feedback process, but instead is caused by subjective and perceptual factors. As the feedback tones come into their own, they demand more and more attention, and at the same time the intelligibility of the words is put under pressure. Gradually we reach the threshold of the minimum information needed to continue understanding the words in their own right. The listener is challenged to fill in mentally what is missing on the basis of previous iterations. The fading voice activates the listener’s memory and elicits involvement. Someone who has not heard the first six cycles will be unable to understand the voice as early as the seventh cycle of the original Lucier recording; however, a listener who has been following from the beginning will continue to be able to hear the original words through the contours of rhythm, phrasing, and dynamics.

This brings us back to the principle of musical variation we mentioned earlier. Talking about a musical “theme with variations” is only relevant if a thematic core is retained throughout the variations. Recognisability is gradually put to the test in *I Am Sitting in a Room*. The stability we initially found in the semantics and the voice is progressively undermined. Increasing complexity and even a

certain form of drama are the result. Lucier's voice, on the point of being completely swallowed up by the resonances of the room, also confronts the listener with a challenge to his or her own hearing. This is typical for Lucier's work in general: on the surface, it seems to be about acoustic phenomena investigated with an almost scientific interest. But in the end it is primarily the act of listening that comes to the fore.

Once intelligibility is lost, developments seem to slow down again. It is as if the conflict between two modes of perception has been resolved and a new stability can be heard. The room's own frequencies have now forced their way to the forefront. By definition, these inherent frequencies stay the same (since the room in which the recordings are made stays the same), leading to a clearly audible relationship between, let's say, the eighth and seventeenth cycles in terms of the frequencies present and the pitches that can be heard.

An important reversal has occurred. Each cycle continues to generate new resonances that can be experienced as sound variations, but the stable core around which they crystallise is no longer the voice or the words that could be heard in the first recording. In the first recording the characteristics of the room were hardly present at all, whereas the voice was absolutely central. In the course of the feedback process, this relationship is reversed step by step. The new relationship indicates something that grows, a tonality of the room that manifests itself ever more prominently. Hence we can no longer speak of variations that refer back to a shared sound pattern in the past, but to the audible emergence of a future that had already been announced in the semantic sense, but was not yet borne out by acoustic reality at the beginning of the piece.

#### FROM SPEAKING TO SINGING

In the final phase of *I Am Sitting in a Room*, the voice has been completely erased and all the silences between what once were words have been filled with spatial resonances. Now attention can be devoted fully to the play of feedback tones, the way they alternate with one another and how in each new recording they shift, stretch, or intensify a little, or sometimes even make way for a new note. Only the rhythm and dynamics still vaguely remind us of the original phrasing of the voice.

It is only when we look back over our shoulder that it becomes clear what radical events have played out. The gradual nature of the feedback process means that each new recording can be heard as merely a minor variation on the one before. With each recording something is added, but much has also been lost along the way, almost without our noticing. The first loss was the articulation of the words, then the timbre of the voice, then the recognisability of the words, then the phrasing, until finally a sound situation was reached in which even the human origin of the sound has evaporated. However it is not so clear *where*, as listeners, we lost all these qualities. We do not remember any ruptures because our attention was always attracted by new details and, moreover, our memory was trying to fill in the gaps the whole time.

*I am Sitting in a Room* demonstrates how experience with variations and relationships is based on quantifiable acoustic or musical information and also constantly engages the listener's memory and consciousness. The stable, recognisable core around which variations can crystallise may be of an acoustic nature, it may be the meaning of a word, or it may be something even more abstract, something that could be described as a "concept" that does not correspond to (acoustic) reality. This conceptual origin gives the listener an *awareness* that turns out to be crucial to his or her listening experience and appreciation. Somewhere in the listening process, the listener loses language in its concrete, sounding form. He or she is caught up in a singing, resonating soundscape, all the while not entirely forgetting what is going on. For what also convinces us, step by step, when listening to *I Am Sitting in a Room*, is the success of the concept. As acoustic sensation, semantic frame of reference, and conceptual awareness affect one another more and more deeply, the listener's "understanding" ultimately becomes a triumph of the imagination.

There is a timeless, archaic theme concealed within this work, a theme that is not about acoustics but rather is about the metamorphosis of the voice. A speaking, stuttering voice emerges from the chrysalis of the piece as a voice that sings and resonates. This voice is not electronic and neither is it a secondary characteristic of something (the room) or someone (Alvin Lucier). It is a voice of its own, a voice full of life directed towards a future, growing identity. This is what makes the listener listen, and continue to listen to what is yet to come.

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# Experiment in Practice

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What might it mean to practise a composition experimentally: to approach it with an experimental mindset? This question has arisen through my ongoing experience of working with the piano music of Morton Feldman, one that has caused me to consider the specific impact of practising his compositions upon my approach to performance more generally. While I have for some years given occasional performances of Feldman's music, this article arises out of a more focused scrutiny of the experience of performing his late piano works. Performances took place in 2009-2010 across the UK (in London, Bath, Dartington, Barnstaple, Oxford and York) and in Ghent, forming part of the process of research for a project at the Orpheus Research Centre in Music entitled "The modes of listening, memory, and physicality at play in the preparation and performance of Morton Feldman's later works for solo piano."

In this instance, the focus is Feldman's last piano piece, *Palais de Mari* (1986). The title of this piece is taken from a photograph of an ancient ruined palace in Syria that Feldman saw in the Louvre Museum. However, the direct impetus for the piece came from Feldman's composition student Bunita Marcus, who asked him to condense the material and techniques from his longer pieces into a smaller work.

As in Feldman's other piano music, there is little here in the way of conventional technical difficulty. Similarly to *Triadic Memories* (1981) and *For Bunita Marcus* (1985), there are occasional awkward leaps across wide intervals—here mostly for tiny grace notes, always placed well over an octave above the chords that precede and follow; these require conventional practice. Some of the rhythmic changes also require a little attention, so as not to be wrong-footed by the sudden shifts between bar lengths. However, even in this respect the piece is relatively simple, with none of the more complex or irrational rhythmic relationships found elsewhere in Feldman's work. Additionally, on the surface level at least, Feldman's notational practice appears to leave little room for interpretative exploration on the part of the pianist. He gives single metronome and dynamic markings that remain unchanged for the duration of the piece, and indicates the (very few) points at which the sustaining pedal should be raised and lowered to clear the resonance. The specificity of his metrical and rhythmic shifts—sometimes altering the length of an otherwise repeated note, chord, or whole bar only fractionally—are such that any durational freedom on the part of the performer will obscure these subtle but important changes (though in practice the differences in performances are nevertheless consid-

erable, as is evidenced by comparison of recordings;<sup>1</sup> the more concentrated and closely defined the soundworld, the more noticeable and significant the tiniest inflections of rhythm or resonance). Instead, the primary focus of technical practice tends to be upon maintaining the soft dynamic across chords of varying shapes and densities, on touch, tone, and the weighting of chords, on the subtleties of key release at this quiet level, and on how to phrase the short melodic fragments.

Overall, the challenge of Feldman's music for the performer lies primarily in the attention to details of touch, tone, and resonance. Much of Feldman's music operates within a very narrow, extremely soft dynamic range, often at the borders of what is possible in terms of quiet piano sound, and sometimes over very long periods of time; *Palais de Mari* is actually one of Feldman's shorter late works, but still lasts around twenty-five minutes without a break. *Triadic Memories* runs for about 90 minutes, *For Bunita Marcus* a little less (although these are by no means Feldman's longest works: *String Quartet II* from 1983 lasts for around five hours).

In *Piano Notes*, Charles Rosen ([2002] 2004, 45, 50) points out that most composers assume a uniformity of tone colour across the piano, when in reality even the most well-balanced piano has very different colours in the lowest and highest regions. There are exceptions—Debussy, for example—but Rosen argues that register and tone colour are generally subservient to the expressive narrative, to form and structure, and that the specific differential qualities of sounds, in and of themselves, often pass unnoticed. In particular, that these changes are gradual across the range often obscures the significant variation. In contrast, Feldman's compositional choices in his late piano music reveal a particular sensitivity to this issue, especially in relation to the decay of the sound. He liked to compose at the piano, often with his head very close to the instrument, listening carefully to the decay (Bryars and Tilson Thomas 2013); he said that sound as a physical fact kept him from floating off into an “intellectual daydream,” guarding against an abstract compositional idea of how the piece would sound, at some remove from the acoustical reality (Feldman 2000, 206). As a result, the pianist must, perhaps more than ever, scrutinise the quality of the sound she or he produces, alert to the most subtle relative qualities of sound across considerable lengths of time.

The process of practising and performing Feldman's music throws into stark relief issues that lie at the heart of piano playing, but which often become submerged, elsewhere in the piano repertoire, beneath other concerns. Pianists do, of course, focus in their training on details of finger and pedal technique, and on how these influence the quality of sound production. However, the virtuosity of much solo piano music in the Western classical tradition can distract attention from qualities of sound towards the fundamental issue of get-

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1 Unlike much of Feldman's work, *Palais de Mari* has been recorded many times. Recordings include those by well-known Feldman performers such as Aki Takahashi, John Tilbury, Markus Hinterhäuser, Stéphane Ginsburgh, and Marianne Schroeder (who made the first recording), in addition to those by Alan Feinberg, Siegfried Mauser, Ronnie Lynn Patterson, Steffen Schleiermacher, Sabine Liebner, Philip Howard, Andreas Mühlen, and others.

ting around the notes. Moreover, the instrument's very versatility, in terms of its melodic, harmonic, and rhythmic capabilities, combined with the pre-eminence of the idea of musical form as a logical continuity articulated primarily through these parameters, often leads pianists to concentrate expressive intentions towards form and structure at the expense of sonority, timbre, and texture.<sup>2</sup> In contrast, I argue, Feldman's music encourages the pianist to confront the connection between resonance and the perception of form. As such, practising this music is always, self-consciously, part of a process of inquiry that tests the relationship between sounds across time.

Feldman's move to composing longer and longer pieces was driven by his sense that musical form had become a "paraphrase of memory" (Feldman 1985: 127); that organic antecedent-consequent structures of any kind resulted in a focus on expectations (and their denial) and on the recognition of returning (while often transformed) materials: that is to say, on processes of memory, rather than on musical sound. By extending his works beyond the usual, assimilable length, he hoped to move listeners beyond any initial expectations that the quiet, uneventful music was bound to grow into something else, and towards a different kind of listening, concentrating attention on the local patterning and resonance of the musical fabric.

This is not, however, a denial of memory, but rather a refocusing on the ambiguities and uncertainties of memory when it operates outside conventional or received structures. Feldman talked of "formalising a disorientation of memory" (Feldman 1985: 127). *Palais de Mari* comprises small modules of material: sometimes short blocks of one or just a few bars, interrupted by rest bars of different lengths—anything from 3/16 to 2/2; figure 1 shows the opening of the piece. Importantly, the pedal stays down through the "rests," focusing attention on the decay of the sound. Other sections comprise extended passages of long chords that are then repeated but transposed slightly (by a semitone, for example) and with the length of each chord in the set extended or shortened by a quaver or a crotchet (as in figure 2). Feldman described this piece as a "rondo of everything" (Feldman 2008, 2:594), stating that "everything comes back." Unsurprisingly, though, it is only a rondo in the loosest sense; modules, or elements of them, return, but almost always in altered form and without any clear sense of consolidated reiteration. Repetition here always reveals difference, the subtle changes undermining the sense of identity. This produces an impression of the relatedness of events, without any clear implication of causality or unity.

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2 Pianist Philip Howard (2010), who has recorded Feldman's *Palais de Mari*, puts it more bluntly, stating that in most music, "people have enough to occupy their thoughts and fail to notice the importance of resonance and decay. . . . but when it gets sparser they start having to think about it suddenly."

The musical score consists of four systems of piano accompaniment. The first system (bars 1-6) begins with a piano (*ppp*) dynamic and a *2do.* marking with an arrow. The time signatures are 5/8, 3/4, 5/8, 3/4, 5/8, and 3/4. The second system (bars 7-13) features a *6:5* fingering marking. The third system (bars 14-21) includes a *b.* marking. The fourth system (bars 22-27) continues the complex rhythmic and time signature patterns.

Fig. 1

Sometimes the relationships between musical events are obvious. Certain chords or modules are echoed by means of techniques of “almost” repetition; for example, with some pitches reordered rhythmically, or with pitch classes displaced across octaves so that the tone and the decay of the sound are somewhat different, or with exactly the same short chordal sequences simply extended or compressed durationally. Less obvious, but perceptible to varying extents, are other kinds of relationships. Feldman makes use of inversions or transpositions of chords or melodic fragments, but often with the rhythmic relationships retained. Similarly, he sometimes uses only very distantly related chords but employs them within repeated gestures of the same, striking quality (for example by alternating them with single grace notes very high on the piano). Finally, metre is itself subject to comparable forms of variation, with frequent repetition of the same time signatures (especially 5/8, 3/4, and 2/2) but with the content similar but varied and the bars subdivided in several different ways.

The result is a general sense of relationships between the musical modules, but at subtly shifting levels and with varying degrees of ambiguity, such that they never quite crystallise into anything graspable. Frank Sani reaches a similar conclusion after a thorough analysis of all the possible relationships perceivable from the score; he identifies a complex web of interconnections, some

Fig. 2

immediately apparent to the ear and others not, but concludes that there is no core group class providing underlying cohesion: “*Palais de Mari* shows a catalogue of playful workmanship, making through-composing into a highly skilled flow of invention, where groups of pitches are inverted, transposed, re-shaped, and where the introduction of new pitches from time to time is instinctively alternated with echoes of previous harmonies” (Sani 2004). On the one hand these modules act almost as images—their focus and brevity makes them discrete and potentially memorable in themselves—but the endless, subtle reconfigurations cause the memory to start to slip. Perhaps a sense of a relation is retained, but exactly what to? and exactly what has changed? In this way, seemingly objective, systemised relationships are undermined by intuitive and unpredictable interventions. Feldman commented, “what I’m doing is exploring what I feel [are] the discrete possibilities of making connections, which sometimes my brain or ears can’t make” (Feldman 2008, 2:710); the word “possibilities” seems key here: the relationships are as much potential as real, manifested as much by the performer and listener’s perception of a possible connection as by any definable, material relationship.

In performance terms, the relative uncertainty or stability of these relationships will of course be partly defined by the pianist’s performance decisions,

developed through practice. To an extent the pianist will explore and come to decisions about touch, tone, weighting of chords, relative stress of notes, exact tempo, and what *ppp* really means; all this will affect how the performer produces the effect of one sound listening to another internally, across the fabric of the work. On this level, the process of practice is little different from that for any other music, combining technical and embodied factors into developing a sense of how to project the musical continuity; to an extent, the pianist forms an interpretation through the practical experience of working on the music. However, a range of factors militates against the conventional notion of interpretation since there is no clear structure or expressive trajectory to represent. This leads to a significant shift in the aims and objectives of practice.

With *Palais de Mari*, in hearing the subtleties of the relationships exposed by the material reality of piano resonance, one quickly comes to realise that the ambiguities of the music and instabilities of the resonances are such that one hears different connections each time; the performer and listener constantly form and re-form associations out of the soundworld, recreating the musical meaning anew, subjectively, each time. If the music maps a subtly shifting terrain, to attempt to draw a clear line across it by foregrounding certain relationships is to impose a coherence of experience on something that otherwise hovers on the boundaries of tangibility. In this respect, practice cannot, with this music, consist of finding an expressive pathway to be projected in performance. Instead, the repeated playing of the music gradually accumulates awareness of the ways in which the music not only resists concretisation but is in part “about” its own undecidability, its own contingency and performativity: “about” the direct experience of sound in the moment of its perception. In this sense, practice allows for a growing understanding and acceptance of the condition of uncertainty, and of the ability to attend and react to ever-changing qualities of sound.

Significantly, the pianist’s understanding of the musical relationships is, in part, dictated by factors only discerned in the moment of performance. Pianists always, of course, grapple with the fact that they can never take their instruments with them. Piano performance is always an experimental business. We have to adapt our techniques in relation to the instrument (and the acoustic). We use any available practice time to get to know the piano, but often this time is limited, and only the most well-established and venerated performers—usually of more mainstream classical repertoire—are able to demand the instrument of their choice for a performance, or to work with piano technicians to rebalance the keyboard according to their preferences.

These issues are faced by any pianist playing any repertoire, but the particularities of Feldman’s musical material make them especially significant. Aside from the substantial influence of the size and acoustics of the space in which one is performing, the nature of piano sound at very low dynamics varies between instruments, as does the decay. The particular weight and balance of each keyboard is different, and often there is considerable variation across the range; some of this might only be fully realised in the moment of performance. In contrast to the issue of decay, in *Palais de Mari* the more continuous

sequences of chords have the effect of building the sound slightly—with the pedal held throughout long passages, some harmonics continue to reverberate despite the soft dynamic level. Even as these die, the resonance can sometimes be reactivated by the relationship to overtones of subsequent chords, but the exact nature of this resonance will vary from one piano to another (especially in relation to how, and how well, the piano is tuned). All these things will influence how we hear the almost-patterns of Feldman's music, and these elements are not—cannot be—represented in the score: they are appreciable only through playing and/or listening. While in most music these subtleties are peripheral, subtly inflecting the harmonic resonance but without material implications for form, structure, or overall expression, here the fragility of the soundworld and the ambiguities of the musical connectivity are in part derived from the very nature of these resonances.

As a result, the pianist John Tilbury stresses, the performer is never entirely in charge of the sound: “you play a chord and you can sustain it, by means of the pedal, and then it's really out of your control. You can kill it, by lifting the pedal, but the very complex way that it disintegrates and changes—you have no control over that whatsoever” (Gardner 2006). Moreover, it is these variations and unpredictabilities in the ways in which the sound aggregates and disperses that, in part, interest Feldman. The performer is still responsible for the sound, but in this context there is no possibility of subjugating the subtle idiosyncrasies of the instrument to the sense of the musical argument or discourse. Here, there can be no distinction between the two. Exactly what constitutes the music here is completely bound up with the material manifestation of the sound, and hence with the performer's touch. The way in which a particular note or combination of notes sounds in the moment of performance must influence subsequent approaches to other notes. Moreover, the performer's action-perception loop is somewhat altered. In most music, the pianist plays a note or chord, listens to the immediate qualities of that attack (often unconsciously, as part of an embodied process), and prepares for the next, with the actions subtly influenced by the perception of what is heard. However, in *Palais de Mari* (and much of Feldman's other late music), the “rest” bars, in which the resonances decay, are not merely spaces between sound events (or in which the performer can prepare the next action) but are materially significant in themselves. How the resonance decays, and how certain overtones fade from prominence and are then reactivated, is of as much interest as the tones activated by the pianist's fingers. Feldman seems to pose the question, what is the musical material: the notes struck by the pianist, or the sympathetic frequencies that rise out of, and fall back into, the bloom of the resonant texture? For the pianist, this question alters the nature of her or his listening and the relationship between action and perception.

The delicacy of the soundworld poses particular difficulties. Pianists practise *pianissimo* technique, but the minutiae of the differences in key and hammer action mean that the technique has to be subtly adjusted for different pianos, and across the range. Practising on different instruments can lead one towards deciding on an approach, but not on an absolute level of sound or on exact-

itude of touch. The performer has to decide how soft is soft: does *ppp* mean absolutely as soft as possible, on the borders of audibility and with the risk that notes may not always sound, or is a degree of projection necessary, allowing for evenness of tone and the clear definition of musical events? This is, of course, a question that pianists (and other musical performers) confront all the time. The choices relate to one's attitude towards the situation of performance; a preference for the clarity and uniformity necessary to fully discern the subtle almost-patterns of the musical fabric must be set against the desire, not merely to project, but truly to perform the fact that music is, in part, concerned with exploring the fragility and contingency of instrumental sound. Either way, one reaches a paradox: practice, however important, cannot prepare one for the particular uncertainties of the moment of performing this music and for the need to be alive to the qualities of sound at every instance, but it is only through orienting one's practice towards those problems that one truly understand the nature of this issue—the specifics of those contingencies, and the questions of performativity that Feldman exposes.

Certainly, whatever the pianist's decision, the quality of any one chord or short phrase has implications for our sense of the already uncertain nature of its relationship to another; the subtleties of the relationships, because of their fragility, will vary according to the performer's understanding and decisions, but some of these have to be taken in the moment. Kathleen Coessens argues that in any performance the qualities of a musical gesture, physical and sonic, influence in the moment how the next gesture is created (Coessens 2009, 276–77). This is true, but these pieces by Feldman push this to the forefront and make it pre-eminent in the formation of musical meaning—they throw into relief the manifestation of *kairos* (in Coessens's terms) as the taking of a propitious decision in the moment of the particular situation. I would argue that the need for the pianist to listen attentively and react to sound in the moment is more extreme than in the performance of most other music. Again, practice cannot lead to decisions as to how exactly to play, rather it leads towards a greater understanding of the resonant variation and consequent relational potential of Feldman's music, and a better ability to play according to what one hears, rather than according to what one expects or plans to hear.

The performer's treatment of metre and rhythm is also immensely significant, again in relation to the perception of pattern, both locally and across time. Despite Feldman's specificity with regard to tempo and duration, in practice there are inevitable differences between performances, and even the tiniest variations of either tempo or rhythm affect the emphasis—hence the very subtle similarities and differences that Feldman employs. Again, this is immediately apparent in comparing even the opening few bars of any of the recordings, in which the impact of the smallest differences in tempi, phrasing, and weighting lead to significantly different effects. As Dirk Moelants (2001, 127–28) has shown in a study of Feldman's much earlier and very different *Last Pieces* for piano, performance decisions about the lengths of notes have a significant influence upon the role of memory in the music—on our ability to make connections between sounds. In this later music, Feldman is often playing with

exactly this ability, and the performer's decisions as to the relationship between ictus, rhythm, and metre have a profound impact on sound and memory.

Again, some of these decisions can be taken in the usual manner, through the practice process, and might be described in conventional interpretative terms. However, the durational decisions are always linked to harmonic reverberation, and are therefore also subject to the contingencies of the moment of performance I have been discussing. Moreover, this relationship produces a peculiar duality for the performer. As explained above, the significance of resonance and decay requires attention and is different on each piano; while the duration between events is determined by Feldman, the precise detail of what we hear in that period is not. In this sense, the effect is of time being marked by the decay—slowly and continuously, but at a slightly different rate and with a slightly different quality in each performance. At the same time, the ictus ticks away, marking time in short, evenly measured periods, oblivious of the uncertainties of the musical content. However, I would argue that this is one of the productive dilemmas produced by Feldman's music: the awareness of measured time set against experiential time, and the impossibility of resolving that duality. The performer has to experience this "betweenness" without resolving the contradiction; again, this means practising the experience of uncertainty, cultivating an openness to being pulled sometimes more in one direction, sometimes more in the other, and responding according to the subtleties of the sound in the moment.

Ultimately, while Feldman is generally considered an experimental composer, I am arguing for the practice of practising as an experimental process, defined in Cage's (1955, 13) terms (and later elaborated by Michael Nyman [1999, 1–30]) as oriented towards situations with unknown outcomes. In this sense, the aim of practice is not to pin things down—deciding how exactly to place a note, weight a chord, or develop a "reading" or interpretation of a work—but rather to hone the ability to respond to the contingencies of sound in the moment of performance. This is not to dismiss the importance of technique—as should be clear from the above, the ability to respond appropriately is predicated upon a sound technical basis, especially with respect to touch and tone—but rather to recapture the ultimate aim of practice as leading towards an openness to what cannot be planned, to the undecidability of performance. In this respect, practising Feldman's music, and carrying forward the experimental practice it inspires, might alter one's ability truly to listen to the sounds of other music, and to attend to the ways in which these, too, are manifested in the moment of performance.

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# *The Virtual Haydn*

## An Experiment in Recording, Performing, and Publishing

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Between 2005 and 2009, at the Centre for Interdisciplinary Research in Music Media and Technology (CIRMMT, McGill University, Montreal), producer Martha de Francisco, engineer Wieslaw Woszczyk, and I collaborated to apply “virtual acoustics” to a complete recording of Joseph Haydn’s solo keyboard works. *The Virtual Haydn* is at present available on both Blu-ray (Beghin 2009) and CD/DVD (Beghin 2011). Seven historical keyboards—each representative of a part of the repertoire—combine with nine virtually recreated historical rooms—locations where Haydn’s keyboard music would have been performed. The published package contains fifteen hours of high-resolution sound (5.0 surround and 2.0 stereo, separately mixed) and three hours of HD-video, including a feature-length “making of” documentary entitled *Playing the Room* (Litz and Tusz, 2009).

*The Virtual Haydn* is based on two major premises. First, we abrogate the principle of “one piano fits all,” replacing a single Steinway by a variety of historical keyboards, newly constructed to meet the highest possible standards. Second, we do the same with “the single concert hall,” replacing one type of acoustic space—usually designed to “project” the music to “the audience” out there—with a variety of rooms that may historically not even have been exclusively devoted to playing or listening to music, such as ceremonial halls, salons, or a composer’s study. As a result, the notion of one consistent “repertoire” yields to “several” alternative and/or complementary “sub-repertoires.” Instead of a continuum from “early” to “late” (the typical evolutionistic, if not teleological view of a composer’s oeuvre: think Beethoven piano sonatas), we like to believe that, with *The Virtual Haydn*, we have opened various windows onto mid to late eighteenth-century “musicking.”<sup>1</sup> Together, these windows span the years between ca. 1750, when Haydn as a young adult started freelancing in Vienna, and 1797, the date of his hymn “Gott, erhalte Franz den Kaiser,” on which he wrote variations. The latter piece, technically an arrangement for

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<sup>1</sup> To replace the noun “music,” we adopt this more dynamic term from Christopher Small (1998).

piano of a movement from his “Emperor” String Quartet, Hob. III:77 (or op. 76, no. 3), serves as a reminder that, in Haydn’s day, the genre of “keyboard music” was more inclusive than what we’ve become used to since Anthony van Hoboken’s catalogue (1957–78). “Keyboard music” would have included “songs for the keyboard” (*Lieder fürs Clavier*) or “accompanied sonatas” (what we now call “trios” or the occasional “violin sonata”). When we add the qualifier “solo” to our assignment—to record Haydn’s complete *solo* keyboard music (or “Hob. XVI,” sonatas, and “Hob. XVII,” single pieces)—this should similarly be understood as pragmatic rather than ideological.

The “virtual” in our title aims to capture more than just an innovative use of technology. It hints at a desire, as engineer, producer, or performer, *to play* and not only copy or reconstruct. For me, as performer, this meant to be historically imaginative. In the forthcoming monograph *The Virtual Haydn: Paradox of a Twenty-First-Century Keyboardist*, I elucidate my musicological journey, in which “virtual acoustics” became more than a finishing touch: the “paradox,” an analogy to Diderot’s “Paradoxe sur le comédien” (Diderot [1830] 1995),<sup>2</sup> refers to the various, often conflicting personae that as a twenty-first century performer “I” have to adopt vis-à-vis Haydn and the erstwhile users of his sonatas, represented by their mostly female dedicatees. In this essay, I focus more on the concrete decisions that eventually defined the commercially released product. To this end, various picture, sound, and video files accessible at the accompanying website (<http://www.orpheusinstituut.be/anthology/repository>) do not merely illustrate but constitute the spine of the following concise prose.

#### BLU-RAY

The Blu-ray package includes four discs, as opposed to the thirteen in the CD/DVD release. Figure 1 shows the menu page of the second disc. The user is presented with an immediate overview of about four hours of music in five-channel high-resolution surround and two-channel high-resolution stereo. The contents correspond to three different opus sets, containing six sonatas each, published or circulated in 1774, 1776, and 1780 respectively. With our remote control we have selected and highlighted the third of these: the “Auenbrugger” Sonatas, dedicated to the sisters Katharina and Marianna (von) Auenbrugger. The concept of an opus—say, three symphonies, six sonatas, or twelve songs—was strong in eighteenth-century musical life. This was true not only for publishing but also for performance: in a 1784 advertisement the Viennese publisher Johann Traeg announced that, from his “nice stock of the best and newest scores,” he would make available to subscribers “either three symphonies or six quintets, six quartets, six trios, etc.” at a blanket rental fee per season. The clientele he had in mind were “those families and individuals . . . who entertain themselves every week with . . . academies [*Akademien*, i.e., concerts]”

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<sup>2</sup> Written in the early 1770s, the piece was published posthumously. The essay deals with “sincerity” and the question of an actor’s emotional investment in his or her role.

(Sisman 2008, 86). Mozart “frequently” performed “all his six” Munich sonatas (K. 279–84) at private houses in various German cities. “Six” was not only a perfect number—it may well have encapsulated the typical attention span for a listener at that time.

Before we found the Blu-ray format, we seriously struggled with the dilemma of either having to give up the option of fitting a complete opus on a 72-minute compact disc, thus continuing to favour (as modern practice wants it) single works, or having to compromise on taking repeats (to speed things up). But taking repeats, following eighteenth-century practice, allows the skilled performer to improvise over the written text—a skill I was keen to demonstrate also on the recording. Blu-ray, in both cases, provided a welcome solution.



Fig. 1

VIRTUAL ACOUSTICS: *PER EXEMPLUM*

16 September 2007, 1:00 p.m., I board the ferry in Calais, bound for Dover. Fragments of a letter of 8 January 1791 from Haydn to his dear friend Marianne von Genzinger keep invading my thoughts:

After attending Holy Mass, I boarded the ship, at 7:30 a.m. [on New Year’s Day 1791], and at 5 p.m., God be thanked!, I arrived safe and sound in Dover. . . . During the entire passage I stayed on deck, so as to gaze my fill at that mighty animal, the sea. As long as there was no wind, I wasn’t afraid, but as the wind grew stronger and stronger, and I saw those frighteningly high waves slamming into the ship, a little fear took hold of me, along with a little nausea. But I survived it all without . . . you know, and arrived safely to shore. (Bartha 1965, 250, my translation)

Like Haydn, for most of the one-and-a-half-hour journey, I too stayed on deck. The purpose of the trip: to bring a 1798 Longman, Clementi & Co. piano from its present home in Belgium back to England, specifically to Oxford's Holywell Music Room, "Europe's oldest concert hall." Our task: to sample the room—that is, to take many acoustical snapshots of it—and make a reference recording of the instrument, positioned in recital-style, on the stage with its lid up. The piece I played was Haydn's "grand" Sonata in E $\flat$  Major, Hob. XVI:52, written for the London-based, professionally trained pianist Theresa Jansen, pupil of the "Father of the [modern] Piano," Muzio Clementi. To further transport myself into an appropriate concert mood, I invited a few British guests, seated at an appropriate distance on built-in benches.

With this information—digital data on our hard drives as well as vivid memories of the actual performance experience—our team flew back home to Montreal, Canada. There, in a laboratory on the eighth floor of a downtown building (see figure 2), we replicated everything. Thus, sitting at a 2004 replica of the same Longman, Clementi & Co. grand, in a three-dimensional "dome" of twenty-four loudspeakers, I can play *as if* I were in the Holywell Music Room, ever so conscious of the acoustical spaciousness that surrounds me. As microphones pick up the sounds of the piano, the computer makes the fastest of

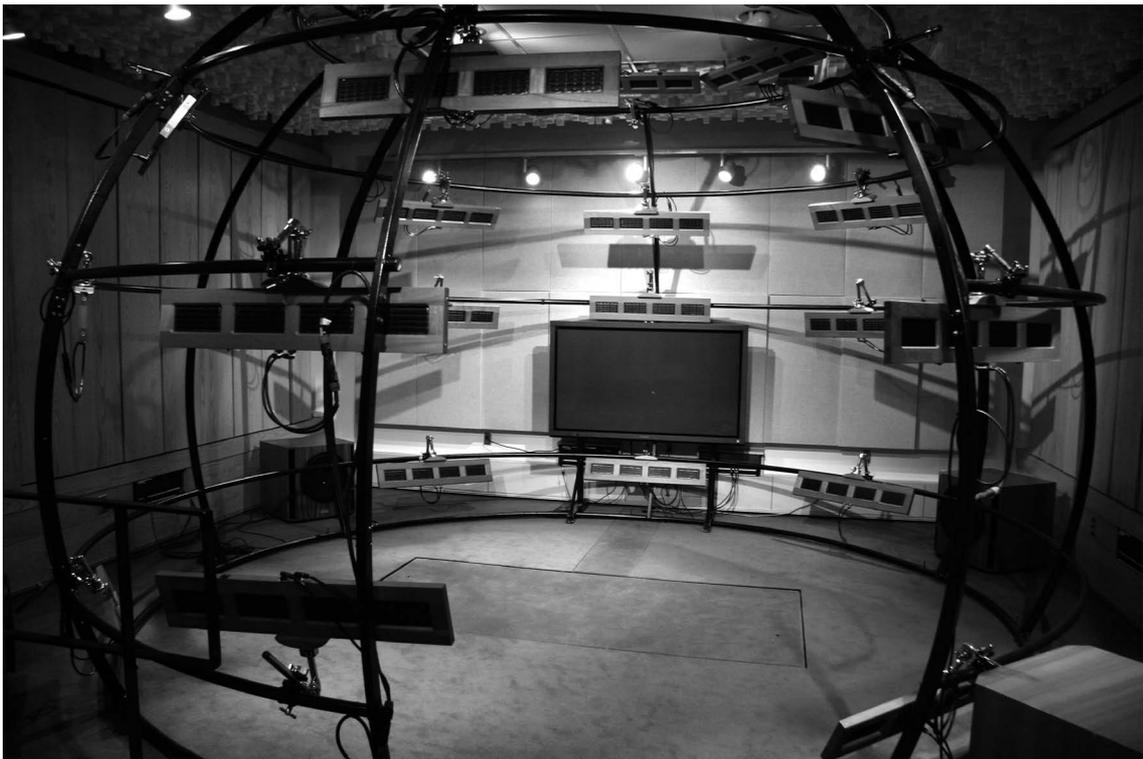


Fig. 2

calculations, sending reverberation responses identical to those in Oxford through the loudspeakers. With the confidence expected of a recitalist, I project those grand opening chords into a virtual hall. Then, as I play the repetitions in the higher register, dropping silences in between, I actively engage with the acoustical feedback, which complements the lazily dampened, resonant though somewhat muffled English tones amazingly well. Through these moments of “staged” hesitation, I assert my authority as a professional performer, at the English instrument, in a virtual concert space, with an imaginary audience.<sup>3</sup> (Video documentation of these two events—“real” vs. “virtual”—may be found on the website.)

#### MAKING DECISIONS 1: INSTRUMENTS

When Wieslaw Woszczyk approached me with the idea of “virtual acoustics,” I was initially hesitant. My focus had been on Haydn, his dedicatees, and their instruments. Now also their rooms? What about their clothes, also relevant for a specific composure at the keyboard? Candles? (For reading a score.) Humidity? (For tuning.) Suddenly, all the many traps of historical reconstruction felt wide open. We want to be inspired rather than enslaved by history. We want to breathe life into scores, not because we feel a moral obligation to the past, but because we want them to speak to open-minded twenty-first-century audiences, making full use of present-day expertise and technology. I had no antiquarian desire to record on various “authentic” instruments in museums. The newly built instruments are simply much better and much more reliable—just as the old ones were in their own time. Why chase nostalgia?

My interest in instruments and Woszczyk’s in rooms, however, quickly proved complementary. Woszczyk was interested in a variety of rooms, not privileging one over another, but in allowing each to highlight a different aspect of the music. So, the anxiety shifted from the “whether” to the “what”: *what* rooms should we select for a repertoire that almost exclusively would have revolved around private music making? (In this respect, the previous example of a “concert sonata” would have been one of two big exceptions for Haydn.) Even granted that we know which room we’d like, and even if it still exists, how “authentic” is its present state? And on the instrument side, there was a new, pressing challenge. I had always assumed that I would go elsewhere to record, to wherever I would find the appropriate instrument. With this new dimension, we had to bring instruments to Montreal—paradoxically making the “virtual” much more logistically complex than the “real.” With the help of funding from the Social Sciences and Humanities Research Council of Canada (SSHRC), we rose to the occasion, and expanded our collection of Haydn-related keyboards to the following encompassing list (photos of which may be browsed on the website):

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<sup>3</sup> For technical details, see Woszczyk (2009); Litz and Tusz (2009).

1. *Viennese harpsichord, Johann Leydecker, Vienna, 1755, by Martin Pühringer, Haslach, 2005*

The first modern-day replica of a mid-eighteenth century Viennese harpsichord, this instrument features the so-called Viennese “short octave” or “multiple-broken bass octave,” shown in figure 3: a number of keys in the bass are cut in two, one even in three, to accommodate more notes in a shorter span. Three of Haydn’s solo keyboard pieces can be played only on an instrument with such a short octave; the opening movement of the Sonata in E Minor, Hob. XVI:47, is one of them. For the second dominant chord in example 1 (an intensification of the first two-bar gesture), I play a D, d (one octave higher), and f# (one tenth higher), all within the comfort of one hand. (A corresponding video clip may be found on the website.)

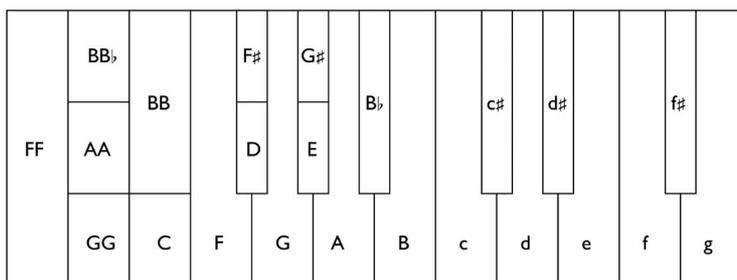


Fig. 3



Ex. 1

2. *Saxon clavichord, ca. 1760, by Joris Potvlieghe, Tollembeek, 2003*

The expressive-dramatic power of this big, Saxon-style clavichord lends itself well to what have been called Haydn’s “workshop sonatas,” of which the C Minor Sonata Hob. XVI:20 is the most famous (Somfai 1995, 173–74). By default, because of its “long octave” (i.e., chromatic), I chose the clavichord for those pieces up to the early 1770s that cannot be played with a short octave.

From these organological variables, decisions started revealing themselves. For example, the last movement of the Sonata in A $\flat$  Major, Hob. XVI:46 (reproduced as example 1), contains a strange jump in the bass to avoid a low E $\flat$ . But when we look closer at the constellation of the Viennese short octave, we see that there is no bass E $\flat$  or D $\sharp$ . The left hand must jump, however nonsensical the result on the score. Thus, I play the piece on the 1755 Leydecker.

[Finale: Presto]



Ex. 2

3. French-style, double manual harpsichord, ca. 1770, by Yves Beaupré, Montreal, 2007

Viennese harpsichords had only one manual, with two eight-foot registers—very much like their Italian counterparts. The question of whether a double-manual French-style harpsichord is needed at all for Haydn has been open to debate. For the set of sonatas dedicated to Prince Nicolaus Esterházy, however, which were conceived in an elevated, courtly style, I follow the suggestion of A. Peter Brown (1986, 134–35), who argues that the Prince’s French taste—evident in the construction of Esterháza in imitation of Versailles—surely resulted in the purchase of a few French harpsichords too. And this opus, incidentally, does require a fully-chromatic, or “French” octave (as it was called in Vienna), as well as a full five-octave range, and occasionally does benefit from a two-manual set-up, as in an intricate canon between left and right hands, from the second movement of the fifth Sonata in E $\flat$  Major, Hob. XVI:25 (see example 3, especially mm. 29–30).

[Tempo di Menuet]



Ex. 3

4. Square piano (Tafelklavier), Ignaz Kober, Vienna, 1788, by Chris Maene, Ruiselede, 2007

Increasingly, Haydn scholarship is coming to terms with the fact that the piano Haydn purchased for himself in 1788, from Wenzel Schanz, was “almost certainly” a square (Maunder 1998, 129).<sup>4</sup> Perhaps more to the point, this type was the domestic keyboard instrument par excellence for women in the later eighteenth century. This particular instrument is the second modern-day rep-

4 This counters conventional wisdom, based on assumption more than evidence, that Haydn must have owned a grand. Here’s an alternative assumption. Why did Haydn need a “new” fortepiano (which he purchased in 1788)? Not to play concertos in the theater (as Mozart did), but to compose keyboard sonatas, to be played in domestic settings by ladies.

lica: the other, of the same model, by Albrecht Czernin, is in the Technisches Museum in Vienna.

5. “Early” Viennese fortepiano Anton Walter, Vienna, 1782, with Stossmechanik, by Chris Maene, *Ruiselede*, 2005

A second world premiere, this instrument is a replica of Mozart’s Anton Walter piano, not in its present state, but—in response to recent findings that showed Walter seriously revised or “modernised” the instrument after Mozart’s death—in its original state of 1782, with a *stoss*-action and with handstops (left and right) to raise the damperblock.<sup>5</sup> Chris Maene, the maker of the instrument, also built a second action—a *prell* action, identical to the modernised version—to go in the same instrument, and this resulted in:

6. “Late” Viennese fortepiano Anton Walter, Vienna, ca. 1790, with Prellmechanik, by Chris Maene, *Ruiselede*, 2005

This instrument is the same as number 5 but with a different action and with added knee levers to operate the dampers: it is a representation of the Viennese grand piano in the 1790s rather than the 1780s.

7. English grand piano Longman, Clementi & Co., 1798, by Chris Maene, *Ruiselede*, 2004

This English piano is very similar to the now lost Longman & Broderip grand that was shipped from London to Haydn’s new house in Gumpendorf (a suburb of Vienna) in 1795. Perhaps a business gift, intended to connect Haydn to the London publishing house for years to come, Haydn’s L & B would in turn have resembled the instrument owned by Theresa Jansen, the dedicatee of his concert sonatas, and those available to Haydn in England.

## MAKING DECISIONS 2: ROOMS AND PROGRAMMES

Having assembled a collection of instruments, the next question is, How do you cast each of these instruments in appropriate rooms and connect each room and instrument with appropriate repertoire? After scouting locations in Vienna, Eisenstadt, Esterháza, and England, following in Haydn’s footsteps while also keeping in mind the broader picture of potential players of his sonatas, we came up with ten programmes. Capturing ten socio-cultural contexts of performance, each of these programmes drew its inspiration from a different painting, drawing, or engraving. Table 1 provides an overview.<sup>6</sup> Images of the rooms may be found on the website; the historical art works are reproduced as part of the lavish booklet accompanying the commercially released recordings.

Inspiration for our first programme, “Courting Nobility,” came from the well-known painting *Le thé à l’anglaise* (Michel-Barthélemy Ollivier, 1766), which

<sup>5</sup> The changes to Mozart’s piano are documented in detail in Angermüller and Huber (2000).

<sup>6</sup> Left out from the table are two “single pieces”: Hob. XVI:33 (D), which I play on clavichord, and Hob. XVI:48 (C), on a Viennese fortepiano.

depicts the young Mozart at the residence of the Prince de Conti. The lid of the harpsichord has been removed, people enjoy their tea, gather around the musicians. The dimensions of this *Salon des quatre glaces*—especially the very high ceiling—reminded us of the music room of Esterháza.

For our second programme, “Quality Time,” we selected a room in Haydn’s house in Eisenstadt, presently a Haydn Museum. When Haydn owned the house, this particular room had probably not yet been incorporated into his living quarters. We are using it as a typical middle-class room, with a low ceiling. For microphone placement, we drew inspiration from a beautifully intense engraving of mixed-sex *quatre-mains* playing at the clavichord by Johann August Rosmaesler (Leipzig, 1781). One elder man (possibly the father of the young woman playing the treble side of the keyboard) is seated at the perfect clavichord-listening position, to the side of the soundboard—also the “sweet spot” of the room: his pose of concentrated listening is remarkable.

The listening perspective in “The Music Lesson” (programme three) is that of the teacher. We have imagined an aristocratic pupil—a countess or a princess—and have cast this music lesson in a salon of the Esterházy Palace in Eisenstadt; Jean-Honoré Fragonard’s *La leçon de musique* (1765) provides one among many iconographical examples.

For programme four, “Haydn’s Workshop,” we use another room from Haydn’s house in Eisenstadt, now specifically one of the composer’s own. It would have been his living room, but it has the same dimensions as the adjacent room, which would have been his study. For an alternative sonic image of a clavichord (solitary keyboard instrument *par excellence*), we drew inspiration from Ludwig Guttenbrunn’s portrait (1770 or 1791) of Haydn at the keyboard, a clavichord or a square piano. (While the stops on the left hand side suggest the latter, the case appears unrealistically slim to accommodate an actual piano action.) Motto here is Haydn’s own description of his compositional process: “I sat down at the keyboard (*Clavier*), began to improvise [*fantasiren*], sad or happy, serious or playful, depending on my mood” (Griesinger [1810] 1954, 61, my translation). The idea here is to improvise, to play for oneself: the player is also the one and only listener.

The six sonatas Hob. XVI:21–26, appropriately dedicated to “Your Most Serene Highness!” (also the title for our programme five), were Haydn’s first pieces to be printed officially, published with the explicit permission of Prince Nicolo Esterházy di Galantha. In the spirit of Haydn’s official presentation of the opus to his princely employer, we have cast our performance of these elevated- or court-style sonatas in the magnificent Esterháza Ceremonial Room.

The six “Anno 776” sonatas (as Haydn himself referred to Hob. XVI:27–32 in his *Entwurfkatalog*) were first published by Hummel in Amsterdam, without evidence of Haydn’s consent. To give testimony to the increasing dissemination of Haydn’s sonatas, we wanted to find a “far away” location, and why not in Québec? We chose as location for programme six, “The Score,” the eighteenth-century Château Ramezay, the French and later the British Governor’s Residence.

With programme seven, “Equal to the Finest Masters,” we are back in Vienna for a special performance on a grand fortepiano by the sisters Katharina and Marianna (von) Auenbrugger, dedicatees of the sonatas Hob. XVI:35–39 and in early 1780 twenty-four and twenty years of age, respectively; in a letter to publisher Artaria, Haydn judges their musical skills “equal to [those of] the finest masters” (Bartha 1965, 90). From a contemporary representation of a salon concert, *L'Assemblée au concert* by François Dequevauviller (engraved after Niklas Lafrensen the Younger, late 18th century), we take note of the absence of the piano’s lid: listeners gather quasi-informally around the musicians.

Compare the title page of the three “Marie Esterházy” Sonatas, Hob. XVI:40–42 (see figure 4), which Haydn wrote as a wedding gift for the young Princess Marie Esterházy, with the golden ornaments on the 1788 Ignaz Kober square (at present in the Kunsthistorisches Museum, Vienna), or the beautiful restored silk fabric on the walls of an Albertina *Prunkraum*. We are recreating a splendid but intimate performance context: the princess reading Haydn’s “Musical Letters” (programme eight) aloud, governess, music teacher, or mother-in-law by her side.

Finding an actual Viennese salon was a challenge: few if any from erstwhile aristocratic residences have remained intact since the eighteenth century. The break-through for programme nine, “Viennese Culture, came after deciding also to play what might be called a “Viennese version” of the big E $\flat$  Sonata no. 52, re-dedicated to Magdalena von Kurzböck (the original dedicatee in London being Theresa Jansen). We now felt justified to invite ourselves to the impressive Lobkowitz *Festsaal*, which was a popular, albeit exclusive venue for performances in the mid to late 1790s.



Fig. 4

For programme ten, “The London Scene,” reflective of Haydn’s activities in the metropolis in the mid-1790s, we chose the Holywell Music Room as an alternative to the non-extant Hanover Square Rooms, where it had been accepted practice for the pianist-soloist to replace the component of a piano concerto with a grand solo piano sonata, such as Hob. XVI:50 in C Major or 52 in E $\flat$  Major.

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1. **Courting Nobility**, c. 1755 – 1769, on a Viennese harpsichord in the salon of a noble household: Sonatas Hob. XVI:3 (C), 4 (D), 2 (B $\flat$ ), 12 (A), Capriccio Hob. XVII:1 (G), Sonata Hob. XVI:46 (A $\flat$ ).
  2. **Quality Time**, c. 1750 – 1772, on a German clavichord in the music room of an upper middle class household; Sonatas Hob. XVI:1 (C), 6 (G), XVII:D1 (D), 13 (E), 18 (B $\flat$ ), 44 (g).
  3. **The Music Lesson**, c. 1755 – 1767, on a Viennese harpsichord in a private room of a noble household: Sonatas Hob. XVI:7 (C), 14 (D), Variations Hob. XVII:2 (A), Hob. XVI:G1 (G), 47 (e), 45 (E $\flat$ ).
  4. **Haydn’s Workshop**, c. 1760 – 1771, on a German clavichord in Haydn’s study: Sonatas Hob. XVI:10 (C), 8 (G), 9 (F), 19 (D), Variations XVII:3 (E $\flat$ ), 20 (c).
  5. **“Your Most Serene Highness!”** (“Nicolaus Esterházy” Sonatas, published 1774), on a French harpsichord in the Esterháza Ceremonial Room: Sonatas Hob. XVI:20 (C), 22 (E), 23 (F), 24 (D), 25 (E $\flat$ ), 26 (A).
  6. **The Score** (“Anno 776” Sonatas, 1776), on a Viennese square piano, “far away” location: Sonatas Hob. XVI:27 (G), 28 (E $\flat$ ), 29 (F), 30 (A), 31 (E), 32 (b).
  7. **“Equal to the Finest Masters”** (“Auenbrugger” Sonatas, published 1780), on a Viennese fortepiano with *Stossmechanik* in a formal salon: Sonatas Hob. XVI:35 (C), 36 (c $\sharp$ ), 37 (D), 38 (E $\flat$ ), 39 (G), 20 (c).
  8. **Musical Letters to a Princess** (“Marie Esterházy” Sonatas, published 1784), on a Viennese square piano in a private salon: Variations Hob. XVII:5 (C), Sonatas Hob. XVI:34 (e), 40 (G), 41 (B $\flat$ ), 42 (D).
  9. **Viennese Culture**, 1789 – 1798, on a Viennese fortepiano with *Prellmechanik* in a formal music salon: Variations Hob. XVII:4 (C), Sonata Hob. XVI:49 (E $\flat$ ), Variations Hob. XVII: 6 (f), Sonata Hob. XVI:52 (E $\flat$ ).
  10. **The London Scene**, 1794/95, on an English grand piano in an English concert hall: Sonatas Hob. XVI:50 (C), 52 (E $\flat$ ), Adagio from Hob. XV:22 (G), Sonata Hob. XVI:51 (D).

CODA: Variations on “Gott, erhalte Franz den Kaiser!” Hob. III: 77 (G, 1797), on fortepiano in artist’s studio, Montreal.

Table 1

## PERFORMING IN VIRTUAL ACOUSTICS

Haydn wrote solo keyboard music for different people, instruments, and social contexts. Arguably the biggest advantage of using virtual acoustics in our project was that, in the same way that we could exchange instruments as we moved from the one programme to the next, we could change rooms, and this within the single physical set-up of our laboratory. Virtual acoustics, rather than complicating any insight I had earlier developed about the repertoire, helped bring all elements together in ways that acoustics of the non-virtual kind might not have done. For example, Haydn wrote two “concert sonatas” (Hob. XVI:50 and 52), in both cases with the English piano in mind. Up to the early 1790s, Haydn would have known pianos of the Viennese type exclusively. But during his residences in London (1791–92 and 1794–95) he familiarised himself with the English piano. This instrument’s less precise “feather-duster” dampers, heavier hammers with more layers of softer leather, thicker soundboard, and much more equalised striking points (i.e., the points where the hammers hit the strings) inspired him to embrace fuller and more homogenous textures, to incorporate more silences in his musical narrative and draw attention to that English “after-ring” (a lingering resonance after the release of a key), and to paint grand, long-winding *bel canto* lines.<sup>7</sup>

This story, however compelling already from an instrument-technological point of view, becomes richer still when told in an actual eighteenth-century English room. Therefore we visited and reconstructed the Holywell Music Room in Oxford. Haydn would have known the room: he received his honorary doctorate just one block away, in the Sheldonian Theatre. The Holywell’s shoebox dimensions—twenty-one metres long, ten metres wide, nine metres high—are similar (albeit about one-third shorter) to those of the now non-existent Hanover Square Rooms in London, where Haydn would have heard performances of solo keyboard sonatas and concertos. From our first contact, having brought with us a historical English piano, we realised what a perfect match instrument and room were: no hard or energy-intense reverberation, as Haydn would have known from Esterháza or various other larger rooms in Vienna, but a warm acoustical enhancement of the characteristics already present in the instrument, expandable and to be shared by listeners seated on fixed benches all around the room.<sup>8</sup> Viennese grand pianos, on the other hand, because of their builders’ preference for harsher leather for the hammer coverings, produce much more articulate attacks of sounds and, thanks to their deliberately non-uniform striking points, have clear and diversified registers (bass, tenor, treble, and so on). While these instruments operate beautifully in a private room, when brought to a larger space, they start relying on the lively acoustics of a formal salon or a ceremonial room, with their high ceilings and highly reflective materials such as mirrors or marble walls, lending the instruments’ sounds necessary body or weight in addition to—and not in compensation for—their crystal-clear declamation. (Viennese pianos pronounce the “conso-

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<sup>7</sup> A good introduction to these aspects remains van Oort (2000).

<sup>8</sup> For the acoustical characteristics of “Haydn rooms,” see also Meyer (1986).

nants”—the beginnings and endings of musical gestures—clearly and crisply; English pianos, like the modern piano, shift the emphasis to the “vowels”—to whatever happens “in the middle.”)

Perception of a room, through headphones or through speakers, became an essential factor in my recorded performances. The damper-less effects, obtained by operating hand stops rather than knee levers, so much loved in the eighteenth century but less familiar today, mingled lusciously with the acoustics of the Esterháza Music Room. I found myself looking up to a virtual high ceiling, wondrously following the reverberations that came out of my self-created dulcimer or “pantalon.” The less-spectacular acoustics of smaller rooms featuring the square piano did not tempt me to make my gestures unnecessarily grand. Not projecting my sound to some listener “out there,” I felt encouraged to play solely for myself, perhaps with a special guest at my side, or a few household members behind me. Cast in the smallest room of all, the clavichord became almost a room unto itself, a most private space (with its own resonance, within the case) that I treasured for free fantasising and experimenting. At the other end of the spectrum, the Holywell Music Room demanded a deliberate projection of sound to an audience: this setting was the only time in the whole project when we used the piano lid as a sound reflector in the modern way—away from the player, the instrument sideways on the stage, the audience on the player’s right.

While the loudspeakers would create an acoustical context in which I could relax and enjoy my sonic surroundings almost as a listener of my own playing, I found that my performing in the virtual room became more focused and ready for critical listening and recording when we switched to headphones. Occasional listeners (instrument builders with me in the laboratory) commented that I played “better” when the room was “on” than when it was “off” (though they only heard the sounds of the lab, without added reverberation), an observation that I made sure to test in the control room several times myself: a “dry” version of myself performing in a virtual room indeed sounded more interesting and alive than a version of myself performing merely in the acoustics of the lab, with no virtual-acoustical feedback. This was evident in the variety of note lengths, my rhetorical approach to rests or silences, the shaping of certain articulations, such as sigh-figures or longer slurred groups of notes. The examples are endless. I found myself not just playing the instrument but also “playing the room” in ways I hadn’t been conscious of before, and in ways that were directly transferable to the recorded medium with much less of an element of surprise than in conventional recordings.

The big challenge for me, in fact, came later, during the mixing stage, months or even a year after the actual recordings. As we carefully worked on the final mixes in several stages, from finding the right balance between close and reverberant sound at the minute level of “letters” and “words,” all the way to conveying the larger sense of “phrases” and “periods,” I found myself eagerly asking for “more” and then still “more room,” up to the point where I again understood why I had played that silence or that slur in a certain way. Listen on the website, for example, to the “dry” and “wet” versions, featuring the opening of the slow

movement of the Sonata in F Major, Hob. XVI:23, which I performed in the virtual Esterháza Ceremonial Room. In the “dry” version (i.e., without added acoustics) the harpsichord sounds impressive enough, one manual providing a lute-like accompaniment to a cantilena on the other. But my timing towards the end of my opening statement makes sense only when heard in the “wet” version (i.e., with the virtual acoustics as I had heard them myself through my headphones during recording). Mingling superbly with the luscious acoustics, these final sounds, which I play not so much “freely” as “time- and space-consciously,” punctuate the end of a courtly *révérence* or a broadly-spun *exordium*. It is thus not just acoustics that is being added to the listening experience. From a more broadly rhetorical perspective, virtual acoustics helps create a context for meaningful and appropriate performative gestures—either grand and courtly (as in this sonata dedicated to Prince Esterházy), or sophisticated and intimate (as in the three sonatas for the young Princess Marie Esterházy, played on a square piano).

#### FURTHER DEVELOPMENTS

The concert that celebrated the release of *The Virtual Haydn* at McGill University—on 25 September 2009 in the Multi Media Room (MMR), which has the large proportions of twenty-five by nineteen by fifteen-and-a-half meters—also marked a new direction in the application of McGill Virtual Acoustics Technology (VAT): Wieslaw Woszczyk and his team brought virtual acoustics out of the recording laboratory and into the realm of concert performance. A select audience of some one hundred listeners, surrounding the performer under a wide array of loudspeakers, witnessed virtual acoustics live, in three selected virtual rooms of varied effect. I played the clavichord, among others, in one of our smaller rooms, and the effect was remarkable: capable of spreading “intimacy” in ever widening circles around me, I felt successful in drawing the listener into that private space of tangents, strings, and sound-board. The listener might just as well have been sitting next to me.

On 3 and 4 February 2012, then, we took the next step and invited other musicians to join us in a programme of chamber music, entitled *The Virtual Salon*, featuring pieces by Haydn and Schubert.<sup>9</sup> Especially memorable was the performance of a Haydn string quartet (op. 33, no. 5) with the four quartet members seated in a circle, their stands facing one another. Many eighteenth- and early nineteenth-century images convey exactly this kind of performing constellation, as does an extant contemporary piece of furniture like that of a “quartet table.” Audience members, enlarging the circle around the quartet, were invited to “eavesdrop” on the musical conversation. By the time of this concert, a permanent grid of omni-directional loudspeakers had been installed

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<sup>9</sup> We performed Haydn’s Trio Hob. XV:13 and Quartet “opus 33, no. 5,” as well as some Schubert songs and the “Trout” Quintet. Musicians included Sanford Sylvan (baritone), Elizabeth Blumenstock (violin and viola), Olivier Brault (violin and viola), Marjolaine Lambert (violin), Elisabeth Le Guin (cello), and Nicolas Lessard (double bass). For an excerpt of this live@CIRMMT concert: <http://vimeo.com/76488624> (accessed July 28, 2014).

in MMR, to be lowered from the ceiling, which remains the set-up that we are continuing to experiment with at present.<sup>10</sup>

Early music meets high tech. Whether for “improvising” on one’s own or “conversing” with chamber music partners, virtual acoustics has made its entry into the world of historically informed performing. Giving performers alternatives to simply having to “project,” and instead allowing them to “draw” their listeners into many possible spheres of performance, it may well be there to stay.

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# *On Life Is Too Precious*

## Blending Musical and Research Goals through Experimentation

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When trying to define the soft divisions between artistic practice and research, one of the common pitfalls that we aim to avoid is claiming that what we normally do as artists in itself constitutes research. For composers, a second trap lurks within the notion that creating a new work and “producing new knowledge” are one and the same thing and, therefore, that the act of creating music is equivalent to that of conducting research. This does not necessarily mean that a particular artistic research project conducted with the primary intention of producing new musical work as an output should be disregarded, but it becomes essential to demonstrate which elements of the research process respond to a fundamental need—or question—that transcends the status of output and how the formulation of these enquiries shapes the artistic process.<sup>1</sup>

It was the desire to explore these fine lines of research-through-practice, as well as the need to challenge the notions of experimentation in music production by actually “doing the work,” that led me to take part in and combine two projects that, while distant in aims and methods, served the purpose of presenting contexts, tools, and materials for experimentation. By using both contexts simultaneously, I sought to revitalise questions about the genesis, goals, and motivations for engaging in artistic research through music experimentation.

### MoSAMPLAB AND A DAY IN MY LIFE

MoSAMPlab (an acronym for “Mapping of Silent Aspects in Music Performance—lab”)<sup>2</sup> was an initiative conceived by the author and Kathleen

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<sup>1</sup> Video illustrations relevant to this article are accessible online, at <http://www.orpheusinstituut.be/en/anthology-repository>

<sup>2</sup> The original work environment for MoSAMPlab was the virtual platform Posterous. After its acquisition by Twitter, and its further abandonment of the platform, MoSAMPlab has stopped publishing public blogs. For the legacy logs of MoSAMPlab, recovered from the original site, see (Coessens and Parra Cancino, 2011–12).

Coessens as a platform for analysing the existing projects at the Orpheus Research Centre in Music in order to gather information concerning the salient commonalities between them. Giving special consideration to the non-sounding aspects of music performance that each research project contained, Coessens developed a conceptual framework to identify these aspects, gradually focusing on those elements that resonated with the existing work strands at ORCiM, and especially those dealing with (musical) materials and embodied interactions.

Setting up this analysis laboratory helped not only to define the links between these strands and the individual research projects but has also contributed to encouraging the exploration of different, and hopefully novel, modes of presentation of projects and outcomes that would otherwise have been disseminated only through more traditional, academic formats.

Part of the development of MoSAMPlab was to design a case study to test this conceptual framework and its potential for generating a pathway towards musical experimentation. For this, it was decided to focus on the experiences recorded by Coessens within the *Calendar Variations* project (see Coessens and Douglas 2011). This involved shifting attention from notions of improvisation, score, and variation in visual arts to their possible implementation in music.

As a starting point, a text written by Coessens was developed to serve as a score to be interpreted by different artists, with different backgrounds. “Musicians were asked to interpret the text in a sounding result, implying personal artistic actions of translation and transformation.”<sup>3</sup> The idea of text sonification is not a novel approach in music, but what made this particular project relevant to the work of MoSAMPlab was that the setup came from an experience based in the visual arts, rather than starting with the constraints and expectations imposed by certain notions (such as “improvisation” and “score”) within the music tradition.

The invitation to sonify *A Day in My Life* provided the structural framework for creating the first layer of my piece *Life Is Too Precious* for electric guitar and electronics.<sup>4</sup> This was realised by selecting and re-scoring my exploratory findings in collaboration with Coessens. This initial material was modified in response to the improvisation of different, drone-like musical material based on a real-time interpretation of the text. The drones were created using an electric guitar equipped with a Fernandes “sustainer” system, which provided a continuous sound signal, which was later transformed using diverse guitar stomp-boxes (ring modulators and pitch-shifters). Finally, a cross convolution and spatialisation algorithm programmed by the author in the Max/MSP<sup>5</sup> programming environment was created with the intention of allowing future instrumental layers to interact with the “dynamic drone.” Real-time control of the Max/MSP portion of the instrument was achieved using the “Phoenix

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3 Coessens, K. “A day in my life.” On “Three years later...” Orpheus Institute Research report 2010-2013, p.10.

4 CD, track 5, is a performance of *Life Is Too Precious*.

5 For more information on Max/MSP see *Cycling '74* (2013).

Egg controller,” developed by the author in collaboration with Lex van den Broek, the head of the Technical Department of the Royal Conservatoire of The Hague, Holland.<sup>6</sup>

“A CURE FOR THE COMMON FETISH”<sup>7</sup>

The second component of the experimental blend that gave birth to *Life Is Too Precious* was my involvement in the \$100 Guitar Project, which may be regarded as a “poster child” for the positive, creative, and proactive use of social media (see Didkovsky and O’Meara 2013). I became acquainted with the project while searching for examples of online music collaboration tools to use in the setting up and development of the MoSAMPlab.

The \$100 Guitar Project was a collaborative initiative started by Nick Didkovsky and Chuck O’Meara, two guitarist friends who for years sent each other “gear-related” emails, “usually for overpriced instruments neither of us can afford,” Didkovsky says. “So when [Chuck] sent me a message describing the ‘guitar of my dreams’, I wondered how many years of my kids’ college future I’d have to sacrifice to consider it. But Chuck was being ironic, as the guitar of my dreams was this unbranded anonymous red guitar selling for \$100” (Didkovsky quoted in Campbell 2013).

Once the guitar was acquired, Didkovsky and O’Meara decided to reach out to some guitarist friends to share the guitar with them.

The main constraints were that each participant could keep the guitar for a week, and had to submit an original, non-copyrighted track. Initially, I told everyone that they needed to keep their contribution under 4 or 5 minutes. Then, as more people joined, it went down to 4 minutes, then 3, then 2, at which point I cut it off. For my contribution, I wanted to do a suite of short pieces that were transcriptions of improvised vocal solos.<sup>8</sup> That was a very nice “fit” for this project because the pieces were short and would not occupy a big chunk of contiguous time. I suspected they’d be easy to fit in between what was sure to be a wildly heterogeneous collection of music. (Didkovsky and Parra Cancino, 2013)

One of these friends was Larry Polansky, who defines crossing paths with the guitar as a “wonderful, easy coincidence.” His contribution to the project

comes from two influences. One, I have long been interested in playing Ruth Crawford Seeger’s American Folk Song Arrangements on the guitar, and I had been improvising on the simple but beautiful version of “London Bridge is Falling Down” from that book (I love the quick metre change in the middle). A few days before I got the guitar, Amy [Beal] and I had walked across an extraordinary, enormous, and high bridge over the Hudson in Poughkeepsie, NY, in freezing cold. It was a simple matter to combine the bridge’s county and the folk song. (Polansky and Parra Cancino, 2013)

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6 For more on Lex van den Broek’s work, see Ipson (2013).

7 This is the title of Giacomo Fiore’s (2013) review of the \$100 Guitar Project CD.

8 For an example of Didkovsky’s compositional approach, see Didkovsky (2010).

Another contributor to the project was Nels Cline, experimental guitarist and member of rock band Wilco. He recalls his reasons to get involved in the project as

pretty innocent in my part. It just sounded fun! It sounded like a cool idea. Certainly, the \$100 guitar itself isn't what I thought it was cool about it. What I thought it was interesting was the idea of the guitar being handed from one person to another. That and the time limitation for the contribution, although it seems like most people exceeded that limit. (...) I take these things pretty literally, and I tried to keep my piece really short. Because there were people I respected involved, and because of the overall concept is that I decided to take part on the project. The festive, social side of it was what made it fun and charming. (Cline and Parra Cancino, February 2014)

On the constraints of the project, and how these influenced the creative process, Cline mentions that one of the biggest constraints was

the instrument itself, a one-pickup guitar. I was uncertain whether by the time I would get the guitar the strings would even resound. I wouldn't find any of that particularly daunting, since there was absolute freedom as to what to do. If the strings would have been flat on the neck, or collapsed, I would have just put a false bridge (or two) on the fingerboard, using chopsticks and would have played it like a zither.

I did equivocate as to whether I was going to use effects pedals or not. At the very last minute I decided to tune the low E string. The previous contributor had completely detuned the guitar. I put it in standard tuning and then decided at the last minute to drop the low E to E flat. I then came up with a couple of thematic ideas and decided to add the Zurdo [Brazilian samba bass drum], put a standard bass drum beater on it and play that and guitar for the main part, and add some looping at the end. Ultimately, I wasn't concerned about the condition of the guitar, but that could have been a constraint. When I discovered that the guitar was playable, I took it from there. (Cline and Parra Cancino, 2014)

When asked about the potential experimental notion(s) present in the project, Didkovsky points out that: "The project itself is experimental in the sense that it is built on a premise with a few clear rules whose outcome is unknown. We put the word out and invited a few people, some of whom invited others, and we observed the growth of this multi-conscious network organism" (Didkovsky and Parra Cancino, 2013).

Polansky mentions that the musicologist Amy Beal "once said to me that 'experimental composers' are the ones that answer their own phones, which confirms my experience. Nick and I both answer our own phones, as do, I guess, most of the other guitar players on the project" (Polansky and Parra Cancino, 2013).

On the experimental notions within his piece for the project, Cline points out that

I feel that the piece I decided to do was not particularly experimental. Maybe the way I concluded the piece, playing sound boxes, with different bird calls, mating calls, and that are primarily used by bird hunters. I mistakenly hit one of the buttons of another sound-effects box, which triggered a loud horn sound, and then played the sounds over the pickups, which I myself don't find a particularly experimental thing to do, but it could be perceived as such. The ending of the piece, with these sound-boxes noises feeding back from the amplifier, and with delay added to it, was primarily meant to be amusing. The piece itself is supposed to be amusing since it has a sort of post-metal vibe to it, which I thought it would distinguish it from some of the other pieces on the record. I decided not to use over-dubs and let it be a live, one-take performance. The direction I took aesthetically was then very spontaneous. It was what it felt right to do that day. I decided that I was happy with tossing off something that could be a fun detour in the course of the entire program. (Cline and Parra Cancino, 2014).

The \$100 Guitar arrived in Ghent on 26 September 2011. This coincided with the preparation of a collective performance of several iterations of *A Day in My Life*, realised by musicians participating in the ORCiM-Pentacon Research Festival.<sup>9</sup> The preparation for this performance was conceived within the framework of MoSAMPlab as follows:

Given the nature of the text structure, Juan will create five different textures, using a drone guitar system and modifying the timbre nature of the textures by means of electronic manipulation of the harmonic content (Ring modulation/distortion), as well as mechanically (re-tuning between the parts).

The task for the upcoming days will be to work on/experiment with the different possibilities and come up with the settings for the 5 different textures (tuning plus effect settings) (Coessens and Parra Cancino, 2011–12).

About the real time processing:

The role of the real time processing (and use of the Phoenix Egg) during the performance will be as follows:

Juan will design a sound processing system in the computer that will take two incoming signals and will “morph” them together to create a new sound layer. This will be done by some means of spectral manipulation like convolution or vocoding.

Using vocoding as the explanatory metaphor, the “carrier” signal will always be the drone guitar system, and the modulating signal will shift between mix-downs of each one of the performers (or groups of performers).

Therefore, a preliminary set-up would have three different modulator signals (The McGill Expanded Trio, Vanessa Tomlinson & Kim Cunio and Catherine Laws, possibly with Damien Harron).

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<sup>9</sup> Organised by the Orpheus Institute between 5 and 8 October 2011, The ORCiM-Pentacon festival gathered musician-researchers from the Orpheus Research Centre in Music with faculty and students of McGill, the Sibelius Academy, the Guildhall, London, the Royal Conservatoire of The Hague, and Queensland School of Music.

The resulting layer will be then processed and spatialised by Juan using the Phoenix Egg controller.

In terms of time structure for the piece, we are planning to honour the +/- 24 minutes time-frame (one minute equals one hour of the “day”). This means that each “drone” on the guitar will last about four minutes with transitions of about one minute (transition considers retuning and resetting of the effects).

On a side note, there will be a time-compressed version of the drone system tested as stand-alone “etude.” This will be done for the “100 dollar guitar project” and will last 1’30.”

This will be recorded on 26 September 2011 using the specific instrument of that project.

### LIFE IS TOO PRECIOUS

The preparatory work for the collective Day in my Life performance provided the author with a clear framework for developing a sonic and conceptual interaction with others.

On 26 September 2011, I set out to record my contribution for the \$100 Guitar Project alongside the words and reasoning of Harry Partch, whose accounts of his experiences of instant human connection between people who have abandoned the race for being “important”<sup>10</sup> struck me as the perfect metaphor to illustrate the rationale of my project and my relationship to it.

The technical setup for A Day in My Life started from the original text/poem, but rather than generating a “finished” musical output, it provided a way to facilitate the blending through performance of improvising musicians with different aesthetic backgrounds. For *Life is too precious*, however, the process of sonification focussed more specifically on a “traditional,” gesture-oriented guitar playing.<sup>11</sup> I used an array of guitar effects processors, to give to each “layer” a distinct timbre characteristic, such as wah-wah, distortions, and reverb. Perhaps the most important departure from “traditional” playing was the use of the same tuning developed for the “drone guitar.” The tuning (from low to high F#–Bb–C–D–E–F#) allowed more unexpected harmonics to pop up when the drone guitar was activated; and when used on the \$100 Guitar it allowed free-exploratory play on the fretboard, making it difficult to rely on pre-acquired playing patterns.<sup>12</sup>

The elaboration of the final work, a condensation of both processes, revealed aspects of the original text that had not been available to me while engaged in the work. The notion of the creation of constraints paradoxically enfolds the inherent potential of demanding freedom from these constraints. Improvisation, whether circumscribed in a particular tradition or not, relies upon contextualisation as much as surprise. If anything could be preserved from the blending of these projects, it would be an understanding that the nature of experimen-

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<sup>10</sup> See “Life Is Too Precious to Spend it with Important People” (Partch 2000).

<sup>11</sup> CD track 6 features a recording of *Life is Too Precious* played by the composer.

<sup>12</sup> This sonification process can be seen in Parra Cancino (2011).

tation in musical practice will constantly demand a dynamic and extremely fragile balance between definition of skills and embracing of weaknesses. To operate within such a fragile space, sometimes you need the company of a community that can “forget” to be important. In the words of Partch (2000), “One gets among a group of transient. . . workers and right away there is a human contact. It doesn’t mean that they always like each other, but there is human contact, without this fighting for place, constantly.”

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# Interview with Agostino Di Scipio

Hans Roels

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Agostino Di Scipio (b. Italy, 1962) is a composer, sound artist, music theorist, and scholar. Live computer music, solo or in combination with acoustic instruments, forms a large part of his artistic oeuvre. He has also developed sound installations and large-scale music theatre works. In the last ten years, the interaction between sound, performance space, technology, and performer has become central to his work. The live electronics react to the acoustic characteristics of the hall or to unexpected sounds and, in their turn, change the sound in that hall. This feedback loop between human, technology, and environment is an essential part of what he calls the ecosystemic approach. Di Scipio has written articles on music technology, composition, and social issues in music for journals such as *Journal of New Music Research*, *Computer Music Journal*, *Contemporary Music Review*, *Leonardo*, *Perspectives of New Music*, *Organised Sound*, and *Positionen*.

Di Scipio visited the Orpheus Institute in February 2012. He gave a lecture-performance during which he performed parts of his solo live-electronics composition *Feedback Study* and a new work for flute and electronics.

HANS ROELS: Last night your new composition for flute and electronics, *2 pezzi di ascolto e sorveglianza* (Two pieces of listening and surveillance), was performed at the Orpheus Institute. It was a try-out session during your lecture-performance. It seems that the creative process of this work took a lot of time. Can you tell us something about this phase?

AGOSTINO DI SCIPIO: Usually I don't start working on a piece with a very clear idea of what I'm going to achieve. However, in this case I had at least the idea to explore a space that is smaller, more individual, and more characteristic than the usual concert hall. I imagined the flute to be a small corridor or a tunnel surrounded by the space of the outer room. Technically I viewed it as a "waveguide." This image of a space within a space, or a niche within a larger environment, had already been an inspiration for me in other recent pieces, for example in installations like *Stanze private* (2007) and *Condotte pubbliche* (2011). For this new work, I wanted to do something with a flute. A friend gave me one of his flutes, actually the one that I was using yesterday. For three years I have lived with it and learned how to play it a little bit. I can even play a normal C

scale! (*laughs*). But more importantly, I have learned things about the instrument that I previously didn't know. I didn't become a flautist myself, but I did engage with the flute. Next, I started experimenting with microphone placement, inside and outside the instrument. I did this step by step. Already in the beginning I thought it would be good to explore to what extent the hands and fingers could control unwanted sounds, the tiny residual noises due to the key mechanics and to the contact of the hands holding the instrument. When you handle the instrument there is always some noise. Of course, that also depends on the quality of the flute and mine wasn't a very good one. Anyway, I put these and other observations together but I didn't know precisely what I was going to do. I did know, though, that I wanted to use these findings and observations. For this composition, it was a question of finding the proper sequence of performance actions. I spent a lot of time trying out different actions and writing an action score. This was all happening within the context of electro-acoustic amplification and computer processing. As I have said, I was living with the instrument, in fact not only with the flute but with the whole electro-acoustic set-up. Every now and then I went back to this set-up and refined it, and sometimes tried the performance set-up in informal presentations, such as last night. So the piece is worked out through a series of avant-premiere performances . . . Until recently, I did not have a deadline to finish this work but now I have one: in September 2012 the work should be more or less finished. I'll hand it over to a real flautist for the official premiere.<sup>1</sup>

ROELS: Is this way of working exceptional for you?

DI SCIPIO: Well, with this flute piece I have spent more time working with the instrument and the set-up than I usually do. Generally I try to design the interactions among the system components, including the instrument and the performer, and that always requires time, of course. Concerning instruments, I try to find someone who has the instrument and can lend it to me, or I buy one. For example, in the next few months I'll be working on a bowing piece, so I purchased a violin, and now I am experimenting with it in a context that is roughly similar to the technical performance set-up. I can then start designing and refining the performance ecosystem, meaning the web of interactions among the system components, including the surrounding space.

ROELS: Room-dependent signal processing often recurs in your work (Di Scipio 2002). Does this imply that you almost necessarily need to experiment?

DISCIPIO: It does. Now I know, based on experience, that if I stick to a certain kind of relationship, I can expect a certain range of system behaviours although I can't exactly predict what kind of system behaviour will take place and how the performance will evolve. My predictions may be right in some aspects, and totally wrong in others. When you move from the studio to a particular performance space, too many factors change and playing safe becomes impossible.

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<sup>1</sup> The performance took place at the Fondazione Scelsi, Rome, on 20 September 2012. Manuel Zurria was the flautist. CD, track 4, offers a performance of Di Scipio's *2 pezzi di ascolto e sorveglianza*.

ROELS: Your music often involves a certain amount of risk for the performer and for the listener because the performance environment plays an important role and pushes the performance in unexpected directions.

DI SCIPIO: Everybody is at risk in my music (*laughs*). I call it the fragility of my compositions. As a listener you can experience this fragility, you can hear it. In the case of a strong resonator like a flute, we know in advance that there will be some sound to process. But room-dependent pieces are more subtle and risky, because you never know how the acoustics will be at the moment of the actual performance due to the audience and other circumstances. I take risks and I try to share them with listeners. I try to turn [these risks] into a tangible element in the piece. When unexpected things happen, the system is expected to manifest itself to be really performative, in the normal use of this word—it should work well, stay safe, and keep on going, whatever happens in its surroundings. Before you start, you do not know if everything will work well. By the time you get some sound, and it evolves in a viable articulation in time, it is performative, it functions. That is a result! The quality of the piece and the quality of performance is another issue. Other criteria arise: How many system states are visited through the performance and how is this mapped onto a variety of timbres and gestures? The more varied the resultant range of gestures and timbres, the better the performance. This is not an aesthetic judgement, this is a systemic judgement.

ROELS: Is there a risk that the system becomes so uncontrollable and repetitive that listeners perceive it as boring?

DI SCIPIO: If failure happens, it must be experienced as such. As a composer you are in a position to share the experience of failing. So if you are able to design the sonic process in a way that a failure is communicated and is shared with the audience, then that is a success, it's a good thing to happen. You are not depicting or representing failure, you are witnessing it, experiencing it. Not being able to do anything is a quite interesting experience to have. Also for the listener: you feel that something slips out of your hands. That's the first part of the answer. The second is that I usually provide rules and suggestions in the score to govern the drift, or unwanted repetitive behaviours. The performer—whether on an electronic or acoustic instrument—faces an emergency situation and can take security measures, actions to cope with these situations. In these compositions there is a kind of dramaturgy that is not written or represented, but that is produced and experienced during the performance.

ROELS: In my own experimentation outside the concert hall, these failures do happen, and I guess they are a part of the creative process.

DI SCIPIO: Of course. I know in advance which compositions are more or less risky or fragile. *Background Noise Study* (2005) is very risky, for example (Di Scipio 2011). Yesterday, as I was rehearsing at the Orpheus Institute, I realised the lecture space wasn't responsive enough. The variety of ambient noise was low, so I preferred not to take the risk of performing it. More generally, there is an inverse relationship between the amount of risk and of preparation time. The more time you have for practising, the less risky the performance becomes. The more time you stay there and live in the environment where you are per-

forming, the better. You get a feeling of the local acoustics and develop a sensibility for possible performances. This is a problem because you need to ask for longer rehearsal time, which may not always be available.

ROELS: What role does musicianship play in those of your performances that rely heavily on computer processing and other technologies?

DI SCIPIO: I assume that a large part of what we usually mean by “musicianship,” especially as experienced by instrumentalists, is about being able to achieve and experience a good balance of means (instrumental action, performance techniques) and ends (expressiveness, quality of sound, capability to interact with others, a sensibility for short-time causal relationships, and so on). I view this as a particular contribution of musicians to society: they balance means and ends and don’t let the means command or dictate the ends. Also related to this is the special sensibility of musicians to the surrounding space: instrumental performance is always adapted to the room where it takes place. This is again of the highest relevance in a world where our daily experience is more and more detached from the experience of real spaces and that is ideologically driven by a simplistic notion of technology. I think of my work as focusing strictly on these few grains of musical culture that we are losing because of cultural situations and industrial popular culture (Anderson 2005; Di Scipio 1998).

ROELS: Did you have unexpected reactions from the audience in situations where you felt that they were expecting the normal relationship between means and ends?

DI SCIPIO: I have had some odd reactions. For example, some people question why the audible result should be understood in terms of the emergent properties of the system. Other people don’t want to know about the technicalities of the exchange with the environment, they just want to enjoy the result. But if there is any contribution of an artwork to society, it has to do with trying to share. A listener expecting certain results simply doesn’t listen to my music, which is about interactions, connections, relationships, shared responsibilities. I can’t say how it happened to be so, but my works often question the listener, they ask questions of the listener. Take my installations as an example.<sup>2</sup> If a visitor-listener talks too loud, the installation remains silent. The idea is that if you came to listen to the work, you should try to be silent and listen to it. There is an ambivalent relationship: the presence of the listener affects the sound that he or she is listening to, the work enables the visitor to reflect on him- or herself as being audibly present in a non-neutral way, and it makes the visitor listen to him- or herself. This is engaging for some people and annoying or too demanding for others. But I don’t mind too much about the latter. Actually, when people tell me they are annoyed with this behaviour, I consider this a confirmation that my installation is working! Not because I want to annoy them, but because I want them to feel who they are. My work questions their role as a listener.

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<sup>2</sup> *Untitled 2005*, (DAAD Galerie, Berlin, 17 June–3 July 2005); *Condotta Pubbliche (Public Conduits)—Ecosystemic Sound Construction* (GMM Galerie, Berlin, 19 March–21 May 2011).

ROELS: As a composer and sound artist you haven't only worked in the concert hall. You have created several theatre compositions and have produced audio installations in musea and other spaces outside the concert hall. Do these spaces give you extra opportunities to experiment?

DISCIPIO: Absolutely, yes. The installations are a special way to focus on certain experiences that remain implicit in concert pieces. They allow me to focus on the physical presence of visitors in the space. There is no necessary sense of dramaturgy, at least not in a short span of time. If you leave the formal concert setting, you can focus on other levels of sonic communication: sound can be a medium for sharing aspects of human experience that are neglected in the concert hall. For example, in installations I am quite free to show the technicalities as they are, and not hide anything in the technical set-up: not because I want to exhibit the technical gear as such, but because I want to stress how sound comes into existence, how it is part of material processes and is shared. The technical element can be overt and clear, so visitors can start thinking about the connections and interactions that produce these sounds. In a concert setting, you cannot highlight this aspect. Theatre is another direction to move in for me, although at this moment I have only composed two or three theatre works. But even a piece like *Background Noise Study, in the Vocal Tract*, has a kind of theatrical element to it. A performer has a miniature microphone in his/her mouth and uses the mouth as a resonator. I realise that some performance practices that are necessary to produce sound lend themselves quite well to theatrical designs; I am working on a couple of ideas in this direction, but it takes time, especially when non-musicians are involved. On the one hand, the communication with them is problematic, but on the other, the collaboration can be really positive and far-reaching, because they are more free from specific professional expectations and even more available in terms of listening discipline. It's basically the same problem as with non-conventional, non-formal venues and situations, such as courts and open spaces. These require more experimentation. By the way, one objection that was raised against my works is that they don't work in open spaces, because reflected sound is essential in my music. But I can succeed in using spaces, I know how to move my ecosystemic concept to the open air: it just needs more complicated practical arrangements.

ROELS: I can imagine that in an open air situation you have the most open-minded audience. The expectation of a certain kind of music is almost absent.

DISCIPIO: Yes, normally the questions are not on an aesthetic or language level. The crucial element for both expert and non-expert listeners is the awareness they have about what the sound is bringing to them. They can be very active listeners and very engaged, very committed to music, but they may not be able to listen to what sound is bringing to them from the source or the environment. They only enjoy it aesthetically. That's the main problem. Enjoying only aesthetically means that you lend yourself quite well to the industry and industrially produced music. I don't argue for or against this music, but as a composer the problem is that they don't listen to the sound, they only listen to the musical language.

ROELS: Is this also a motivation to develop your own tools and algorithms? I guess that an important part of your time while composing music and experimenting with the set-up is spent on designing software tools?

DI SCIPIO: Yes, as far as possible I try to be the author and designer of the composition tools and the performance set-up. For me it is very important to be responsible for what I present in public. It is a kind of testimony and political statement to be responsible for your actions. It also means to be competent in technical areas and to be aware of the musical meaning of a composition and its performance. Such an approach acts as a mirror for the audience and that is why it questions the listener.

ROELS: How important is your independence? You have your own personal studio but you have also been a guest at several art and research institutions.

DI SCIPIO: In part, this independence happened probably because of my bad character, but after a while it became a prerequisite to do things that are impossible within larger institutes because they have very different expectations. Research funding is flowing in this or that direction and you have to keep up with it. It is the basic dialectic of the researcher and the artist within the academy. Using very simple technical configurations is also very important to me. I prefer to design and work on the interrelationships between simple processes, between tools that are adaptable and not too specific. I try to avoid creating works that need a specialised, powerful piece of gear or a computationally expensive device. I don't raise money to buy hi-tech tools, or to rent special studios and rooms. I try to do my best with the little that I can personally afford. Some people have visited me in my studio and been surprised to see how basic my studio configuration is. They probably expected many powerful computers, many screens, and many speakers. Flexibility in the studio is far more important for me, the possibility to pack and unpack, to try a set-up, and then move to a different one with a certain ease. The overall configurations are capable of being rewired and can be tested and dismantled quite easily, although not necessarily quickly.

ROELS: Leaving empty spaces in your studio or workshop gives you the opportunity to change plans and experiments while you are composing. You can try something new if you suddenly want to.

DI SCIPIO: Flexibility in the technical configurations in the studio has to do with the creative process, that is true. Setting up things and materials in an empty space allows you to focus on the system relationships you are designing, to make them work on their own, leaving aside what is unnecessary. You can draw a profile or a spatial horizon within which the work performs the way it does. By the way, the latter point brings us to a related issue. Installations have a temporal horizon, a duration within which the listener pays attention to the installation, for example five or ten minutes or maybe even twenty depending on who is listening. But there is also a spatial horizon, which is how far you can go from the installation and still witness what it is doing. This spatial horizon is a very important element of musical form. We think of form only in terms of dramaturgy and time but it also relates to space. Form exists within a certain sphere and within a certain horizon. There is an ecological approach to psy-

choacoustics that is very valuable in my opinion. It concerns the perception of space, movement in space, presence, bodily presence, and proximity (Neuhoff 2004; Rocchesso and Fontana 2003).

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# Kairos in the Flow of Musical Intuition

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## INTRODUCTION

A dialogue in a moment of musical creation unfolds:

Stefan (guitarist): Actually, I've been thinking that maybe this is where we should reach some kind of, a spectral kind of quartertone *scordatura*.

Richard (composer): mhm, or it could be actually the harmonic series.

Stefan: Yeah that could be . . .

Richard: That's actually how we do it! Let's do the harmonic series.

Stefan: We're actually quite close to it . . .

Richard: What's the lowest you're comfortable with doing on the bottom string?

Stefan: C is fine.

Richard: Maybe we should do the top six harmonics, based on . . . let's see, if C is the third, then it would be the harmonic series based on A $\flat$ .

Stefan: Which makes sense you know, G $\sharp$ , or A $\flat$ !

Richard: Oh God . . . perfect! That's perfect; we do it on the fundamental of G $\sharp$ .

\* \* \*

*Strandlines* (Karpen 2007a; Östersjö 2010), a composition for guitar and computer by the American composer Richard Karpen, is built on a series of tunings of the six-string classical guitar. The dialogue above, transcribed from a working session in a studio at DXARTS, University of Washington,<sup>1</sup> is taken from the moment when the composer and the guitarist Stefan Östersjö were working out the tuning for the final section of the piece. The sequence of events contained several instances of sudden decision making, but also of analytical reasoning.

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<sup>1</sup> The video clip from which the transcription was made can be accessed online at <http://www.orpheusinstituut.be/en/anthology-repository>.

The dialogue ends with an enthusiastic exclamation from the composer, but the line of reasoning may need a further contextualisation. The piece starts with a tuning in which all strings (but one) are tuned to a G#. Ending with a chord derived from the overtone series of G# seems to bring the harmonic sequence of the retunings together both on a conceptual and a perceptual level.

Stefan and Richard had to agree upon four successive tunings and looked for a tuning system for the final section of the piece. The sequence of events contained several instances of sudden decisions, relying on music expertise and intuition. They looked at the notation of the first four *scordaturas* with the intention of finding a logical way to proceed and bring the piece to a close. Stefan then discussed his musical intuition concerning the large-scale form as demanding a movement into a tuning that allowed a more sonorous exposure of chordal material. Negotiating some of Richard's other preliminary ideas, they turned to a more analytical gaze on the transition from the fourth tuning. They had already agreed that to create a sense of novelty when the new tuning is introduced there had to be a radical harmonic change (since there would not be any further changes in harmony because Stefan would be playing only with the right hand). The dialogue, an outpouring on the possibilities of harmonics, took place at this point of *kairos* (the right moment of decision), and Stefan proposed that the last tuning could be conceived as an open tuning based on spectral analysis. Both musicians became quite excited about the way in which this idea presented itself to them seemingly as a natural consequence of the musical structure that they were in the middle of creating. It is exactly such moments of decision-making and their various underlying processes that are the focus in this text.

Experience is, for all living beings, an ongoing, interactive process between the body and its environment. However, experience, being a universal condition for and of living, is embedded in particular time-space and knowledge frames. It is both passive and active: something that “happens” as well as something that is “enacted”—consider the experience of breathing, of feeling gravity, or of resting. In the moment of musical performance, experience, time, space, and attention conflate in a dynamic interaction between perception of sound, movement, and material objects, such as score and instrument in action-perception-reflection loops. The process and the outcome of that interaction are neither predictable nor totally dependent upon what “happens.” The interaction itself opens a field of possibilities.

But how does the artist cope with that field of possibilities? What triggers sudden human attention, revealing itself as a potentiality in that moment? Or, what is it that sometimes allows the answer to emerge within the “question” that is posed through a musical challenge—a new compositional idea, a new musical instrument to master, or a new improvisational situation—in a manner similar to how Descartes conceived of the fundamentals of scientific knowing? Descartes referred to it in terms of *lumen naturalis* (natural light); a similar answer we are likely to give is, “through intuition.” [The Greeks referred to this as the moment of *kairos*, the moment when decisions and actions have to be taken in the “now,” in the light of both contingency and human insight.]

We argue that the musical process implies a bricolage of implicit, tacit, expert knowledge or skill and a heightened awareness of the “now” moment. These joint movements, the involvement of tacit expertise and/in the moment of “now,” are what are called *intuition* and *kairos* respectively. Intuition can be considered a commitment in the field of an experience that opens a sense that was potentially present or could be opened in that experience. Kairos is the opportune moment where the artist takes the initiative and intervenes.

In the following, we will define the notions of kairos and intuition. We will explore how the field of intuition and the moments of kairos interact in the processes of musical creation, how intuitions work, how—in Descartes’s words—nature sheds light in our bodies, and how they are enacted by us. Because this exploration is linked to our own artistic experience, we will further illustrate the interplay of kairos and intuition within the opening example through our own musical practice: the creation of the composition *Strandlines* in the working session with Richard Karpen and Stefan Östersjö.

This more theoretical article is related to our three other texts in this book: “Habitus and the Resistance of Culture,” in which we draw on intercultural artistic practice in a further inquiry into the function of intuition, habitus and different forms of resistance in musical experimentation, “Repetition, Resonance, and Discernment,” in which we dig into Stefan Östersjö’s performances of Henrik Frisk’s composition for ten-string guitar and electronics *Repetition Repeats All Other Repetitions* to elaborate specifically musical aspects of the notion of kairos, and finally “Intuition, Hexis and Resistance in Musical Experimentation” which is our attempt at drawing thematic threads together and read the material in the light of musical experimentation.

#### KAIROS IN MUSIC: ACTING IN THE MOMENT OF NOW

For the Ancient Greeks, contingency is part of life. It is even a fertile ground for action. Changing contexts, aims, trajectories, and situations require new choices, decisions, and ad hoc reflection. Choices can never be settled, can never rest on facts and principles. However, humans, situated in place and time, in context and networks, have to make decisions. Every decision, every commitment, is specific and particular, context-linked. Moreover, decisions and choices, analyses and commitments, have to be made at the right moment, at the opportune time, the kairos. Because, once made, the choices are irreversible and will lead to further, different moments of kairos in which to act and intervene (Coessens 2009). Whether a composed structure or an improvisation, a performer always has to make the music “work.” The flow of musical time affords the possibility to reconstruct the past: to turn previous mistakes into new material, allowing them to introduce a novel course. Also, we can bend our ears to a critical listening in which our imagination may create new and contrary directions in the musical current. These moments of choice come to the fore in a composition such as Richard Karpen’s *Strandlines*. The outcome of the working session discussed above was a thirty-minute composition for guitar and electronics that has no score, apart from the chart of the five tunings.

In any performance of the piece, a series of materials and processes should be activated, but the acute moment in which this should take place is not defined and the interaction between the guitar part and the live electronics needs to be individually shaped in every instance. This is how the composer describes the making of the composition:

While this kind of experientially developed music has existed in many cultures, I'm drawn to the kinds of techniques that film director Mike Leigh uses for character development in his films. Leigh works with his actors to create their characters through an organic and rigorous series of directed improvisation and reiteration until the actors fully embody their characters, their utterances, and the relationships between all of the interacting characters and situations within the environment of the work. Through this process the film becomes its own screenplay. In the case of my own explorations in this mode of composing, the piece of music will itself also be the score. The piece is documented using video recordings of a performance along with instructions and demonstrations showing how to play it. This video document takes the place of a musical score so that the integrity of the work can be maintained over time and the work can be performed by other performers as well. (Karpen 2007b)

Just as the making of the piece took shape through real-time interactions between composer, performer, instrument, and the live-electronics, each instance of the piece is built in the moment, in the continuous shaping of a sequence of now-moments, a specific experience of time that has no relevant description in the English language.

Kairos is an Ancient Greek notion of time that indeed has disappeared from our vocabulary. It originated in two practice-based arts in which preparation and know-how had to mesh with precision, reflection, performance, and process: archery and the art of weaving. As Eric Charles White wrote in 1987 about kairos:

In archery, it refers to an opening, or "opportunity" or, more precisely, a long tunnel-like aperture through which the archer's arrow has to pass. Successful passage of a kairos requires, therefore, that the archer's arrow be fired not only accurately but with enough power for it to penetrate. The second meaning of kairos traces to the art of weaving. There it is "the critical time" when the weaver must draw the yarn through a gap that momentarily opens in the warp of the cloth being woven. Putting the two meanings together, one might understand kairos to refer to a passing instant when an opening appears which must be driven through with force if success is to be achieved. (White 1987, 13)

According to Sipiora and Baumlin (2002), the earliest notion of kairos appears in Homer's *Iliad* and refers to the body and its physical vulnerability in struggle with the enemy. Later on, in tragedies, there is a shift from the locus of mortal risk to the moment of decision itself, and thus to vital decision. In Hesiod's works, it becomes associated with measure and proportion in the practice of life. As such, it anticipates the complex situational meanings of the classical Greek concept of kairos, where human decision has to cope with constraints and the risk of time, place, and the other. Aristotle considered the

kairos as the propitious decision, made in an individual and concrete dynamic situation.

The kairos is an opening moment where a question and possible answers conflate, a moment of urgent decision. The artist, by entering the public world, by choosing to perform in particular and never equal situations, to affront and persuade an ever-changing audience, is confronted with his or her responsibility and vulnerability. The artist has a self-conscious relation with his or her *techné*—artistic expertise—and its contours, the web of artistic practice (See Coessens’s “The Web of Artistic Practice: A Background for Experimentation,” in this volume). But the know-how of the artist, considered as the broader web of artistic practice, and refined into a specific preparation, must be met by a “know-when,” an acute attention and alert intervention. Every artistic decision in the musical creation, every commitment is specific and particular, thus context-linked. There is both a need and an opportunity to interfere, play with, and react to the present circumstances in an appropriate manner: to seize the moment, like the archer and the weaver.

#### INTUITION IN MUSIC: MERGING PERCEPTION AND REFLECTION

Intuition in our understanding of musical structures emerges through an interaction between sense perception and analytical thinking, argues Mark DeBellis (2009). This interaction takes place not only in the inner listening that characterises the silent reading (and writing) of a score but also in concrete listening, when performing or composing in an electronic music studio. What we perceive is not the unmediated projection of an ideal musical structure, rather, “intuition is an active process, more plausibly understood as one that brings structured percepts into existence than as the inspection of a structure already present” (ibid., 125). Intuition partakes in an exchange of inside and outside, imagination and perception, knowledge and action, opening a potential field of interaction.

In *The Ecological Approach to Visual Perception* ([1979] 1986) James Gibson discusses the relationship between imagining and perceiving. The difference between these two categories is not on a philosophical or theoretical level. Imagined and perceived “objects” are perceptually different:

An imaginary object can undergo an *imaginary* scrutiny, no doubt, but you are not going to discover a new and surprising feature of the object this way. For it is the very features of the object that your perceptual system has already picked up that constitute your ability to visualize it. The most decisive test for reality is whether you can discover new features and details by the act of scrutiny. Can you obtain new stimulation and extract new information from it? Is the information inexhaustible? Is there more to be seen? The imaginary scrutiny of an imaginary entity cannot pass this test. (Gibson 1986, 257)

Interestingly, Gibson uses the notion of “the act of scrutiny,” thus stressing the active element. Take for example “inner-hearing”: it is fundamentally based on analytical processes and inner imagination but at the same time relies upon

practice-based skills (Östersjö, 2008), such as relative pitch and the ability to internalise musical sound issues from our physical musical skills of singing and playing. In other words, we must bear in mind the difference between this kind of “secondary perception” or “imaginary” listening or music creation and concrete listening or music creation. Perhaps musical intuition could be understood in a similar manner.

Returning to the music experience that opened this text, one may say that it reflects the conception of intuition that is “informed.” Intuition clearly can be understood, not as introspection of naive perception, but as knowledge or expertise-led perceptual judgement—what DeBellis calls “theory-laden” perceptual judgement (DeBellis 2009, 126). Such a perceptual judgement, both intuitive and informed, pops up in creative sessions such as these. The decisions can at first seem decisive, but can also then be re-evaluated in the face of new knowledge or in the light of deeper expertise, as the further development of that *Strandlines* session proved: the “bricolage” has sometimes to be rearranged, the decisions retaken—when possible. A discernment surfaces between an “imaginary” music conception and its concrete realisation.

Let’s consider the example a bit further. When continuing the collaborative session, the two musicians took the range of the different strings into account along with the tuning they had in the fourth *scordatura*, and decided to allow for a slightly modified order by exchanging the sixth and seventh harmonics in the chord. At this moment, both were interrupted by Josh Parmenter (the technician developing the electronics with Richard), who was working on an accelerometer in the same room—a sensor that could be used to modify open chords by way of changing hand positions that they had set out to try in another section of the piece. After this, for some reason, they turned to the fourth movement. Only after trying the electronics in that section did they get back to the notation of the last *scordatura*. Richard quickly looked at the scheme saying that the three last notes should be G $\sharp$ , A $\sharp$ , and B $\natural$ . Neither of the musicians reacted to or commented on the fact that the B $\natural$  is not the tenth harmonic in the series. Had they followed the scheme, the sixth and the first string would have been the same B $\sharp$ , hence an octave between the outer strings as in a normal tuning of the instrument. Regarded from a scholarly point of view, Richard’s mistake—and the fact that Stefan did not correct him (seemingly uninterested that the tenth harmonic is a B $\sharp$ )—is quite exceptional. In this clip there is a long sequence in which Richard stared towards the music stand while Stefan began to tune the lowest strings to the new tuning. This gave the impression that he might be taking a considered decision to deviate from the harmonic series, but in a later email conversation about this Richard concluded that the B $\natural$  is a “mistake,” in the sense that he was at that moment unaware of deviating from the series but that it was an intentional musical choice from him as a “composer”:

So, watching the video, I think that the B was a mistake but one based on wishful thinking (having the B on top with the C on the bottom and also representing the minor third of G $\sharp$ ) and then post-rationalising. Not the first time that a mistake has led to the right answer!!

Interestingly, one pragmatic exception, which made them swap harmonics six and seven, and one miscalculation (combined with compositional intuition), which gave the B $\natural$  on the top string, resulted in the fifth *scordatura* (see Figure 8). But what is the nature of this interaction with musical materials and mental processes, which in this example is the fabric from which musical intuition seems to emerge?

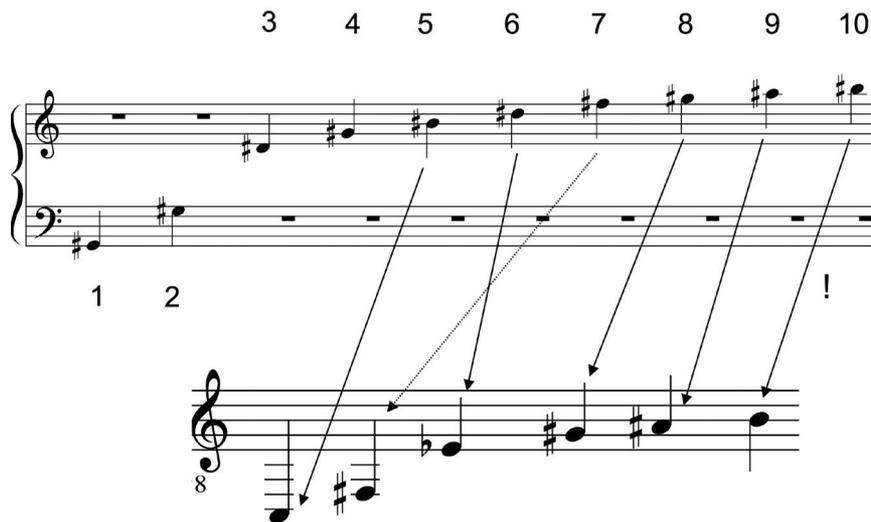


Fig. 1

Merleau-Ponty considers touch as the pivotal point, the interplay between action and perception. When touch involves the two hands as well as an exterior object, the two hands are both touching and being touched, reaching inside outside and outside inside: “If I touch with my left hand my right hand while it touches an object, the right hand object is not the right hand touching: the first is an intertwining of bones, muscles and flesh bearing down on a point in space, the second traverses space as a rocket in order to discover the exterior object in its place” (Merleau-Ponty [1962] 2002, 92). If we consider this in the action of a musician, a sonorous event results from the touch of the player’s hands, from the particular resistance of a certain musical instrument and in resonance with a certain space. The result is both movement in space and time, and motion as active perception. The action-perception or resistance-resonance loops at play in musical performance interact in a way similar to that of the touching hands: for the performer it is not really possible to distinguish between being in the world as performing and being in the world as listening.

This multi-modal kind of listening could be described as a resonant mode of being, but not one in which the resistance of the instrument is neutralised. Instead it is a matter of resonance with the instrument, the space, and one's own body, as suggested by Jean-Luc Nancy's discussion of musical listening: "It is a question, then, of going back from the phenomenological subject, an intentional line of sight, to a resonant subject, an intensive spacing of a rebound that does not end in any return to self without immediately relaunching, as an echo, a call to that same self" (Nancy 2007, 21). This notion of intuition as an extension of the self, of the space and time of the here and now was first expressed by Henri Bergson ([1912] 1991, 145): "It is, then, of the essence of our actual perception, inasmuch as it is extended, to be always only a content in relation to a vaster, even an unlimited, experience which contains it; and this experience, absent from our consciousness, since it spreads beyond the perceived horizon, nevertheless appears to be actually given." The confrontation with an extended horizon in the moment of musical creation makes a perceptual leap possible from the self to the environment. But this leap is not a movement outside the self but a dialogical interaction with the surroundings: "the objects which surround us represent, in varying degrees, an action which we can accomplish upon things or which we must experience from them" (ibid.).

Bergson's intuitive approach to perception is elaborated in Gibson's theory of the perceptual system. Though mainly concerned with vision, cognition is here the result of the active involvement of a human being. The environment affords different things in different ways to different perceiving organisms: for instance, a lake may afford swimming to a human while affording support for a bug.

However the potential has to be detected and acted upon by the perceiver. But this is equally true (and more interesting) on a finer level: a tuning affords different musical possibilities for different performers, hence, the *affordances* of a tuning are dependent as much on the individual performer as on the actual tuning and acoustic properties of the instrument. As the example shows, the affordances of a particular tuning emerge in the interaction between a musician and the instrument. The complexity of these processes is due to the multi-modal nature of musical listening—perception—and its orchestration in the bodily action of performance—action.

#### CONCLUSION

The manner in which Karpen took decisions on the basis of his own mistaken calculation of the overtone series offers a strong example of musical intuition, combined with a moment of *kairos*, a decision in the moment, of how to give shape to this particular tuning. The B<sup>♯</sup> contributes to one of the most striking characteristics of the final chord and of the melodies that emerge from the natural harmonics. This example shows how *kairos* can be understood as the making of right decisions, backed by "informed" intuition, on imperfect materials, and indeed sometimes even on "incorrect" grounds.

The performer moves and is moved—think of emotion—while soundwaves are moving. The performer as a “resonant subject” is immersed in the sonic event, both touching and being touched by the hands, the ears, and the body in the sounding space, but at the same time also involved in processes of musical interpretation that oscillate between analytical and tacit cognition. Just as the “resonance” between an instrument and the musician’s body mirrors the touching hands, the affordances of a musical material are also experienced by the composer as a resonant subject in the ongoing musical dialogue, emerging from the particular interaction between analytic thinking and perception, which is the basis for the flow of musical intuition.

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# Habitus and the Resistance of Culture

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## INTRODUCTION

Musical performance demands the re-enactment of previously imprinted and embodied expert practices. These embodied schemata structure perception, thought, action, and communication and can be adapted and re-coordinated in specific situations. They function as frames of how to behave and, act in, and interfere with the outer world. Aristotle, Marcel Mauss, and Pierre Bourdieu named these practices the *habitus*: a general, mainly tacitly and socially acquired whole of embodied patterns for action and behaviour—how to sleep, how to eat, how to play, how to be a man or a woman.<sup>1</sup>

Artists, as other people do, develop their activities and interests within a broader cultural context and thus acquire habitus proper to their society. Different activities and processes of knowledge and specialisation lead to a specific discipline- and culture-related habitus. An artist will over time acquire an artist's expert habitus: a whole of specific action and interpretation patterns that combine embodied schemata and artistic expert know-how handed down by the prevailing cultural context (Coessens 2011). Since artists move in different ecological and cultural artistic domains or communities, they will consciously and unconsciously, in implicit and explicit ways, negotiate from their own artistic domain the space of techniques, interpretational styles, and knowledge.

While an artistic habitus enriches the expertise and the potential of the artist, it also implicates a space of resistance, be it between the musician's acts and the encountered materials or between the musician's acts and the cultural space with which he or she interacts. Therefore, the performer's expert habitus will be reshaped by the experiences of different situated instances. First, there is always the impact of the artistic material environment. Artists have to adjust themselves ecologically: space, perception, and materials linked to the expertise can resist or, on the contrary, enforce certain habits. Second, there is always

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<sup>1</sup> Video illustrations from *Inside/Outside* and *IDIOMS* relevant to this article are accessible online at <http://www.orpheusinstituut.be/en/anthology-repository>.

also the impact of culture. In today's globalised cultural communities, clashes between traditions have become everyday challenges for many artists.

After an elaboration of the notion and dynamics of an artistic logic of practice and its relation to society and the body, we will analyse specific examples of how the habitus of individual artists both shapes and is transformed by the interaction between performers and materials, performers and their bodies, and performers and the musical cultures from which they originate.

The observations of our own artistic practices in two projects—*Inside/Outside* and *IDIOMS*—offer practice-based studies of these theoretical assumptions. Both projects confront materials and culture and require the participating artists to negotiate meaning and relevant practice in specifically designed experimental scenarios.

*Inside/Outside* is an installation and performance work that questions traditional Vietnamese music today from a gender perspective, building on an analysis of gesture in the performance of traditional Vietnamese music in TV shows. In the piece, the three musicians of the Vietnamese/Swedish group The Six Tones make a choreographed performance in glass boxes.

*IDIOMS* is an experimental music theatre project developed in workshops with actors and musicians from the United States, Vietnam, and Sweden. The director and playwright was Jörgen Dahlqvist and the music was developed with the composer Richard Karpen. The spoken, recited, and sung materials are in Vietnamese, Swedish, and English. They are a synthesis of three classic stories of impossible love across cultures and social barriers: Marguerite Duras's *The Lover*, Shakespeare's *Romeo and Juliet*, and the Vietnamese tale of My Châu and Trọng Thủy.<sup>2</sup> The different traditions that the actors represent provide a wide range of expression spanning spoken theatrical and vocal traditions from Asia and the United States. We will argue that a space of intercultural musical experimentation emerges that tends to challenge the habitus, bringing out the resistance of materials, the body, and culture. In the process of musical experimentation, we suggest that the denial of habit (Lachenmann 2004), or a specific kind of “compositional” critique (Östersjö 2013), is an essential component.

#### TRACING THE CONCEPTS OF HABITUS AND HEXIS

The social concept of habitus can be traced back to Aristotle's hexis in the *Nicomachean Ethics*. Humans are not only born with natural dispositions they also acquire additional cultural dispositions through repeated experiential

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2 The legend of Trọng Thủy and My Châu depicts a conflict between families similar to that in *Romeo and Juliet*, though set also on the level of aggression between nations. Trọng Thủy, the son of the Chinese general Triệu Nã, was sent as an emissary to Vietnam and there married My Châu, the only daughter of the king of Vietnam, An Dương Vương. The king had a magic weapon, which My Châu showed to her husband. He in turn stole the magic bow and this led to the fall of the Cổ Loa fortress. In the legend, An Dương Vương fled with his daughter, not knowing that she had been the one to reveal the secret of the magic bow. However, once he had ridden to the sea, a giant golden turtle told him, “The enemy is sitting right behind you!”—accordingly, he killed My Châu. Prince Trọng Thủy arrived immediately afterwards, and when he found the body of his beloved wife he drew his sword and killed himself to be with her forever in eternity.

processes of acting, learning, and habituation (Aristotle [1934] 2003, 16–26 [1130a]). The Aristotelian notion of *hexis* exceeds the strict notion of behaviour and action patterns since it includes both moral actions and practical skills. Virtue and practice merge as the qualities of action depend upon the actor's excellence: deed and doer merge in action based on practice and ethics. Good and beautiful actions are therefore not sporadic or accidental products; they are “the result of the integration of deeply embodied, acquired and reflected dispositions—skill, knowledge and considered choice” (Coessens 2011, 3).

Later, at the beginning of the twentieth century, Marcel Mauss took up the concept of habitus (the Latin equivalent to the Greek *hexis*). In “Techniques du Corps,” he developed an extensive classification of bodily techniques embedded in social and cultural patterns of action and thought (Mauss 1999). Three interrelated domains are at the heart of his concept of habitus: the biological, the psychological, and the social. However, he mostly discusses the social aspects of habitus: society imprints upon individuals specific embodied patterns in often-unconscious ways—through training, education, and mimesis. Positive rewards and success will define the tendency of individuals to prefer certain ways of doing to others (Coessens 2011, 3). By describing a wealth of examples of culturally defined embodied ways of walking, eating, and sleeping, Mauss proves that the cultural impact of preferences is primordial in what humans often consider “natural” behaviour.

In the second half of the twentieth century, Bourdieu developed a more complex theory of habitus, embedded tacitly in the social structures of societies. Habitus here refers to a bundle of dispositions acquired through socialisation processes and consisting of transmitted, structured and structuring, generating principles, and organisational schemes of practice and representations. Bourdieu stresses how tacitly-transmitted embodied schemes and patterns are handed down in imperceptible social ways: the habitus is the product of mostly unintended, nonconscious input through the conditions of existence or through the strategic intentions of other humans—for example, pedagogical action—which themselves are parts of the conditions of existence (Bourdieu 1980, 102). Cultural patterns steered by tradition and social relations have an impact on the formation of the habitus. Social order imposes itself on the body; it compels the body to act in this or that particular way, depending on time, space, circumstances, the others. In an often indiscernible way, habituated, embodied, and social practices merge: the personal and the social parts unite in bodily practices and behavioural patterns. The collective dimension of the habitus depends upon a shared embodied history and offers a guide for action and practical embodied knowledge: how to behave, how to interpret the human world, how to evaluate taste and success (Mounier 2001, 46). The embodied manifestation of the habitus is what Bourdieu calls the *hexis*. A logic of practice imposes itself as a social logic, most of the time by way of imperceptible and unconscious influences, but partly imposed by strategic actions—for example, educational or juridical actions. Then Bourdieu analyses the further refinement of the habitus, by considering different social spaces, using the notion of “field.” Complex societies, where social and functional differentiation and

professional specialisation develop, divide into diverse fields—for example, the field of academics, or of masons, or of writers (Bourdieu 2000). Defined by its socially functional activity, a field is constituted by forces such as legitimacy and identity, but also by certain power relations inside the field: individuals enter into competitive relations with one another, creating a strong commitment to and solidarity within their field. The field constitutes the objective conditions—the environment—for the habitus (Mounier 2001, 55–59).

Artists develop their activities and interests inside a field constituted by creative artistic and cultural techniques and knowledge. Artists will, consciously or unconsciously, in implicit and explicit ways, take in the embodied patterns, interpretational styles, and different types of knowledge proper to their own artistic domain. Different cultural contexts will constitute different artistic fields, containing certain qualities and characteristics, ideas, behaviours and appearances, attitudes and dispositions, power relations, and aesthetic concerns embedded in a tradition of education. Different artistic schools and currents, the availability of artefacts and performances, and the contact with certain “masters” and pedagogues will influence the musician’s actions and offer a basis for cognitive and motivational structures, kinaesthetic and aesthetic patterns, and durable and adapted dispositions, within the limits of socio-historic conditions. The artist will, implicitly and explicitly, develop an artist’s habitus in which socially acquired embodied schemata and artistic expert know-how are combined, which “tends to favour experiences likely to reinforce it. . . . to protect itself from crises and critical challenges by providing itself with a milieu to which it is as pre-adapted as possible” (Bourdieu 1990, 61). Such an artistic habitus offers not only a social position inside the field—the acceptance of the status of artist—but also a broad range of embodied patterns that can be applied in rehearsal and performance, containing things to do or not do, perform or not perform, show and not show in the moment of artistic action. We will argue that a distinction different to the one made by Bourdieu between habitus and hexis is essential for developing an understanding of these artistic processes.

The artistic habitus is inscribed in corporeal experiences of excellence, in a hexis. In performance, a hexis rather than a habitus appears, sustained in the background by a broader habitus. The Greek *hexis* contains both *techné*—embodied techniques and skill—as well as *ethos*, the virtuous relation to one’s acts. Hexis is a disposition of the body toward the outer world that is related to artistic virtue by way of purposeful training and perseverance instead of by everyday social and cultural influence and imposition: “Hexis is a special sort of disposition, which is itself a quality: it is special by being especially well entrenched in the thing of which it is a hexis. A hexis is either an excellence or an aberration; an excellence is a hexis which is a perfection, and something is perfect when it is most in accordance with its nature” (Hutchinson 1986, 5). For the musician then, *hexis* is constitutive of artistic choice, reflection, and action. The artistic virtue that is embodied in the musician’s hexis is reflective of a broader aesthetic context and one’s (artistic) goals in life and as such is an expression of a critical relation between the two.

Beside this attention to the social context and modelling of habitus, other theorists in philosophy and phenomenology, such as Maurice Merleau-Ponty and Michel Serres among others, consider the body—and the formation of a habitus—from the perspective of its interactions with a broader ecological environment. All living beings have inherent potentialities. The potential is that which can be, but not necessarily will be. The realisation of these potentialities depends upon the interactions with the ecological environment. Aristotle already mentioned the inherent potentialities of objects and living beings, which can be realised if certain conditions prevail and interactions happen. Theories of perception such as Gibson's have refined this notion of potentiality in the ecological turn in psychology, claiming the idea of affordances. Affordances are what an organism, an object, or a material can offer to other organisms: features that can or will be used by other organisms. Hence, a lake affords walking for a bug but swimming for a human who has learnt to swim. Taking the example of a musician, an instrument affords different musical possibilities to different performers; hence, the *affordances* of an instrument are as dependent on the individual performer as on the acoustic properties of the instrument. There is an exchange of the affordances of the instrument and the affordances of the human's perceptual capacities. Merleau-Ponty offers us the metaphor of the blind man's stick: "The blind man's stick has ceased to be an object for him, and is no longer perceived for itself; its point has become an area of sensitivity, extending the scope and radius of touch, and providing a parallel to sight" (Merleau-Ponty [1962] 2002, 167). The stick is an external object that becomes incorporated when it is mastered. However, we could question who incorporates whom, or what incorporates what. Thinking of Michel Serres's notion of metamorphosis, the human body is flexible and moulds toward its environment. He offers two examples, which show the range of possibilities of adapting and transforming in relation to the self and the world: the ploughman and the alpinist. While the ploughman will mould his body once and for all to the plough in a shared interaction with the resisting soil, the alpinist will have to adapt again and again to unexpected surfaces. The first will repeat his or her actions with almost no change, the second will need to vary and redirect his or her actions over a great range of possibilities (Serres 1999, 18–21).

Merleau-Ponty's metaphor describes rather simple tools, while Serres's examples bring the complexity of embodied adaptation and flexibility to the fore. Musical instruments do not offer the same degree of transparency present in the examples of the blind man's stick or the farmer's ploughing. Nevertheless, they are rather similar to the alpinist, sharing the need for strong agency, because of unexpectedness and variation. The affordances of the instrument have to encounter a bodily intelligence to realise them and discover and cope with them. However, in all these cases a form of habitus is elaborated, acquired as a tool for interacting with the outer world.

HABITUS AND THE RESISTANCE OF THE MATERIAL

The instrument does not just yield passively to the desire of the musician. It is not a blank slate waiting for an inscription. Likewise, the musician does not just turn the instrument to his own ends, bending it to his will against whatever resistance it offers. Rather musician and instrument meet, each drawing the other out of its native territory. (Evens 2005, 161)

While it seems that an artistic habitus develops from a positive, adaptive action between actor and material agents, we often forget the challenge and difficulties offered in the encounter between instrument and musician. A musical instrument is a tough tool in the production of musical content. So is a musical score. The notion of the “resistance” of the instrument seems to be more powerful than the contrary idea of the transparency of mediating tools put forth by Merleau-Ponty. The search for musical content, for a resonating interaction, does not result from the incorporation of the instrument as a transparent tool, but rather from the affirmation of its resistance, which it amplifies and plays with.

In a discussion on Beethoven’s “Hammerklavier” Sonata, Jerrold Levinson emphasises how the idiomatic properties of the “Hammerklavier” contribute to its identity as a musical work:

The aesthetic qualities of the *Hammerklavier* Sonata depend in part on the strain that its sound structure imposes on the sonic capabilities of the piano; if we are not hearing its sound structure as produced by a piano, then we are not sensing this strain, and thus our assessment of aesthetic content is altered. The closing passages of the *Hammerklavier* are awesome in part because we seem to hear the piano bursting at the seams and its keyboard on the verge of exhaustion. On a 10-octave electronic synthesizer those passages do not have quite that quality, and a hearing of them with knowledge of source is an aesthetically different experience. (Levinson 1980, 17–18)

At work in this description are resistances of two kinds of materials: on the one hand the instrument, on the other the score. When Levinson speaks of the “strain” that the structures of the “Hammerklavier” Sonata impose on the piano (and one could add, the even greater strain put on the pianos of Beethoven’s own time), he comes close to an explication of what is involved in the interaction between the instrument, the score, and a performer. The instrument in this process offers, according to Aden Evens, its “resistance.” The way in which a performer integrates the score and the instrument is not simply a development of strategies to overcome this resistance. It is a more continual learning of how to “play” the dynamics of its resistances, creating traces of *significance* by way of this friction between the “grain of the voice” of the instrument and the physicality of musical performance (Evens 2005, 160–61). Levinson reminds us of another aspect of the resistance of the instrument in relation to the score: the relativity of virtuoso writing. A musical structure, such as, for instance, Paganini’s Caprice op. 1, no. 17, may be regarded as breathtakingly virtuosic

on the violin; however, if it is instead played on a synthesiser set to a synthesised violin sound, it will generate a superficially similar sonic event, but one that projects nothing of this virtuosity in performance to a listener. Virtuosity emerges in the interplay between a performer, a score, and a musical instrument, but the significance of the more subtle levels of a performer's interaction with musical material reaches into the finest components of the performance: the significance of different fingerings, the movements of the hands, the pressing of keys, all the physical properties of the balance between a performer's technique and the "resistance" of the instrument. All these fine-grained physical properties of a work affect the rendering of the musical structures on the micro and the macro level.

However, the significance of different fingerings, the movements of the hands, the pressing of keys, and all the physical properties of the balance between a performer's technique and the instrument refer also to another "resistant" material, that of the human body.

A fine-tuning between the potential of the body and its expert artistic habitus is needed to fill in the concrete demands of a score by way of a specific instrument. Nevertheless, there are limits where the body can become a place of resistance that need to be taken into account. Indeed, it takes a while before a pianist can play Chopin's études or a cellist can play Bach's suites; it takes hours of practice and hard labour to adapt the body and the fingers to instruments that are not so ergonomically devised or movements, velocities, and positions that are not very naturally inclined. Even if the two are rarely compared, musicians resemble athletes—in training and techniques as well as because both are attributed levels of excellence and participate in competitions: ever better, always with the aim to go higher and faster, with no errors allowed (Coessens 2011, 2). The practical and embodied conditions required for performing high-level musical activity form a dense web of techniques and skills, often acquired laboriously or at least over a long period. The artist possesses then an artistic habitus of high technical and athletic quality.

It can be difficult to spot the resistance of the body in the practice of a professional performer since the habitus of the player has, often since childhood, incorporated strategies to tackle it, perhaps making it transparent like the blind man's stick in Merleau-Ponty's example. Fluency and apparent ease is part of the expert habitus of the musician. However, certain performance situations can force a resistance toward that ease, a resistance that becomes then part of the creation.

This notion of resistance is at work in the recent installation project *Inside/Outside*, in which Stefan Östersjö was required to perform traditional Vietnamese music in queen costume—alluding to traditional Vietnamese theatre conventions. In this piece, the movements of the three musicians of the group the Six Tones were directed by the Swedish choreographer Marie Fahlin. In many instances in this piece, the resistance of the body received a more outspoken role—for instance in a solo that Östersjö played. In it, he was standing, holding the *tỳ bà* (Vietnamese four stringed lute). This is already in itself an awkward playing position: although visually powerful—holding the

instrument in this way alludes to traditional paintings of women playing the lute—playing the instrument in this way is difficult because when held upright it has a constant tendency to fall out of one’s hands. But, most of all, the solo involved a constant turning movement and the musical material was shaped according to the speed and direction of the turns. It became very obvious how the footwork came to shape the musical form of the entire solo, and also how, in the first days of rehearsal, this physical movement totally outside the habitus of a classical performer turned Östersjö’s body into a space of resistance in the making of the piece.<sup>3</sup>

Fahlin, the choreographer, had suggested that the entire solo be imagined as if performed by a ballerina in a music box.<sup>4</sup> However, the rehearsal and performance period of the installation, during which Östersjö’s movements always had to follow female gesture types, made him realise how many years of hard training are required to walk and move like a woman. What emerged later in the same working session was the interdependence of movement and music: how “winding up” and “releasing” the ballerina shaped the music in accordance with these movements, and vice versa.<sup>5</sup> Imperfections in the turning movement and the timing of when to start “unwinding” the mechanism immediately affected the ongoing music.

As Mauss mentions, mechanical, physical acts and adaptations are sustained by education, by values placed on behaviour and learning, by the space they receive in society, and finally by how these social representations take form in the mind and body of the individual. Societies have habits and traditions that educate youngsters toward musicianship, taking at least a ten-year period of instruction to mould body and acts, often sustained by deeply entrenched master-pupil relations, and following a traditional curriculum of stages, levels, and judgements. Moreover, the lifelong attribution of levels and honours and the continual judgement and critique by professionals and laypersons of public performances reinforce the musician’s interwoven triad of personal and psychological traits, bodily techniques, and social representations (Coessens 2011, 6–7).

#### *IDIOMS* AND THE RESISTANCE OF CULTURE

In October 2010 The Six Tones and Teatr Weimar held auditions in Hanoi to find an actor from traditional theatre who would join the project *IDIOMS*.<sup>6</sup> They met actors from all three main traditions of theatre in Vietnam and even-

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3 In the first video clip we can observe Östersjö’s first attempts to realise a turning movement inside the box.

4 Looking at Östersjö’s feet in this video, it becomes apparent that becoming a ballerina is not achieved overnight.

5 In Clip 2, taken from one of the performances of the piece, one can observe how in several instances Östersjö’s playing is interrupted by a lack of fluency in the turning movement.

6 Teatr Weimar is one of Sweden’s leading independent theatre companies and consists of playwrights, directors, and set designers. *IDIOMS* was produced in collaboration between Teatr Weimar, Ensemble Ars Nova (within which the Six Tones is a subproject) and DXARTS, Seattle. Stefan Östersjö is both a performer with the Six Tones and the artistic director of Ensemble Ars Nova.

tually settled for working with Nguyễn Đức Mạnh, a renowned actor from the Tuồng theatre in Hanoi. A day later, they all met for a workshop. When the session began, Mạnh was performing in everyday clothing. He suggested several times that it would be better also to look at his performance of the material in traditional costume. All the Westerners in the session were surprised by how significantly his acting changed when in costume.

This example shows how, for a musician, habituated, embodied, and social practices of creating music merge into a performer's identity that is both personal and cultural: it becomes quite impossible to separate personal bodily artistic practices from social artistic patterns, and vice versa. The habitus results in an embodied knowledge of how to play, create, perform, understand, and think about the aesthetic world of sound.

However, this habitus can itself become a point of resistance toward novelty, toward the realisation of creative, experimental performance and composition. If we understand *habit* as dwelling comfortably and thoughtlessly in a socially defined and secure aesthetic space (Lachenmann 2004, 56), is it therefore possible for us to encounter unexpected or original creative aspects of musical perception and performance? Helmut Lachenmann uses the notion of “denial of habit” to define beauty in musical composition. If we imagine the performer interacting with the affordances of musical materials, there is a risk of falling into instrumental habits—in other words, clichés. The critical perspective that Lachenmann provides, may offer useful clues to a more general understanding of the function of hexis in musical creation. In an aesthetic experience allowing such a position on a denial of habit, the exploration of the affordances of musical material can be understood to oscillate between an affirmative phase, where resonance between the instrument and other musical materials are in focus, and a critical phase of denial, where a “compositional” reading attempts to decompose these habits. The hexis of a performer needs to be continuously understood as a complex interplay between processes of “resonance” and “critique” or “resistance”—a “critique” that constitutes this denial of habit in musical performance. The critical function of the compositional phases could also be understood as the moments when musical experimentation comes to the fore, when the performer “com-positions” him- or herself within (“com”) both habitus and resistance. By intentionally introducing resistant materials into a performance, instrumental clichés can indeed be bypassed or transformed. These materials can be the ordinary materials, such as instruments and scores, or the performer's body, as we mentioned before. Both merge with a third kind of resistance: that of the cultural impact of the habitus itself in collaborative intercultural settings. This resistance, which we call cultural resistance, encompasses both previous kinds of resistance—materials and body—as it shapes and challenges the musician's hexis.

The cultural resistance of Tuồng-theatre traditions was one of many factors at play in the making of *IDIOMS*. When one studies to be a Tuồng actor one learns a couple of roles related to each other that reoccur in almost every play. These characters are also deeply connected to the costume worn. Hence, in this process, the cultural meaning of the costume in Tuồng theatre was the source

of the resistance. When the piece was further developed in working sessions the year after, this was one of the issues that had to be resolved, since the play required the actor to move in and out of traditional costume. This became one of the most essential pieces of learning on Mạnh's side and a fundamental challenge for the director and the group of actors. Only in the working sessions in June 2011 did the whole ensemble arrive at a solution to this problem—a negotiation of the resistance of the respective cultures, as it were—when Mạnh was introduced to the notion of working with “situations,” as in contemporary Western theatre. Mạnh then found ways of imagining himself as somebody else when wearing everyday clothes and like a traditional “hero” (he normally plays a “young general”) when he wore his traditional costume.<sup>7</sup>

As we mentioned, Mauss stresses the importance of the threefold consolidation of techniques: physical, social, and psychological. Founded on tradition and efficacy, the corporeal dispositions—the physical—are not only acquired by training and mimesis—the social—but also imply a psychological “momentum,” an instance of confidence in its efficacy (Mauss 1999, 369). A psychological, “magical” belief in the technique helps to ingrain the bodily act as a relevant tool, even if the resistance of the material and the physical acquisition is tough and demanding. Mạnh's resistance from his own cultural artistic habitus could only be bypassed by new patterns of action that didn't conflict with his own artistic culture. A new manifestation of an individual hexis thus emerged.

Another example of resistance between materials and culture came to the fore when the ensemble began to shape the instrumental music in the section moving from Mạnh's reading through recitation to singing. During the workshop, the composer, Richard Karpen, was not physically in Hanoi; instead, he communicated online over Skype. In this first session some ideas were tested that had already emerged in the audition. This concerned ideas that considered the different modes of delivering text in Tuồng. The composer wanted to try a possible first scene that started from reading and gradually grew into singing. The text we worked from at this time was created by Jörgen Dahlqvist and consisted of a deconstruction of material in Marguerite Duras's *L'Amant*, translated into (modern<sup>8</sup>) Vietnamese. Karpen suggested that the instrumental part could start from musical structures developed in earlier sessions and then a way could be found to create a different musical trajectory that followed the development of the vocal part. He proposed that the *đàn bầu* should follow the melody of the singing and that the *tỳ bà* and *đàn tranh* should take on a more motoric role.

7 An eleven-minute clip from the premiere of *IDIOMS* represents the artistic solution of the resistance of culture in the use of costume in Tuồng. We first see Mạnh performing in “normal” clothes (and in normal voice), then the process of getting the costume on, followed by a sequence of traditional dance and singing.

8 This translation into modern Vietnamese turned out to have unexpected results on a local audience in Hanoi. After the first sessions with Nguyễn Đức Mạnh, after which the musicians were all very excited about his performance of the text, Östersjö played some video of it to some Vietnamese musicians. To his endless surprise, they were not touched or impressed by the emotional power of the performance but instead started laughing. What the Western musicians did not know was that Tuồng is always played in ancient language, like Shakespeare's English, and to hear recitation in Tuồng-style but in modern language was simply comical to them.

Since Karpen was not physically present, the interaction between all artists was limited to the moments when all were online. Hence, there was no way the composer and the performers could immediately negotiate the music, as would be the normal working mode in such a project. Instead, it was agreed that the performers would make a series of recordings that would constitute a point of departure for the further development of the music. In the session we made a series of attempts to record this scene, following the trajectory of the voice from a slow almost pointillistic music that was intended to grow gradually into a more dynamic interplay between the recitation and singing. Even in the first take, something quite unusual happened. Thùy, a fluent improviser who would normally not fail to contribute to building an agreed structure, became more and more silent as the dynamic curve of the vocal part increased. A second take was made but the same thing happened. The musicians took a break and Östersjö asked Thùy what the matter was. She explained that she felt the way Karpen had asked for the music to develop came close to how one would traditionally play the accompaniment to this kind of singing but was also a bit different, so that it would simply sound “wrong.” At first she went silent; then, instead, she started playing totally different things using extended techniques in ways that certainly did not match what Karpen had suggested and did not interact so well with the rest of the ensemble. To Östersjö, it seemed necessary to adjust the trajectory of the music to fit the demands of the Vietnamese tradition as it was embodied and expressed by Thùy in this moment. Later takes tried out ways of moving away from pitch material that followed the vocal line too closely and avoided the kind of motoric figurations that were part of Thùy’s “problem” with the music, thus confining a conflict that could be understood as a clash between different cultural materials.

A performer such as Thùy acts inside a cultural world, inside an artistic field that contains its own evaluations of cultural and symbolic capital. Bourdieu (1979) describes how a cultural world consists of different fields, each containing their own forms of power and status. These forms of power produce capital that can be used as material and/or ideal value or status symbols. He considers different kinds of capital: economic, social, cultural, and symbolic capital. Cultural capital and symbolic capital are of ultimate worth for the field of art. Cultural capital concerns explicit and tacit elements of knowledge, educational levels, and aesthetic understanding. Symbolic capital refers to the symbolic recognition, articulation, and legitimisation of other forms of capital, offering power, respect, and status. Utterly defined by taste and mentality, but also by education and skill, participants in the field of music, by way of particular lifestyles and habits and aesthetic appreciation and artistic embodied knowledge, obtain consideration, privileges, mythical appreciation, and marks of distinction.

Cultural capital can be subdivided into three forms: an interiorised or embodied form, relating to practices of the body and aesthetic knowledge; the art objects themselves as an objective form of cultural capital; and, finally, the diplomas, educational degrees, prizes, and critiques of the artistic field as an institutionalised form. The embodied cultural capital, reflected in the diffi-

cult and demanding acquisition of the skills and techniques of performing, is the primary tool for acceptance in the field of performers. However, there is a need for broader acceptance in society and redefinition of the legitimacy of the field—the institutionalised and objective aspects of cultural capital. This happens through participation in the culturally defined trajectories of artistic education and artistic output and the necessary appreciation by critics and public. Artists therefore reproduce cultural structures in the form of durable and adapted dispositions, doing so within the limits of socio-historical conditions (Bourdieu 1980, 96).

It is clear that, for Thùy, engaging with other Western conceptions of cultural capital became very difficult and even impossible. Entering the field of music implies partaking in the appropriation of its capital but also divulging and redefining the legitimacy of the field. Some conceptions of legitimacy were intentionally contested by *IDIOMS*, which challenged, first, the Eurocentric domination of Western musical concepts in many kinds of “world music” and, second, the traditional power structure of Western art music, in which the composer’s wishes and intentions govern the minds and bodies of performers. Richard Karpen entered the *IDIOMS* project with an awareness of these tensions and, even more, with the intention of embracing these ambitions and embarking on the project in a dialogical mode of working: a “com-position” of different cultural habitus and a “denial” of deeply embodied artistic habits—or should we say an awareness and negotiation of these.

Indeed, all the material had to be developed and shaped together with the performers, creating a continuous space of negotiation, not only between the composer and the performers in the working sessions but also between cultural artistic assumptions and habitus. The piece was to have no score, instead relying on these agreements and the embodied knowledge of the performers of how the music “goes.” Hence, the making of the piece was also an experiment that questioned not only the traditional hierarchies of Western art music but also the role of the composer.

#### NEGOTIATING THE RESISTANCE OF MATERIAL AND CULTURE

This musical experience became a challenge. How could the tensions between the material suggested by Karpen and the cultural resistance that Thùy sensed be negotiated? Could there be a different dynamic that might resolve these tensions by taking the music into a different current? In this section, we will argue that an ethos that urges the performer to take embodied knowing into a new domain is an expression of hexis that can, for instance, take shape as a denial of habit.

The fate of the recordings made that day was certainly also the result of the lack of communication with Karpen. It may well be that, had he been in the theatre when the difficulties arose, a different dialogue would have taken place, possibly resolving the issues at this time. However, the audio and video material was sent over to Seattle with the intention of adding electronics to the take. Instead—and out of Karpen’s clear frustration with the fact that the

instrumental music was nowhere near what he had suggested over Skype—the editing sessions involved adding instrumental material from earlier recordings that, for one thing, certainly did not match the playing seen in the video. When the video was again returned, with this new after-construction of the music added, a certain frustration spread in the entire dialogue between Karpen and the musicians around this part of the piece. After a series of email conversations seeking a solution to the instrumental music, this problem was left until the next sessions in Seattle.

The final solution to the instrumental music was found on the last day of the next series of sessions, actually after playing the premiere of a music-only version of *IDIOMS*,<sup>9</sup> a version that did not include the music from this scene. In the relaxed state after the premiere, the question of this opening scene was brought up again and suddenly the resolution appeared, first in a suggestion by Karpen, which actually went along the lines that Thủy was trying out in the Hanoi sessions. Karpen looked closely at her *đàn tranh* and asked how chords plucked simultaneously on both sides of the bridges would sound, a playing technique that does not exist in traditional music—a proper “compositional” approach in the sense of embracing a denial of habit. The sound of these chords was strikingly novel and dramatic.<sup>10</sup> For Thủy, this playing technique, and the novel sonorities, allowed a way out of the resistance of culture, not by conforming with but by denying expectations from tradition—and was therefore an expression of *hexis* that led her playing toward a more experimental approach to her practice. It must also be understood as a shift in her relation to cultural capital, because this experimental approach to instrumental performance is not part of the cultural capital of traditional Vietnamese music but part of Western experimental practice. Just as in the negotiation of how Mạnh should relate to the use of costume in the piece, a denial of habit became the threshold leading to the embodiment of new skills and modes of expression. But this is not yet a complete picture of the negotiations involved in these sessions. The conflict in the work of Mạnh and Thủy between the cultural capital of Western art music and of traditional Vietnamese culture is mirrored in Karpen’s role when negotiating the music with the performers. Karpen had been brought into a situation where the authority of the composer to contribute “original” music in a composed work no longer remained. Instead, the music was negotiated between the musicians and between the two cultures. First, the hierarchy between composer and performer was dissolved. Second, the identity of the music no longer rested purely on the composer’s style of writing but relied just as much on the idioms of traditional Vietnamese music and the individual modes of expression of the players. Interestingly, at the premiere in Malmö, Sweden, a group of Vietnamese immigrants came to the performance. In conversations after the show, several of them said they thought the music was Vietnamese! Richard Karpen heard about these comments and decided to be

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9 This version can be heard at [www.youtube.com/ostersjo](http://www.youtube.com/ostersjo), where it is divided into four clips.

10 In the excerpt from *IDIOMS* found on the online resource (see Appendix 3), a return to this material can be heard at approximately eleven minutes into the clip.

happy about this response, despite the fact that the cultural capital in which he would normally invest implies that a composition should draw its identity from the work of the composer alone. Hence, in the making of this composition, Karpen allowed his practice to move beyond Western culture's traditional expectations of a composer and instead, in a search for artistic virtue similar to the hexis of Thùy and Manh, move toward a more experimental approach in his interaction with the performers in the production.

Cultural and material negotiations in the field of artistic performance are never settled because art is a continuous process of interaction. In this field of tension, we argue that the hexis of a musician may constitute the springboard for musical experimentation. While an artistic habitus is a culturally induced and handed down unity of behaviour, the hexis is an embodiment of the striving for artistic virtue and an expression of a critical relation between the complex field of possibilities in a specific artistic context. The embodied traditions that we represent, and the way in which they shape the cultural capital in which we invest in every layer of our practices, make the interaction between performers from different cultures a highly complex melting pot in which the outcome is indeed unpredictable. The musician's hexis constitutes an approach to musical experimentation that allows for a dynamic interaction with such diverse materials.

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# Repetition, Resonance, and Discernment

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*Intuition leads us to go beyond the state of experience toward the conditions of experience. But these conditions are neither general nor abstract. They are no broader than the conditioned: they are the conditions of real experience.*  
—Gilles Deleuze (1988, 27)

## INTRODUCTION

Musical performance is an artistic manifestation consisting of action or being enacted by the artist. At the same time, the artist is in a discerning, perceiving situation, a situation of “resonance.” However, the potential of both discernment and action is dependent upon the performer’s entire artistic background which is the result of a patient acquisition of artistic skills and knowledge, and upon the cultural tools at hand. The moment of *kairos*, the opportune time at which these processes come together joining the intuitive knowing and the individual skills of the performer to the clearest light is the focus of this second article.<sup>1</sup> We will in the present text look at several instances in the production and performances of a composition by the Swedish composer Henrik Frisk titled *Repetition Repeats All Other Repetitions*. Particular emphasis will be put on video material from CD-recording sessions that took place with the guitarist Stefan Östersjö at the Electronic Music Studios (EMS) in Stockholm in January 2011.

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<sup>1</sup> CD, track 3, is a complete performance of *Repetition Repeats All Other Repetitions*. Video illustrations relevant to the present article are accessible online at <http://www.orpheusinstituut.be/en/anthology-repository>. See also Coessens and Östersjö’s articles in the present publication.

*Repetition Repeats All Other Repetitions* is an open form composition for ten-stringed guitar and electronics. It was premiered in Beijing in 2006 and has been performed many times since then, in three separate versions. The piece emerged out of a collaboration between composer Frisk and guitarist Östersjö, an artistic research project in which interaction in the widest sense was allowed to play a major part already at the outset. In the preparatory phase, and through the first incarnations of the piece, the idea of a radically open work type, the *work-in-movement*, crystallised (Eco 1989). One of the conditions that allowed for the development of this openness was the disassembly of the hierarchies attached to the roles of composer and performer and one of its consequences was that intuition was allowed to play a great role in the work.

Conceptually the piece consists of three thematically distinct motives (A, B, and C in the score<sup>2</sup>) derived by permutations of the same tone series. One of the fundamental ideas behind the piece is that these three “characters” should develop dynamically and interact with one another. Though it is only possible for the guitarist to play one of these motives at a time, Frisk’s intention was, by irregularly moving back and forth between them, and with the help of the computer part, to create the illusion that all three “stories” were to be told simultaneously. The guitarist would merely “give light” or resonate with one version of the story at a time. The electronic part is designed such that there is a set of soundfiles and types of live-processing that correspond to the A, B, and C materials of the guitar part, respectively.<sup>3</sup>

Though the score is quite detailed, the way the segments are combined is up to the performer. So far three different versions have been produced: in the first two the structure was settled before the performance, and for the third version, which is the version mainly being discussed here, the choices were made interactively in real time. In this version, the performer is allowed to interrupt the segments at any place and go to another segment.

#### DISCERNMENT IN CONTINUITY

Each moment of performance or instance of (collaborative) artistic creation is situated in a broader web of artistic practice. A musical event indeed requires from the musician a specific background: to have acquired and elaborated the necessary cognitive and embodied patterns and trajectories that are capable of sustaining and expressing that specific artistic act of performance. However, the performance itself is enclosed in its own artistic time and place and is enacted in moments of now, reaching out towards a greater whole. In the moment of performance, the artist is absorbed in the enactment of the evolving work, from a position of self-reflective embodiment—that level of awareness may also shift and the involvement may at times be a subconsciously governed action. Each gesture adds to, changes, and influences the meaning of what was before and what comes after: movements unfold, succeed one another, and even a silence

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<sup>2</sup> A further description of the materials, both in the score and in the electronics will follow below.

<sup>3</sup> See Frisk (2008) for a more detailed discussion of *Repetition Repeats all other Repetitions*.

or immobility is but a tension or preparation for the embodied bound towards the next movement or sound; no movement is ever in isolation. Inner, experienced time, and spatialised, objective, analysable time merge into an embodied time, the time of the unfolding movements and acts. The movements of the body incorporate the surrounding space, linking interiority and exteriority.

Jean-Luc Nancy reminds us how listening is always a matter of sharing (Nancy 2007, 7–17). Hence, the space of the performance is also the space of the performer (and of the listener), the sound waves become part of the body, or the body part of the sounding space, resonating with each other. The artist enacts with the high perceptual and kinaesthetic sensitivity of the space, the objects, the bodies, the atmosphere, everything that is “in touch” with his or her body, extending the body and its unfolding gestures with the material surroundings and objects: where the artist is and what he or she does or will do, his or her spatial position, the material givenness and relatedness of body and space, merge completely in the unfolding of the musical act. A liminal space of artistic performance which challenges all ordinary quantitative time-space experiences, or *chronos-topos*, emerges. It is a space of resonance, an assemblage of the spaces of artistic practice, of preparation and of performance in one “here and now.” This attention implies a fast-tracking of possibilities and constraints and a fast attuning between proprioception and exteroception—between the attitudes and processes which stir out of the inner body and mind, and their reception of and interaction with the resonance of the outer world.

The musician’s tracking of these multiple perceptual inputs and outputs is a complex activity that depends on both explicit and tacit awareness and knowledge. There is a constant oscillation between conscious analytic thinking and tacit, non-conceptual knowing. This last shows itself as a “know-how,” a form of action led by intuition which can be defined as “Accumulated experience that is not immediately accessible to language, but which does affect our consciousness. . . . An intuitive choice is thus as conscious as a considered choice, it simply uses aspects of consciousness that are not accessible to language. It cannot say, but it can show” (Sandqvist, 2013). For Bergson, intuition is the flow of inner and outer experience, an undivided continuity, difficult to pin down. However, because of practical reasons, we interrupt and divide this continuity into discernible elements or fragments:

We start from what we take to be experience, we attempt various possible arrangements of the fragments which apparently compose it, and when at last we feel bound to acknowledge the fragility of every edifice that we have built, we end by giving up all effort to build. But there is a last enterprise that might be undertaken. It would be to seek experience at its source, or rather above that decisive turn where, taking a bias in the direction of our utility, it becomes properly human experience. (Bergson [1912] 1991, 184)

Intuition emerges here as an inner appreciation of the conflation of the complex information and interpretation through the senses, the body and the mind, in the knowledge and experience now related to the background. Focus and background, inner and outer experience, unite in the experience of the

body which is the material locus of complex interaction. What we are seeking is within that experience of multiple sensations that afford indeterminate action and yet persist (Morris 2005, 12). Returning to the introductory quotation by Deleuze, in his early discussion of Bergson's thinking and the contradictory acts of intuition he pinpoints the "decisive turn" that Bergson brings up in the quote above as a turning point. The conditions of real experience are neither general nor abstract but allow us to go beyond the turn, beyond our own experience and allow us to see it as one, "a pure memory identical to the totality of the past" (Deleuze 1988, 27).

The "decisive turn" can be understood as moments of *kairos* that allow for intensive encounters between inside and outside, between perception and imagination, resistance and resonance. Kairos implies the convergence of knowing how and knowing when, the faculty of both observing and realising in any given case the available artistic means (Atwill 1998, 59). Moments of kairos are points of heightened awareness or explicit flashes of the implicitly present flow of intuition that result in active responses to the space of resonance. But these moments do not merely present themselves to the performer from the outside nor solely from the inside: the moment of kairos is a moment of crisis, of conflict between musical powers, it is a decisive point when a new direction needs to be forced into the musical flow. The artist will have to cope with unexpected conditions that suddenly can hinder the attuning of body and space. He or she will prevent this as much as possible, by already "sensing" or "weighing" the space before, by preparing his or her body and its touch with that space—relying upon intuition. The kairos of the artist concerns the faculty of coping with the unexpected, with the particular constraints of a situation and of his or her own act in this liminal space of performance (Coessens 2009, 276).

#### INTUITION AND REPETITION

The embodied knowing that constitutes the framework for musical intuition is strongly brought to play in every performance of *Repetition Repeats All Other Repetitions*. A performer who has worked through the materials of the piece—the score and the computer-generated sound—and who has been performing different versions of the piece in concert will create an inner field of possibilities that becomes the playground for the next performance. But even if the piece has a strong bearing on our discussion of the moment of kairos in musical performance, there are also many instances in the collaborative work of making the piece that point to the function of intuition in time-scales other than the "now" in performance. We will in the following section offer some background concerning the working process of the creation of the piece. This started in 2006 with the ambition of highlighting some intuitions that guided the work in three periods stretching over several years.

The preparatory work on the piece involved an extended artistic research process that included the collaborative analysis of video documentation from Östersjö's collaboration with another Swedish composer, Love Mangs, as well as writing several papers and making conference presentations of that study.

During this period, the casual discussions of how the new piece might take shape were also important. We will return below to how some of those early intuitions about the piece came to guide the entire process of making it. But the preparatory work also involved improvisation sessions that were recorded on audio and video and later transcribed by the composer Frisk to become part of the score.

In the next phase, Frisk took all this material, borrowed Östersjö's ten-string guitar and wrote the first score to the piece. The way the score is constructed, it builds on three distinct layers and the dynamics between them:

#### *Motive A*

The A-motive is a transcription of the first section of the first sketch for another composition, *The Six Tones*, a quartet for two Vietnamese instruments, guitar/banjo and electronics. It makes use of a range of alternate playing techniques. The A-motive electronics make use of samples from the same Six Tones sessions and are generally rather short.

#### *Motive B*

The B-motive is in essence a melody with harmony and is a combination of what was initially thought to be two separate sections. The slow melodic movements are combined with repeated chords in a dynamically varied context. The B motive electronics were created making laptop improvisations on samples of the chords and some of this material consists of quite long files, up to over a minute.

#### *Motive C*

The C-material is almost entirely tapped on the fingerboard of the guitar using both hands in complex polyrhythmic patterns. Apart from creating a timbral texture distinct from the other two, it allows for a kind of two-line polyphony difficult to perform when playing the guitar with standard technique. The computer part is derived from physical modelling of a guitar with glass strings.

The first version of the piece has never been performed. In the first score Frisk's intention was to give a certain limited amount of freedom of choice in performance; Östersjö, however, found this to be problematic and suggested a different (and fixed instead of "open") version for the premiere, which was to take place in Beijing only a few weeks later.

One problem that Östersjö identified was practical: the score did not easily allow for its actual use in a concert performance because of its many pages and the need to turn back and forth in the material according to the real-time choices the performer should make in the course of the performance. The other problem was the greater form, which did not appear to be convincing. So, before leaving for Vietnam (a stop on the trip before going to China) he had made notes in the score on how to edit the material into a different fixed version. While in Hanoi, the score was cut into small chunks and put together according to a formal outline that Östersjö had drawn out. The electronic part

was mapped onto these fragments following the structure of the material in the guitar part and new electronic material was created. This version was performed many times over the next two years, often in combination with the second version that would later be produced.

In this second reading of the score, the greater form is guided by the form of a modernist film classic, Viking Eggeling's *Symphonie Diagonale*. This version was structured by Frisk and Östersjö in joint sessions, working with an audio recording of the first version as one of the main materials. On the basis of Östersjö's intuitive sense of structural affinity between the works, they developed a strategy for making this version of the piece by mapping the three main materials of the guitar piece onto the three categories of imagery found in the film.<sup>4</sup> In the sketch in Figure 1 we can see one of the sheets in which Östersjö and Frisk pencilled motives from the film and linked them to the A-material in the composition.

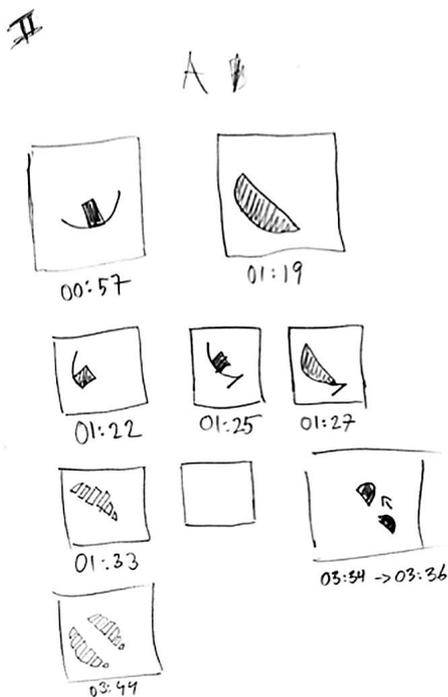


Fig. 1

The third version followed. This not only expressed the composer's original ideas for the piece, but also reflected and finally realised intuitions composer and performer both had concerning open form, not specifically related to the

4 For a further discussion of the making of this version we refer to the dissertations of Östersjö and Frisk (Östersjö 2008, 306–14; Frisk 2008, 179–82). Here, pencilled drawings mapping imagery in the film to the musical structures can be seen and a closer discussion of the collaborative compositional process can be found. The video can be viewed at <http://goo.gl/z2N18> (accessed July 29 2013).

modernist traditions of aleatoric and mobile scores but with the aim towards working modes that grew out of their practices as musicians: ". . . our attempts at creating a dynamic score, a framework of musical notation in which different paths can be taken, is not implicitly related to the stylistic and esthetic grounds of the open work in the modernist era but instead related to its impact and operational function in machine-musician interaction today" (Frisk and Östersjö 2006, 249). At the time of writing, the "dynamic score" referred to here was a conceptual idea of a score that had neither a privileged reading mode nor a beginning or end. This early intuition continued to guide the development during the years of extensive collaborative work and eventually resulted in a piece that, expanding Umberto Eco's classic term, could rightly be called a *work-in-movement* (1989). Though the practical realisation of the interactivity in the technical design—including the decision to create a dynamic score that can be controlled with a foot pedal by the performer during the performance—took a long time, an intuitive knowing that pointed beyond the available solutions and technical means at the time prevailed over the years.

After the premiere of the third version in October 2008, the further growth of the piece up to the CD-recording session in January 2011 consisted mainly in the collection of more experience of performing the piece, adding to the body of accumulated knowledge from the making of the composition and the concepts that shaped its identity.

In the following text, we will analyse in detail some of the recording sessions with a focus on how embodied knowing creates a field of possibilities that constitutes the playground for musical intuition.

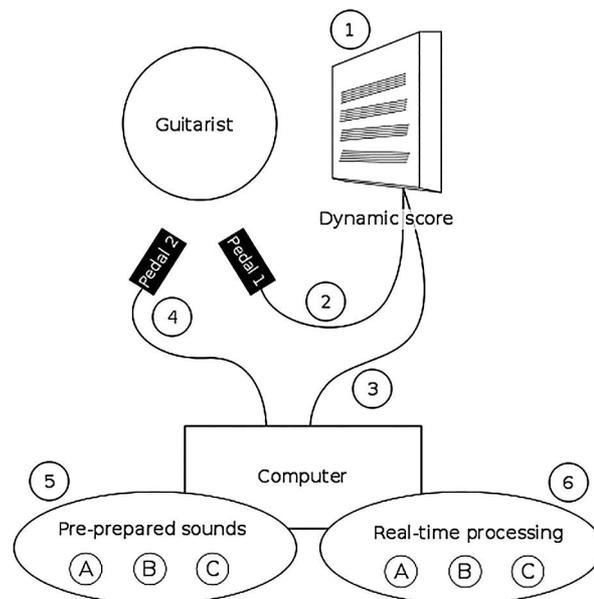


Fig. 2

Figure 2: The performer has two pedals, one that controls the page shown (2) in the score (1) and one to signal a new event trigger (4) to the computer. The computer is also informed of what page is currently showing (3). At each trigger of pedal two the computer is making a heuristic choice of material (A, B, or C) individually for the set of pre-prepared sounds (5) and for the bank of real-time processing (6) based on the score page currently showing and the preceding material.

#### THE MOMENT OF KAIROS IN PERFORMANCE

The situation of a performance offers a musician a spectrum of constraints and possibilities. While this spectrum is rather limited in the case of a traditional score, *Repetition Repeats All Other Repetitions* is more demanding, requiring from the performer a continuous responsibility of shaping the piece. The composer indeed offers a score that needs to be recomposed in each performance and forces the performer to reconstruct the piece each time differently, following the decisions made in the course of the performance. Moments of kairos are inviting and disturbing situations where unexpectedness urges the artist to react and decide. *Repetition Repeats All Other Repetitions* asks from the performer a deep commitment and an openness, not only to react in unexpected situations, but to create unexpectedness by their own actions and to solve the succeeding disturbances. This piece embeds in itself the necessity of kairos as it is impossible to calculate the entire range of actions, of possibilities and occasions of intervention, decision and modification that can be undertaken in its performance.

As such, every pushing of a pedal in a performance of the piece is like opening up for a new question in the Gadamerian sense: a novel contribution in a musical hermeneutic process, launching a dialogue between the musical materials and the performer. Every pedal trigger indicates a frame, opening questions and asking for a decision to be taken that will orient the course of the performance. If the pedal that changes pages in the score is pushed, new musical material has to be chosen and shaped into the ongoing musical current. If the pedal that activates a new event in the computer is pushed, the computer will respond with either a soundfile or live-processing of the guitar part, or both. The pedal triggers function as markers of moments of kairos. In our analysis, the triggers do not necessarily have to mark the posing of a question, they can just as well mark the making of a decision. Interestingly, the openness of the score and the possibility for the performer to make choices throughout the performance allows him or her not only to encounter unexpected moments of kairos but also to provoke these moments.

#### LOOKING AHEAD

The ability to move between different time-scales is one of the consistent demands in musical performance. Therefore, moments of kairos also involve choices that look further ahead and back in the development of the ongoing

performance. This is inherent to being a resonant subject in the performative event. Moments of *kairos* and consequent decisions can always emerge; therefore, in a performance of *Repetition*, this may also occur before the pedals are pushed. For instance, clip 2 starts with an action that seems to evoke a situation of immediate choice (already decided on beforehand) of some of the actions to follow (video clip 2 and Figure 3):

Östersjö plays the three first notes of A2 and pushes both pedals simultaneously on the second note. Not only does this activate new electronic sounds but it also takes him to a new page of the score. However, there is no sign of Östersjö reading the score after the change of page. Instead he immediately continues by playing the opening of C1, which is one of the materials displayed in the next page. We believe that the page turn and the alignment of A2 and C1 that occurs was figured out before the pedals were pushed. However, the continuation after stating the two fragments seems not to have been pre-planned and Östersjö reads the score intensively before setting out to play again. The sound file played back is an extensive file of C-material and Östersjö plays from the middle of A4 to create a contrasting guitar material with the electronics. When the soundfile ends, and counter to how the composer originally conceived of how the electronics and acoustic part should interact, he then states the entire C1 sequence, creating a longer phrase stretching over the 48 seconds of the clip.

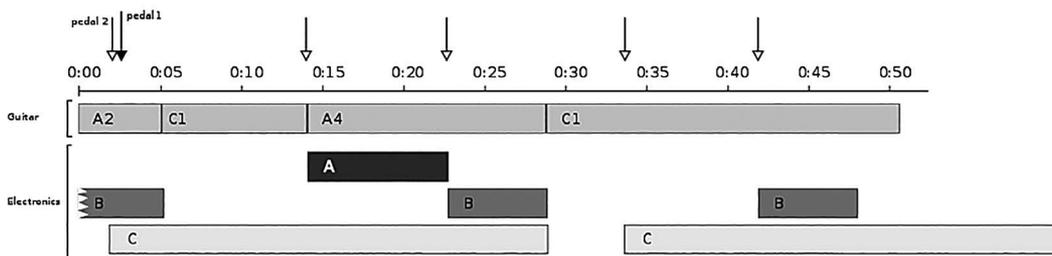


Fig. 3

### DISTURBANCES

Decision making in the moment is not always straightforward. Rather than emerging from a sense of flow, when all parameters of an activity contribute to a heightened awareness (Csikszentmihályi 1990) the moment of *kairos* can indeed be a moment of crisis and doubt. Certainty is not part of the vocabulary of a performer, and even less in this piece. The artist has to be alert, to react, to contest, to interfere, and, of course, while doubt is allowed, hesitations are not; they need to remain tacit as the performance must go on. Artistic *kairos* thus requires from the musician a sincere participation and active contribution, making that little difference needed to capture both the essence of the piece and the attention of the audience.

Two examples of the progression in Clip 1 exemplify such “disturbances” in the sequence of musical events. The first example of a *kairos* moment that disturbs, seems to invite a change of mind allowing the performer to readjust and resonate with the sound environment (Clip 1 and Figure 4):

When Östersjö has played the first melodic line (starting on the last notes of the 11/16 bar of A<sub>4</sub> and ending at an E four bars later) he stops first to look at the score on the screen (00:17) and then pushes the right pedal once (00:19) to arrive at a new score page. Meanwhile, the electronics is playing a longer soundfile. Östersjö is silent for six seconds (we only wish that we could record his stream of consciousness in this moment), preparing for an event performed upon the fretboard. However, he leaves this hand position and then quickly pushes the pedal four times. This action with the pedal in fact takes him back to the same page as was the starting point. What kind of resonance with the space of musical performance is it that leads to this change of mind? Is it the development of the electronic music? Or is it something that refers to the shaping of the guitar part? With only the traces of this moment of musical thinking to refer to we can but guess. It seems obvious though that the material he turns to, a multi-stopped E that opens B<sub>3</sub>, does allow for a logical connection from the broken melodic line in the previous guitar material.

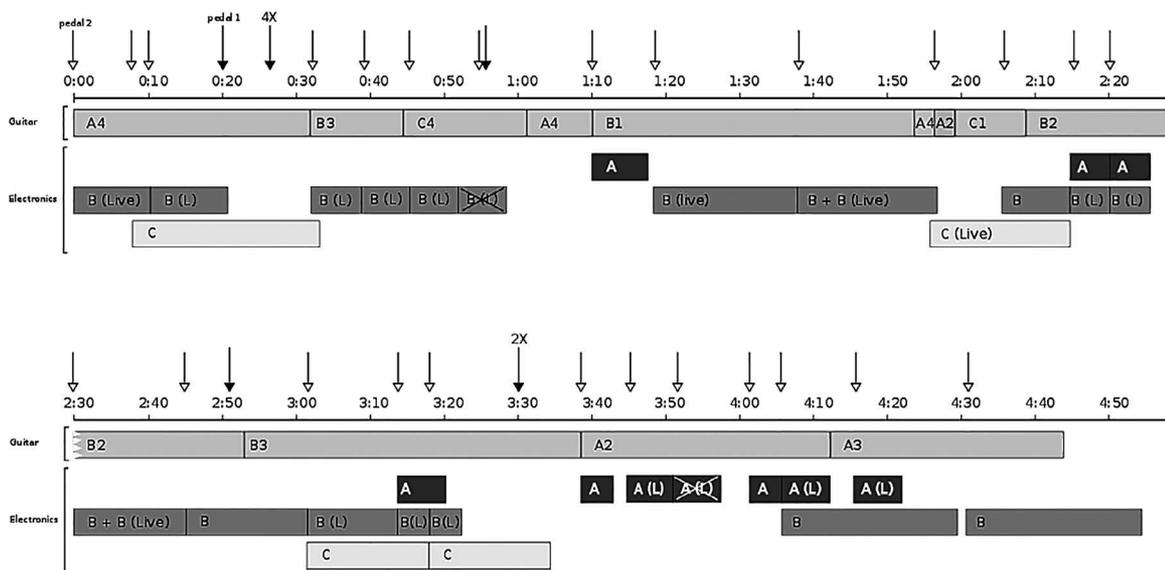


Fig. 4

In Clip 1 we also find a second interesting example of what we could call failed expectations. Here, the performer's intention is disturbed by the environmental response—the interaction of the electronics. The performer has to sense again and again in the space of resonance what is appropriate and how it can be expressed in this particular situation of the performance, readjusting an unbalanced situation (Clip 1 from 1:04 onwards; see also Figure 4):

At 1:04, after the introduction of a new material in the live electronics, Östersjö plays a short two-note figure and simultaneously clicks the pedal to activate the electronics. Surely, the intention was to create a new instance of electronic sound in response to the previous, cut-off phrase in the electronics. The response from the computer was however unusually soft and discrete. Also, it was a very short bit of live-processing so it is followed by silence. This silence then becomes a dramatic context for Östersjö's new turn, activating again the electronics a second time at 1:10,

now with a louder material also in the guitar part (the Koto pizz that opens B<sub>1</sub>). This time he has more luck with the electronics, which now responds with an immediate loud attack. The failed expectations lead to a renewed attempt that weaves the two preceding phrases together into a longer more coherent section that eventually also incorporates the entire B<sub>2</sub>–B<sub>3</sub> sections from which the crescendo on the multiple Es (discussed above) were taken.

#### SHAPING OPEN FORM

While the identity of a work-in-movement is radically unstable, there are compositional elements that contribute to create a consistent identity in every performance of *Repetition*. A strong factor is the electronic sound files that mirror these aspects of acoustic music in the guitar part. Some of these pre-prepared materials last for one or more minutes, others are much shorter. The score is the great paradox of the piece, highly defined in terms of timbre, rhythm, and pitch as it is. However, as we have already seen from the brief account of the development of the composition, this minute expression of the composer's intentions has never been subject to total obedience. On the contrary: it has been cut to pieces, reorganised and partly disregarded (but also, meticulously studied and represented in great detail at other times), all in agreement with the composer.

But, in a specific performance, how is the form of the piece shaped? How much of the large-scale form is created in the moment by the performer and to what extent is the outcome determined by the composed materials? Obviously, no measurements of these proportions would be either possible or meaningful. However, it is crucial to consider the performer's continuous negotiations with both the materials of the composition and the flow of events in the performance to understand musical intuition. Following Mark DeBellis (2009), we argue that intuitive understandings emerge from an interaction between the field of possibilities available to the performer and analytical thinking. This is also the case concerning the large-scale form. But how then are these processes observed and analysed? We will in the following section turn to examples from a performance version of *Repetition*.

In the premiere version of the piece in 2006, Östersjö's decisions of how to align the fragments—literally cutting the score to pieces and putting it back together again in a new order—were related to the physicality of playing the material on the ten-string guitar, finding new idiomatic links and sonic connections between the three materials. Through these decisions, the choreography of hand movements and the physicality of the instrument became further integrated in the shaping of the form (Östersjö 2008, 301–6). While the composer's original version followed a rather abstract trajectory—moving from a predominance of first A, then A and B towards only C-materials—this cut-up version created a more complex interrelation between the materials in the acoustic part. Östersjö's decisions were indeed not based only on local considerations related to the idiomatic qualities in the materials but also on a critical reading of the design of the large-scale form of the piece.

The processes that allow for such integration of form-related considerations depend on both being in the moment of the now and being informed by past and present. In a single intuition, we can contract multiple moments of time (Bergson [1912] 1991, 166). However, the contraction of time can be considered as an expansion of the present because the moment of now is increased and intensified by other images and moments of duration, continuously realising syntheses of past, present, and future (McNamara 1999, 37; Bergson [1912] 1991, 227–28). These dynamic movements of contraction and expansion are dependent upon the needs of action in an actual present. Such constantly changing and dynamic processes allow the performer to continuously make “mental leaps back and forth between the present and the past” in a complex interaction between calculated choices and intuitive responses (Frisk and Karlsson 2011, 288).

However, beneath the physicality of the instrument and the structural layers in the score, a third element, the additional voices of the electronics, makes the overall realisation even more complex, adding another layer in this play between musical forces. The interplay between the three types of material in the electronics and how the instrumental part is shaped is indeed a key element in understanding how the greater form of the piece is created. Whether the performer chooses to follow the same trajectory as the electronic part or whether the instrumental part counters this, both affect the further response from the electronics. In Clip 2 we see an example of this dialectic:

Stefan plays A<sub>2</sub> and presses both pedals to move to C<sub>1</sub>, a point at which the electronics start playing a longer C-material. On top of it, he plays mainly A and C fragments and when the soundfile ends he moves to the first more extended scored sequence, reading the full C<sub>1</sub> out of which a fragment was played at two seconds into this clip. At 34 seconds, the electronics again play C-material, adding to the large-scale shape of the phrase. The outcome of this is a segment of 48 seconds of music which has an underlying structural basis of C-material, counterpointed with fragmented A- and C-material in the guitar part.

This reflects the design of the composition. The likelihood for C- and A-materials to be played back, when the performer is reading from the page in the score where A<sub>4</sub> and C<sub>1</sub> are found, is quite high. B-materials in the electronics are fairly unlikely to be heard. So this clip represents a typical and intended behaviour of the electronics and may be said to represent one important aspect of the way in which the electronics contribute to building larger form in the piece. But Östersjö’s choice not to play C-material at the start of the first C-soundfile also contributes to the creation of this longer phrase. Starting at C<sub>1</sub> when the file ends is instrumental for creating the longer phrase.

A somewhat different example can be seen in Clip 1 where the performer has both the intuition and the intention to enter the space of resonance dominated momentarily by the electronics (Clip 1 from 1:56 onward):

Östersjö starts playing A2 and presses the pedal to activate the electronics but the computer responds with live processing in C. At 1:58 Östersjö then pushes the pedal and starts playing C1. When Stefan presses the pedal again the computer plays B material and at 2:09 Stefan switches to B2. But from this point he chooses to follow the trajectory of the scored material, playing the entire B2 and B3 part. Again in keeping with the intended flexibility of the computer part, the electronics consist predominantly of B-material, interspersed with elements from first mainly A- and then mainly C-material.

In the take being mixed as a new release for the present publication, we can explore the shaping of an entire version of the piece in which the guitar part has not been edited but represents exactly the choices made by the performer at every specific moment. This recording offers an insight into the decisions made in moments of *kairos* as in the overall shaping of the larger form, integrating different time dimensions. Two examples clarify this:

(1) The first two minutes are built from small fragments taken mainly from A4 and C1. The function of this section seems to be that of identifying material, or rather, it could be understood as a process of listening to the material, searching for new possible identities within the composition. A characteristic which is brought out in this take is the melodic lines in A4. By breaking up and repeating bars 2–4, these melodic fragments receive a thematic function that they would not have in an uninterrupted reading of the score. Incidentally, the computer part “picks up” this strategy by sampling and playing back one of these melodic contours at 1:26, when Östersjö starts playing C1. By concealing part of the surrounding structure, the fragments may open up in different directions. One of those directions is towards the motoric flow of C4: the first scored section to be played in its entirety at almost 2:30 into the take. But the focus on melody takes over and the opening section eventually leads to an extended reading of the melody and chords in the B-material in the score.

(2) If we return to the section about failed expectations, the moment when Östersjö chooses to start B1 with new electronics becomes decisive for the shape of the entire piece by launching a section stretching from 2:50 to 5:20 with an uninterrupted reading of sections B1 to B3. But further, when at 5:20 Östersjö instead introduces A2, it becomes clear that the extended section of B-materials here leads over to a section focussed on A, going first backwards from A2 to A1. This sequence is in turn read in two parts, first starting in the middle and reading to the end. After a short quote of B-material the beginning of A1 follows. We find a remarkable moment of melodic construction at the point in bar six of A1 where Östersjö stops before the two last notes and immediately moves two pages ahead to the middle of the second bar of A4 in order to return to the melodic material from the opening. Indeed, the moment when the transition away from A1 needs to be found must be yet another of the remarkable moments of *kairos* in the performance. This return to the material of the opening is followed by a coda made up of B4 and B5 bringing a version of the piece to a close that has dug out further melodic material from the score and at the same time also ignores most of the C materials, thus shaping a version of the piece that emerges from the space of resonance which shapes musical intuition.

## CONCLUSION: RESONANCE NEGOTIATED BY INTUITION

In our observations of Östersjö's performances in the recording session we find a striking multidimensionality of musical discernment. In the moment of *kairos*, not only local decisions are taken but also directions for the greater form in the version of the piece are decided upon. We believe that the grounds on which these decisions are taken may be described as a space of resonance. Returning again to the initial quotation from Deleuze, we ask what the conditions may be for this experience of resonance and continuity. We have indeed seen above how some of these decisions have been taken in moments when the flow of the music is disturbed or interrupted, demanding a novel initiative to move on. Failed expectations, doubt or change of mind, does not have to hinder the musical flow; it may in fact fuel it and result in genuinely original output.

In the space of resonance in a particular situation, the artist has to find an equilibrium between instantaneity and duration, between suspension of individual decisions and the exploration of an artistic trajectory. Resonance always implies more than the re-sounding of a particular situation, since it exceeds the space of here and now. The performer continuously integrates distance and proximity in the performance. The musician negotiates in that particular performance situation not only the best decisions concerning the performance itself, but also those concerning the composition of the piece and even concerning his or her own position towards art, audience, and the world—emerging in the form of intuition. Is intuition then to be understood as a background layer, an implicit active ongoing process that only becomes apparent and explicit in urgent, decisive moments of *kairos*, in which questions and answers can emerge both by resistance and resonance? We argue that this is an apt description of how a composition like *Repetition* has been given shape over the years. Furthermore, this reminds us of the Swedish philosopher Hans Larsson's ([1892] 1997, 21) Kantian notion of intuition as *comprehensio aethetica*, or the multitemporal awareness and immediate availability of necessary experience and knowledge. Intuition has been a slowly working process in the development of a concept for a work-in-movement, but one that also continues to inform the way in which each rendering of the piece has been conceived. Through this study of some moments of *kairos* in Östersjö's performances in the recording session we might arrive at a (now more detailed) confirmation of DeBellis's claim that intuition is the result of an interaction between analytical thinking and perception, though perception may now be understood as a highly active process, as being in a space of resonance.

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# Intuition, Hexis, and Resistance in Musical Experimentation

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## INTRODUCTION: ON DIFFERENT DIFFERENCES

Is there a difference between artistic experimentation and the making of experiments in the sciences? Despite the many ways in which these kinds of action can be said to be distinguishable from each other, the question immediately turns upon itself, toward the nature of the concept of difference. The musicologist Kofi Agawu reminds us how difference has remained a central concept behind the Western gaze on the “other” (Agawu 2003, Östersjö and Nguyễn 2013). But Agawu’s critique is implicitly directed towards the binary conception of difference, such as expressed in the history of ethnomusicology as a definition of the “other.” For instance, Agawu (1995) discusses the construction of “African rhythm” and the still ongoing tendency to equate “African music” with “African rhythm,” thus annihilating the complexity of the multitudes of musical communities that the African continent holds.

Difference in Western thought refers mainly to a relation between binaries. In the case of African rhythm, the African is defined as distinct from Westerners by a supreme sense of rhythm, the complexity of which is incomprehensible for a Westerner. Agawu argues that these positions are held by both Western and African scholars and he concludes that, rather than being merely a result of colonialism it is today formed within “a field of discourse, an intellectual space defined by Euro-American traditions of ordering knowledge” (Agawu 1995, 383). However, Deleuze, following Bergson, points to a different notion of difference, not as the relation between binaries but as an ontological aspect of reality: difference as the origin of what is, as a force behind the multiplicity of things (Grosz 2005, 6).

Similarly, our argument does not aim to identify a specific series of differences between experimentation in science and in the arts; rather, it is intended as an exploration of the spaces in between the two. In fact, we are not making a comparison at all: the claims we make are specific to artistic experimentation but do not attempt to create a distinction between experimentation in other contexts and disciplines. We look at difference in artistic experimentation as

a notion of multiplicity that extends between the known and the unknown in artistic experimentation. From such a point of view, experimental practices in the arts do not primarily deal with actions the outcome of which is unknown—referring to Cage’s definition—but rather with the creation of systems of interrelated forces and agents in which the outcome can be intuitively known, through the tacit knowing situated in the musician’s body. Experimental practices open the potential of the interval between the explicit and the tacit, the expected and the unexpected.

The current president of the European Research Council (ERC), Helga Nowotny (2011, xviii), points at uncertainty and the “desire for the unexpected” as a vital property of research and finds that the need to oppose regulations, control, and attempts to tame curiosity, so essential to experimentation, is shared also by scientific research: “Between society’s preference for the new and its attempts to gain or regain control over what is uncontrollable, since it is not known where curiosity and the ‘play of possibilities’ will lead or what consequences will result from it, a vast zone of uncertainty is emerging as the true breeding ground of creativity, be it scientific or artistic” (ibid.). While we argue that artistic experimentation is not a search for the unknown nor an expectation of the unknown, it does explore the fine line between the known and the unknown or, even better, between the expected and the unexpected. We find experimentation to be a core element in artistic research, along the lines expressed by Mika Hannula (2011, 70) speaking of the current status of this field: “We have to keep its possibilities open and move towards a vision of artistic research which is self-critical and self-reflexive. Put differently, we must have the courage to be anarchistic and experimental.” However, if we want to join a self-critical and self-reflexive position with experimental action, we need to be aware of the specificity of artistic experimentation in music. Therefore, we need to discern its characteristics, not to define it, but to seize it, to grasp it with all our senses and understanding.

A first discernment concerns situatedness: artistic experimentation opens up a space where the intuitively known takes shape through artistic production. It is a liminal space where thought and act and expectation and the unexpected meet. In the realm of perception and action, the artistic imaginary potential has to be realised, to be opened, explored, and adjusted: we have to experiment with our imaginations, not only as “thought experiments,” but in real time and space. Accordingly, in this liminal space where intuition and musical imagination shape the creative act, we are confronted with one realisation out of the field of possibilities. For example, a musician may have to deal with failed expectations and find, in the moment, a musically relevant way to cope with the unexpected. Artistic experimentation brings to the fore and materialises a self-reflective awareness of the potential of this liminal space.

A second discernment concerns the dialogical nature of artistic action. Following Nancy (2007), we note that self-reflection is not merely about introspection but, just like listening, is about sharing: “A blow from outside, clamor from within, this sonorous, sonorized body undertakes a simultaneous listening to a ‘self’ and to a ‘world’ that are both in resonance” (42–43). The liminal

space reveals itself as a space of resonance emerging from “an intensification and a concern, a curiosity or an anxiety” (5), steering the artist to inquire into that which “is not immediately accessible” (6), that which is “on the edge of meaning” (7), opening up to “the resonance of being, or to being as resonance” (21). Therefore, instead of a subject that declares itself an experimenter or creator, a space of resonance emerges in musical experimentation. Again here, difference is not between the self and the other but fills the interval between the self and the self as other, between the other and the other as self. Or as Nancy writes, it is “a reality consequently indissociably ‘mine’ and ‘other,’ ‘singular’ and ‘plural,’ as much as it is ‘material’ and ‘spiritual’ and ‘signifying’ and ‘a-signifying’” (12).

This brings us to a third discernment, which concerns the multiple layers present in that resonating space. Different layers of time, perception, space, materials, and identity coexist.

First, time-lines conflate in that resonant space: the now in the continuity and the *kairos* of the moment in the larger time frame. Intuitive acts or decisions partake of the now as well as the not-now as our experience of time is extended both by past and by future. Husserl calls these extensions *retension* and *protension* (1991, 11–12). On one hand, retension is the presence of the past in the now, the hindsight bearing not the past itself but the remembrance of the experience of the past, and as such the presence of the known. Each present is pregnant with our experiences of the past: the past preexists as well as coexists with the now. On the other hand, protension is the leap towards the future, the foresight included in our acts and thoughts—and, as such, is the presence of the unknown.

Second, different levels and qualities of perception coexist. The haptic, the auditive, the visual, and the motoric are in constant movement and exchange of information and response. Inside and outside resonate.

Third, linked to this high perceptual awareness and responsiveness, movements and bodily awareness are in an acute process of listening and intervening, interfering with space and materials.

Finally, in this liminal space, identity is continuously negotiated between private and public, artistic and cultural, the self and the other. Resonance implies recognition of the presence of the other, and a shift from dualistic conceptions of difference, turning from antagonism towards an understanding of difference as the origin of the multiple and diverse.

These three discernments concerning experimental practices in music—the moment, the dialogue, and the multiple layers—are at the heart of our three other texts in the present publication. Drawing on observations of the embodied nature of artistic knowing, each elaborates specific concepts particular to artistic experimentation.

In the present text, we briefly overview the findings and observations in the three empirically based texts and denote their impact on our artistic practices. We first explore the relation between inside and outside, considering the different timelines in which we find musical intuition operating. Whether in the long-term development of a compositional project, a day-long working session

in a recording studio, or the *kairos* moment of choice in the midst of performance or in the writing of a composition, intuition appears to be omnipresent as a background process.

Second, in the social realm of the musician's body, we find the paired concepts of *habitus* and *hexis* to be central to the understanding of musical experimentation. It is through the expression of a *hexis* that a musician can develop a distinct relation to an artistic context and address it in a critical and explorative manner. Confrontations with the resistance of culture, the body, and materials compel the artist to be alert and dynamic. Interactions between the artist and the broader cultural, musical, and material environment set the ground for the liminal space within which decisions are taken.

#### INTUITION AND KAIROS

*Kairos* is an ancient Greek term that denotes the single pivotal moment, the opportune time, when the right decision or action can and should be taken. *Kairos* is the operative mode in performance: the artist has to seize that moment with his or her artistic powers.

The artistic choice in the moment of *kairos* is usually not made verbally, nor after rational argumentation: artistic experience, background skill, and knowledge are needed to cope with these moments. Evidently, the artistic decisions are not “anything goes.” Artistic action in the moment of *kairos* expands clearly beyond the single moment of decision and action toward past experience, as well as toward intuitive and analytical foresight. Hence, *kairos* presents itself as the pivotal moment between belief and agency, past and future.

How does the artist move from belief to agency, from opportunity to choice? Can we think of Bergson's proposition of intuition as a method—here a method for artistic practice—and not only a method for philosophy? “There is nothing impulsive or vague about intuition, which is a rigorous . . . method for an attunement with the concrete specificities of the real. Intuition is the method by which unique and original concepts are created and developed for objects, qualities and durations that are themselves unique and specific” (Grosz 2005, 7–8). For Deleuze and Bergson, intuition is not an immediate given, it has to be practised and performed: it requires training and experience. Therefore, intuition is embedded in artistic practice, in everyday labour as well as in moments of discovery. But there is even more: intuition proposes a plurality of possibilities, of directions. It not only expands past experience into a subtle and sudden choice in the now but also extends this now experience again, into the future. Thus, while it sustains the decisions in *kairos*, in the moment of action, it is itself embedded in duration—duration of experiences, of memory, and of the transformations that all these decisions inscribe into the body and the intuitive processes. All the actions taken are part of a line of transformations affecting oneself and the environment; they are often instigated by intuition and again feed intuition.

In our analysis of Östersjö's performance of Henrik Frisk's *Repetition Repeats All Other Repetitions* (2006<sup>1</sup>) we identified a specific interplay between intuitive knowing and the moment of *kairos*. In the collaborative shaping of this open-form composition by composer and performer, the flow of artistic intuition is revealed in multiple time-lines over a period of several years and in moments of *kairos* in the creation of form in real time in performance. It is important to note that these decisions in the moment can be seen to result in structurally coherent shaping of the music on multiple levels. Again, rather than "anything goes," the shaping of the large-scale form in the recording reflects a clear relation between analytical thinking and intuition.

We also discussed this close interplay between analytical thinking and perception in musical intuition in the chapter drawing on Östersjö's collaboration with American composer Richard Karpen. This interplay explores the interval between the known and the unknown—an interplay we found clearly expressed in their development of a section in the composition *Strandlines*. The piece starts with all but one of the guitar strings tuned to a G#. The composer and the performer set out to create a harmonic progression from this point of departure. Longer periods of reflection and instances of *kairos* merged in the making of "right" decisions, turning what seemed to be a mere miscalculation of the correct notes in the overtone-series into an artistic finding backed by "informed" intuition. So was it only by chance that they found themselves ending with a final harmonic centre derived from the overtone series of G#? We argue strongly that this is not the case. It is clear from the conversation between Östersjö and Karpen that this relation was not verbally expressed; however, we believe that the underlying processes, the musical intuition, drew on both analytic thinking and material experimentation.

#### HEXIS AND RESISTANCE

Intuition refers both to things outside controlled skill and to things inside the whole experience of the artist as an artist and a human being. Thus, it crosses back and forth between the fields of the known and the unknown. It partakes in two movements: the first is toward the inside and is "available to us at those moments of reflection when we can perceive our own inner continuity above and beyond action and definable results" (Grosz 2005, 8). The second is when this inside encounters the outside—the material, the outer world of objects. However, intuition is not "reflection" as we know it, nor is it an action upon the outer world. It is rather that positioning between inside and outside that realises the continuity between both and that allows for interaction and new potentialities. For the artist, this means the authentic encounter with the instrument, the score, and the other musician, but also with other cultures. Intuition can offer a possible discernment between cultural habitus and the striving for artistic virtue, or *hexis*.

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1 Even if the score was finished in 2006, the composition was conceived as a radically open work, and accordingly one may say that the compositional process is still ongoing.

In the chapter in this volume on habitus and the resistance of culture, we argued that the hexis of a musician—the striving for artistic virtue—constitutes the springboard toward musical experimentation. It offers an enormous potential, which we described through the notion of resistance. Resistance in our discussion has a double reference. On the one hand it refers to the resistance of materials and how a conflict may emerge between the habitus of a performer and the materiality of the musical context. For instance, in traditional Vietnamese theatre, an actor is trained by a master to perform a limited number of roles, which are in turn connected to specific traditional costumes. For the Tuong actor asked to perform traditional acting and singing in Western clothing, an extended negotiation between different theatre cultures was needed. The confrontation between the known and the unknown shifted and even disturbed subtle landmarks of artistic expertise. On the other hand, resistance may form as a considered aesthetic approach to such a conflict, opening new possibilities. With reference to Helmut Lachenmann, “resistance of habit” becomes a “compositional” approach that may characterise the artistic virtue expressed in the hexis of the musician (Lachenmann 2004, Östersjö 2013). Such an expression of hexis can be found in the negotiation between different musical traditions that occurred when Richard Karpen and Nguyễn Thanh Thủy resolved a long-standing conflict concerning the opening scene in the music theatre piece *IDIOMS* (2010–11). While the large-scale trajectory of the scene and its development in the vocal part—from reading to recitation to traditional singing—was quite clear, it turned out that the composer’s conception of the instrumental music clashed with how a traditional accompaniment would sound. It was in the intuitive finding of a novel chordal playing technique on the *dan tranh* and in the moment of *kairos* in which they jointly developed this material that a solution to this conflict, which was also between different kinds of cultural capital, could be identified. The decisive turning point in this liminal space constituted a denial of habit that we characterise as an expression of hexis.

In the liminal space in which musical experimentation may take place, the hexis of a musician constitutes the bridge between intuitive knowing and the desire for the unknown.

#### CONCLUSION

There is an obvious danger in discussing artistic experimentation from binary perspectives such as “experimentation” versus “non-experimentation”<sup>2</sup> or “artistic” versus “scientific” experimentation. Our intention with this chapter has been to open up the notion of difference toward the multifarious field between the known and the unknown. In our understanding, artistic experimentation in music is a state in which a musician can enter through choice, hard labour, or even by pure luck. Finally, we argue that artistic research built

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2 In ordinary parlance, the latter would be referred to as “conventional” or “commercial.”

on an understanding of experimentation that stretches beyond the binary conceptions of difference that we have discussed may contribute to a broader and deeper understanding of musical practice in all its complexity and richness.

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# Appendix 1

## Glossary

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*Note: Unless otherwise stated, article references refer to texts found within this volume. Definitions are given in order of appearance in the book of the article from which they derive.*

**Anthroponic:** Any sound of human origin within a given environment.

**Arpa doppia:** Literally translated as “double harp,” *arpa doppia* refers to the double- and even triple-strung harps commonly used in Italian music during the *seicento*. This harp’s name refers not only to its multiple rows of strings, but also to its expanded size and register as compared to its predecessors.

**Arpeggiation:** An expressive device common in nineteenth-century pianism, whereby the notes of vertically-notated chords were played one after another rather than simultaneously. Arpeggiation was used to either propel or emphasize musical material depending on the speed with which the chords were spread, and was accomplished by rolling chords from bottom to top or in any other order according to factors such as voice leading.

### Artistic Experimentation:

- Artistic experimentation encompasses the actions that an artist undertakes in developing and constantly renewing personal artistic identity and expertise. (ORCiM Brochure on Artistic Experimentation [2010], in Tromans, “Experiments in Time,” and Harris, “Techno-Intuition.”)
- While experimentation in general refers to the systematic interrogation of some aspect of reality for the purpose of understanding and explaining it, experimentation in music-making involves the listener in this process of discovery by trying to communicate the desire and exhilaration of addressing one’s questions in ways that listeners can experience for themselves. In experimentation in music-making therefore, listeners become fellow experimenters rather than experimental subjects. (Barrett, “From Experimentation to *CONSTRUCTION*.”)
- Experimentation in musical composition is a dynamic and transformative process between mind and matter referring to a composer’s quest for activities through which he or she transforms ideas or feelings into expressive figures that may become (part of) a composition.

Experimentation in this context thus implies a coming together of cognitive and emotional processes on one hand, and a series of actions on the other. Compared to generally creative acts that can often be loose and accidental, experiments in composition can form a meaningful whole but do not always lead linearly to an artistic product, and as such they hover somewhere between generally creative acts and the creative process of composing. (Roels, “Cycles of Experimentation.”)

**Artistic Research (research in-and-through artistic practice):**

- Research activities where the artist herself is the primary investigator, and in which the object researched is her own art or artistic processes and practices. (Coessens, Crispin, and Douglas [2009], in Gloor, “Association-Based Experimentation.”)
- Artistic or aesthetic operations that, rather than delivering findings, allow for the anticipation of future knowledge. (Borgdorff [2012], in Schwab, “Rheinberger Questionnaire.”)
- Research conducted by musicians *in* the medium of music-making itself, rather than from the position of an observer. In order to ensure that musical practice-as-research is recognizable as such by other fields, it requires discursive framing in order to achieve wider dissemination. (See *exposition*.) (Tromans, “Experiments in Time” and “Cageian Interpenetration.”)
- Research where the artist is both subject and researcher, thus dissolving any theoretical distance between researcher and art object, practice or event. As the artist’s practice forms an essential component of the research process and results, in artistic research that practice cannot remain untouched, unaffected, uninvolved. (Borgdorff [2012], in Cobussen, “Towards an Ethical-Political Role.”)
- An artist’s conscious and deliberate exploration of their own artistic practice, including their theoretical and historical knowledge of music, their knowledge of various repertoires, the traces of past artistic experiences, and the acquired procedural knowledge necessary to playing instruments, reading scores or composing. The ultimate aim of artistic research is the generation of new knowledge. (Vanhecke, “A New Path.”)
- Contributions of both data and insight from practicing musicians, where the research outcomes include discourse both *about* and *in* the problem; where the research is validated by new performances or works that it has brought into being; where the research is carried out in special environments with received or newly-devised tools and a community of fellow practitioners qualified to critique its outcomes; where the research is situated conceptually in a framework inclusive of other disciplines; and where the research leaves a trace of some kind beyond its purely artistic outcomes. (Brooks, “Historical Precedents.”)

(ALTERNATIVELY, SEE *RESEARCH ON THE ARTS*.)

**Avant-garde music:**

- Music that derives from the great traditions of Western art music, as opposed to *experimental music*, which is inspired by other sources including non-literate ones. (Nyman [1999], in Gilmore, “Five Maps.”)
- Music that occupies an extreme position within a *tradition*. (Nicholls [1998], in Vanhecke, “A New Path.”)

**Bağlama:** The most commonly used stringed instrument in traditional Turkish folk music, the *bağlama* is a seven-stringed and fretted instrument characterised by a deep rounded back and a long slender neck.

**Biophonic:** Any sound produced by vocalizing non-human animals within a given environment.

**Cartesian (dualism):** Originating in the work of René Descartes, Cartesian dualism posits the mind and body as being composed of wholly different substances: the mental (not spatially-extended) and the material (incapable of thought).

**Charango:** A member of the lute family, the *charango* is a small Andean stringed instrument that often (though not always) features ten strings arranged in five courses of two strings.

**Conceptual Art:** Artwork characterised by an idea or concept that determines all of the aspects of that artwork, and thus where the concept becomes a “machine that makes the art.” (LeWitt [1967], in Craenen, “Speaking and Singing.”)

**Convolution:** Spectral convolution is a signal processing technique whereby components of two different files are combined and re-synthesized into a new sound file. Here, the impulse response characteristics of file “A” are combined with the resonance characteristics of sound “B,” creating a hybrid (“C”) where the nuances of “A” articulate the timbre of “B.” (Juan Parra Cancino, personal communication)

**Đàn bầu:** A plucked single-stringed Vietnamese instrument characterised by its long and slender sound box and a distinctive decorative gourd.

**Đàn tranh:** A plucked Vietnamese zither featuring moveable bridges, a long sound box, and tuning pegs that sit atop the instrument’s soundboard. While the *đàn tranh* typically has sixteen or seventeen steel strings, some variations can have as many as twenty-five.

**Đàn tỳ bà:** A distinctively pear-shaped Vietnamese four-stringed plucked instrument that is held nearly vertically and often played with the frequent bending of tones.

**Dislocation:** A nineteenth-century pianistic device involving the playing of one hand after the other in material notated vertically in the score. This technique was typically used to either expressively propel or emphasize musical material, depending on the amount of time allowed to elapse between the dislocated notes.

**Dodecaphony:** A twelve-tone serialist technique of atonal composition developed by Arnold Schoenberg in the 1920s that uses all twelve chromatic tones in tone rows.

**Embodiment (in artistic research):** Far from examining the role of the instrumentalist's body as merely a vehicle for the realisation of cognised musical intentions, practice-based embodiment studies in music take into consideration recent findings in the fields of phenomenology, neuroscience and body theory, where embodiment is seen as a complex intertwining of lived bodily experience and mental representation, and where musical meaning is thus experienced rather than cognised. This experiential quality of embodiment and its intertwining of movement and intention is best elucidated in artistic research settings from the subjective perspective of the practicing musician, often through problematizing the notion of the performer's body as a vehicle for the realisation of cognised musical intentions. (Laws, "Embodiment and Gesture.")

**EMDR Therapy (Eye Movement Desensitization and Reprocessing Therapy):** A form of psychotherapy that posits disturbing memories of severe traumas as the cause of psychopathologies such as post traumatic stress disorder, and that seeks to reduce their effects by having patients recall disturbing memories while being subjected to various sensory inputs such as side-to-side eye movements, tones or taps, while also undergoing other parallel treatments such as cognitive behavioural therapy.

**Epistemic Things:** The characteristically vague, irreducible research object that emerges from an *experimental system*, and that paradoxically embodies that which one does not yet know. This unpredicted and unknown phenomena then arrives in a knowledge domain, in an experimental system, or in the scientific field as a whole, where it is transformed into new knowledge, thereby creating new *technical objects* that can be used to further develop pre-existing experimental systems. An epistemic thing is thus the guise in which new knowledge enters an experimental scene. (Rheinberger [1997], in Schwab, "Rheinberger Questionnaire.")

**Exordium:** In Western classical rhetoric, an *exordium* is the introductory portion of an oration that is designed to establish the purpose and tone of the coming discourse.

**Experimental Music:**

- Music including novel elements, or music whose sonic outcome in performance is unpredictable. (Cage [1959], in Gilmore, “Five Maps.”)
- As in the sciences, experimental music is that in which a composer tests hypotheses through the medium of music, observes outcomes, and then follows up on certain compositional elements with new experiments. Here, composition can thus be understood as ongoing research. (Tenney, Kasemets, and Pearson [1984], in Gilmore, “Five Maps.”)
- A type of music from a particular historical era, encompassing though not limited to the 1950s, ’60s and ’70s, that fulfils Cage’s famous definition of experimental music: that is, music with indeterminate sonic outcomes in performance. (Wolf, cited in Tenney [1990], in Gilmore, “Five Maps.”)
- All interesting new music that cannot be classified as *avant-garde*. (Nyman [1999], in Gilmore, “Five Maps.”)
- Music that poses and is driven by relevant problems. (Raes, “Experimental Art.”)
- Music that lies outside of *tradition*. (Nicholls [1998], in Vanhecke, “A New Path.”)

**Experimental Systems:** A key notion in Hans-Jörg Rheinberger’s theory of experimentation used to characterise the space within which researchers conduct their experimental work, experimental systems are systems of manipulation designed to give unknown answers to questions that the experimenters themselves are not yet able to ask. These systems employ *technical objects* in order to create unprecedented events, that is, material traces that lead to *epistemic things*, and with them to future insight and knowledge. In order to be productive, experimental systems need to be differentially organised and sufficiently open to play out their own capacities, unanticipated by the researcher. Experimental systems, and not individual experiments, are the most elementary parts of the experimental sciences; and while they must be as coherent as possible, contrary to individual experiments they are set up materially, socially, financially and geographically. (Rheinberger [1997] and [2012], in Schwab, “Exposition” and “Rheinberger Questionnaire.”)

**Exposition:** The term exposition indicates all possible forms of transformation that bring out (or “expose”) knowledge from an *experimental system* and the unpredictable events it produces: a process without which such unexpected events may never be formed into *epistemic things* that lead to the production of new knowledge. In other words, exposition refers to the discursive supplementation of practice that can allow for the emergence of different identities

of this practice; the modes by which an artistic object's epistemic identity are made manifest. Exposition can include laboratory notes and conference papers, as well as any other discursive mode of recording, transformation and presentation. (Schwab [2011] and [2012a], in "Rheinberger Questionnaire" and "Exposition.")

**Exteroception:** The sense by which one perceives stimuli originating from outside of one's body.

**Geophonic:** Any sound of non-biological origin within a given environment, whether marine or terrestrial.

**Gesture:**

- Gesture in music can refer to purely sonic objects with particular characteristics, purely physical phenomena (how a musician moves), or entities that have both physical and sonic properties. (Laws, "Embodiment and Gesture.")
- A combination of extension (movement of the body in space) and intention (what we imagine), whereby a gesture is not simply pure physical movement, but rather one that possesses intentional meaning and expression, thus blurring the distinction between movement and meaning. (Leman and Godøy [2010], in Laws, "Embodiment and Gesture.")
- Any energetic shaping in time that can be interpreted as having significance. (Hatten [2006], in Laws, "Embodiment and Gesture.")

**Grapheme:** The smallest fundamental unit of a written language, including single letters (or symbols) or sequences of letters that represent sounds (phonemes) in words.

- The smallest semantic unit of written text, extended by Rheinberger to include material traces that emerge from an *experimental system*. (Rheinberger [1997], in Schwab, "Exposition.")

**Habitus:** A general, mainly tacitly and socially acquired whole of embodied patterns that frame how to behave, act in, and interfere with the outer world, and that can be adapted and re-coordinated in specific situations. (Coessens and Östersjö, "Habitus and the Resistance of Culture.")

**Hermeneutics:** The theory or discipline of interpreting texts and other forms of verbal and nonverbal communication.

**Heuristics:** Experientially rooted and readily accessible techniques used for problem solving, communication, learning, and discovery.

**Hexis:** The origins of the social concept of *habitus*, *hexis* as used by Aristotle refers to both the natural dispositions with which humans are born, as well as

cultural dispositions acquired through repeated experiential processes of acting, learning, and habituation. The Aristotelian notion of *hexis* extends beyond behaviour and action patterns in that it includes moral actions as well as practical skills. (Aristotle [1934] 2003, 16–26 [1130a], in Coessens and Östersjö, “Habitus and the Resistance of Culture.”)

**Ictus:** In music and poetry, *ictus* refers to the instant inhabited by a beat, pulse or stressed syllable.

**Kairos:** From an ancient Greek word meaning fitness, opportunity or time, *kairos* typically refers to the opportune time and/or place for the accomplishment of a crucial decision or action, especially as related to Western classical rhetoric.

- An artistically opportune choice of action. (Coessens, “Tiny Moments.”)
- The convergence of knowing how and knowing when: the faculty of both observing and realizing in any given case the available artistic means at hand. (Atwill [1998] in Coessens, Frisk and Östersjö, “Repetition, Resonance, and Discernment.”)
- An artist’s ability to cope with the unexpected, with the particular constraints of a situation and of his or her own act in the liminal space of performance. (Coessens [2009], in Coessens, Frisk and Östersjö, “Repetition, Resonance, and Discernment.”)

**Liederabend:** Literally translated, a *liederabend* is an evening of song.

**Mimesis:** A widely applicable term often used to describe processes or instances of imitation, representation, resemblance and mimicry.

**Phoenix-Egg Controller:** An electronic music controller prototype based on spatialisation algorithms and designed to bring the notion of spatial manipulation over time to the domain of live performance. The controller maps actions and gestures such as rotation speed, direction, hand proximity and tilt positioning, to a software system of vector-based amplitude panning, granular reverbs and various other spatialisation algorithms. The Phoenix-Egg Controller was developed by Juan Parra in collaboration with Lex van den Broek, head of the Electronic Workshop at the Royal Conservatory in The Hague, Holland. (Juan Parra Cancino, personal communication.)

**Pizzicato secco:** A variation on the *pizzicato* (or plucked string) technique, whereby a string is dampened or deadened immediately after it is plucked to prevent resonance.

**Process Music:** A musical work that is the product of an impersonal and autonomous process that determines all of the musical relationships within that work, on both a small and large scale (as in a canon, for example). In process music therefore, the composer's role is limited to defining the process and its starting conditions. (Reich [1968], in Craenen, "Speaking and Singing.")

**Proprioception:** The sense by which one perceives or is aware of the relative position of the parts of one's body and the strength or effort exerted in their movement.

**Recitar cantando:** Literally translated as "speaking in song," *recitar cantando* was a popular form of singing in the Italian *seicento* that was inspired by the music of ancient Greece. Designed to move listeners more directly, it consisted of a single melodic line imbued with the inflections of human speech, and was thus in stark contrast to other more complex and contrapuntal vocal music forms popular at the time.

**Research on the arts:** Primarily reflective and interpretative, research on (rather than *in-and-through*) the arts is a mode of inquiry whereby the art object studied remains untouched by the gaze of the researcher, thereby preserving theoretical distance between researcher and art object or event. (Borgdorff [2012], in Cobussen, "Towards an Ethical-Political Role.") (Alternatively, see *artistic research*.)

**Santoor:** A hammered dulcimer commonly used in traditional Indian and Persian music, the *santoor* typically features a trapezoidal sound box, two sets of bridges, and seventy-two horizontal strings that are hit with small mallets.

**Scordatura:** A musical term referring to an alternate or "mistuning" of stringed instruments. In the case of a violin for example, any tuning other than the established tuning of g-d'-a'-e" would be considered *scordatura*.

**Seicento:** Literally translated as "six hundred" and shortened from *mille seicento* (one thousand six hundred), the *seicento* typically refers to a period of Italian cultural activity and production from 1601 and 1700.

**Sprezzatura:** A term popularly used to refer to a free style of Italian seventeenth-century musical performance in which a strict observance of tempo was ignored, resulting in a style akin to a kind of studied nonchalance. As Lawrence-King argues in this volume however, in this historical context a steady underlying *tactus* would have been assumed by default. (Lawrence-King, "Il Palpitar del Core.")

**Synaesthesia:** The simultaneous presence, union or translation between different perceptual senses. (Coessens, "Web of Artistic Practice.")

**Tactus:** In early seventeenth-century musical contexts, *tactus* refers to the underlying organisation of rhythm (in both theoretical and practical terms) according to long, slow note values meant to imitate the motion of the stars, whose circular orbits were understood to generate the music of the spheres. (Lawrence-King, “Il Palpitar del Core.”)

**Technical Objects:** As key components in *experimental systems*, technical objects are often the result of previous experimentation, are fixed and easily accessible, and are used to conduct and control experiments as well as to limit the variables in a given experimental system. Technical objects embody the knowledge of a given research field at a given time, and are the material traces employed by experimental systems that lead to unprecedented events, or *epistemic things*, and with them to future knowledge. (Rheinberger [1997], in Schwab, “Rheinberger Questionnaire” and “Exposition.”)

**Teleology:** A doctrine, theory or study whereby natural processes are understood to be directed toward and/or shaped by some end, purpose, or design.

**Umwelt:** Literally translated as “environment,” *Umwelt* is typically used to refer to one’s surroundings, setting or milieu. Through the work of the German biologist Jakob von Uexküll however, the term has acquired more specific semiotic meanings as the ecological niche as perceived by an animal; the experienced world, phenomenal world, or subjective universe; and the cognitive map or mind-set. (Hoffmeyer [2012], in de Assis, “Epistemic Complexity.”)

**Vocoding:** A signal processing technique that combines two sound characteristics (amplitude modulation and timbre) from two different sources into a third sound. Normally the source providing the timbre characteristic is fairly static (like a noise bank) while the one acting as modulator (or “formant”) is variable but has a relatively simple spectral character (like the human voice, for example). (Juan Parra Cancino, personal communication)

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## Appendix 2 Contents of CD

- 1 Richard Barrett: *Construction* (excerpt)
- 2 Steve Tromans: *Just Friends; Bemsha Swing*
- 3 Henrik Frisk: *Repetition repeats other repetitions*
- 4 Agostino di Scipio: *2 pezzi di ascolto e sorveglianza*
- 5 Juan Parra: *Life is too precious*
- 6 Bart Vanhecke: *Improvisation fixe sur une image*
- 7 James Tenney: *Harmonium # 1*
- 8 Luigi Nono: *...sofferte onde serene...*
- 9 Frederik Neyrinck: *Aphorisme IX*

### TRACK 1

title of composition: *CONSTRUCTION* (excerpt)  
year of composition: 2011  
composer: Richard Barrett  
performers: Elision Ensemble conducted by Eugene Ughetti  
date of recording: 19 November 2011  
recording producer: recorded by Lawrence Harvey and Michael Hewes  
recording space: live recording, Huddersfield Town Hall

### TRACK 2

title of composition: *Just Friends* (1931),  
composed John Klenner and Sam Lewis;  
“Bemsha Swing” (1952),  
composed Thelonious Monk and Denzil Best.  
performers: Steve Tromans (piano),  
J. J. Wheeler (drums).  
recording date: 14 June 2011. Recorded: Recital Hall, Birmingham  
Conservatoire, UK.  
Recording taken from the album, *Blue Room*,  
produced and issued by Mongrel Records  
(<http://www.mongrelrecords.wordpress.com>).

TRACK 3

title of composition: *Repetition Repeats All Other Repetitions*  
year of composition: 2006  
composer: Henrik Frisk  
performer: Stefan Östersjö  
date of recording: 26 januari 2011  
recording producer: Henrik Frisk  
recording space: EMS (Electronic Music Studios, Stockholm)

TRACK 4

title of composition: *2 pezzi di ascolto e sorveglianza* [2 pieces of listening and surveillance] for “autonomous sound-generating system with flute and electronics”  
year of composition: 2009-2010  
composer: Agostino Di Scipio  
performers: Agostino Di Scipio  
date of recording: 28.02.2012  
recording producer: Juan Parra  
recording space: Orpheus Auditorium, Orpheus Institute, Ghent. BE

TRACK 5

title of composition: *Life is too precious...*  
year of composition: 2011  
composer: Juan Parra Cancino  
performers: Juan Parra Cancino  
date of recording: October 2011  
recording producer: recorded by Juan Parra Cancino  
recording space: ORCiM 5 studio, Orpheus Institute, Ghent, Belgium  
previously released on 100dollar guitar compilation.  
[www.100dollarguitar.com](http://www.100dollarguitar.com)

TRACK 6

title of composition: *Improvisation fixe sur une image*  
year of composition: 2012  
composer: Bart Vanhecke  
performer: Bart Vanhecke  
date of recording: 10 March 2012  
recording producer: recorded by Bart Vanhecke  
recording space: Huldenberg, Belgium

TRACK 7

title of composition: *Harmonium # 1*  
year of composition: 1976  
composer: James Tenney  
performers: Trio Scordatura  
date of recording: 3 October 2013  
recording producer: recorded by Juan Parra Cancino  
recording space: live recording during 2013 ORCiM Research Festival,  
Orpheus Institute, Ghent, Belgium

TRACK 8

title of composition: *.....sofferte onde serene...*  
year of composition: 1975/77  
composer: Luigi Nono  
performers: Paulo de Assis, piano. tape projection: Juan Parra  
date of recording: 24 September 2013  
recording producer: Juan Parra Cancino  
recording space: Handelsbeurs, Ghent, Belgium

TRACK 9

title of composition: *Aphorisme IX*  
year of composition: 2012  
composer: Frederik Neyrinck  
performers: Anne Davids (flute),  
Dirk Moelants (viola da gamba),  
Charlotte Otte (piano)  
date of recording: 20 June 2013  
recording producer: Wannes Gonnissen  
recording space: Bijloke Studio (Ghent, Belgium)

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## Appendix 3 Online materials



As further illustration of some of the discussion in the articles in this anthology, an online repository of audio and video examples has been created and hosted within the website of the Orpheus Institute, Ghent. These examples, which should be viewed in connection with a reading of the relevant articles, may all be accessed under the URL: <http://www.orpheusinstituut.be/en/anthology-repository>. Our hope is for this repository to continue growing with additional relevant content to the Anthology in the future.

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## Appendix 4

# Resources for Artistic Experimentation

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**Paulo de Assis** is an artist-researcher with transdisciplinary interests in Philosophy and Epistemology. He studied piano with, among others, Vitaly Margulis and Alexis Weissenberg, and Musicology with Jürg Stenzl and André Richard, receiving a PhD and a post-doctoral appointment on the works of Luigi Nono. He was distinguished by the Fondation des Prix Européens (1994) and at the International Competition Maria Canals, Barcelona (1997). Between 2009 and 2012 he was Senior Researcher at the Centre for the Aesthetics and Sociology of Music (CESEM) at the University Nova Lisbon and Research Fellow at the Orpheus Research Centre in Music [ORCiM]. For the period 2013-2018 he was granted a European Research Council Starting Grant for the project “Experimentation versus Interpretation: exploring new paths in music performance in the twenty-first century,” hosted at the Orpheus Institute. He has authored two books (on the music of Luigi Nono and Camillo Togni) and edited six others (on sound, music notation and on contemporary composers).

**Richard Barrett** is internationally active as both composer and improvising performer, and has collaborated with many leading performers in both areas, while developing works and ideas which increasingly leave behind the distinctions between them. His long-term collaborations include the electronic duo FURT which he formed with Paul Obermayer in 1986 (and its more recent octet version fORCH), composing for and performing with the ELISION contemporary music group since 1990, and regular appearances with the Evan Parker Electro-Acoustic Ensemble since 2003. Recent projects include *CONSTRUCTION*, a two-hour work for twenty-three performers and three-dimensional sound system, premiered by ELISION in 2011, and the hour-long life-form for cello and electronics, premiered by Arne Deforce in 2012. Current projects include world-line for electric lap steel guitar, trumpet, percussion and electronics, commissioned by Daryl Buckley, and new works for Ensemble Studio6 of Belgrade and for the Radio-Symphonie-Orchester Stuttgart. He studied composition principally with Peter Wiegold, and currently teaches at the Institute of Sonology in The Hague and at Leiden University, having previously held a professorship at Brunel University in London. His work as composer and performer is documented on over 25 CDs, including six discs devoted to his compositions and seven by FURT.

**Tom Beghin** is internationally active as a performer on historical keyboards. His discography features Beethoven, Mozart, Haydn, Moscheles, C.P.E. Bach, Mendelssohn, Zelter, Schubert, and Clementi. He has published in journals such as *Keyboard Perspectives*, *19th Century Music* and *Haydn Studien*, and in collections such as *Haydn and His World*, *The Cambridge Companion to Haydn*, or *The Oxford Handbook of Topic Theory*. With classicist Sander Goldberg he edited *Haydn and the Performance of Rhetoric*, winner of the 2009 Ruth Solie Award from the American Musicological Society. Forthcoming from the The University of Chicago Press is his monograph *The Virtual Haydn*:

*Paradox of a Twenty-First Century Keyboardist*. Recognized for his expertise in eighteenth-century music, he is frequently invited to give concerts, workshops and lectures throughout North America and Europe. In 2013 he inaugurated the first replica of Beethoven's 1817 Broadwood piano at the Concertgebouw in Bruges and the Beethoven-Haus in Bonn, playing among others Beethoven's "Hammerklavier" Sonata, Opus 106. In 2004 the Haydn-Institut inducted him as a member. Released by Naxos on Blu-ray (2009) and CD/DVD (2011) is a complete recording of Haydn's solo keyboard works, performed on seven different types of instruments in nine "virtual rooms." He is presently focusing his artistic research on the piano works of Ludwig van Beethoven. Tom Beghin studied at the Lemmens Institute in Louvain, Belgium (with Alan Weiss), at the Musik-Akademie in Basel, Switzerland (with Jean Goverts and Rudolf Buchbinder), and received his doctoral degree with fortepianist Malcolm Bilson and musicologist James Webster from Cornell University (Ithaca, New York). He served on the faculty at the University of California, Los Angeles, was a fellow at the National Humanities Center (North Carolina), and is presently Associate Professor at the Schulich School of Music of McGill University (Montreal, Canada), where he teaches performance practice, fortepiano, and music history. He is a member and serves on the board of directors of CIRMMT (Centre for Interdisciplinary Research in Music Media and Technology).

William Brooks studied music and mathematics at Wesleyan University (BA 1965), then received degrees in musicology (MM 1971) and composition-theory (DMA 1976) from the University of Illinois. He taught at the University of California and the University of Illinois before becoming Professor of Music at the University of York, England. In 2009 he was appointed Senior Research Fellow at the Orpheus Institute, Ghent, Belgium, where he also serves as publications editor. Brooks is active as both composer and musicologist, with the two disciplines meeting in his interest in "experimental" music and processes and in his exploration of the relationship between text and music. He has published extensively on John Cage and Charles Ives and, more broadly, on American music; his compositions often explore open form and the intersection of vernacular and cultivated idioms. Much of his music is for voice, and he is himself a singer and choral conductor. His music is published by Frog Peak Music, and he has received commissions from the Irish Arts Council, The Crossing, Trio Mediaeval, The Cleveland Chamber Orchestra, the Kronos Quartet, and the Gulbenkian Foundation, among others. His awards include Woodrow Wilson and Danforth Foundation graduate fellowships, a Smithsonian Institution Fellowship (1979-80), an NEA Composer's Fellowship (1982), an Illinois Arts Council Fellowship (1986), and, in recent years, grants from the Arts and Humanities Research Council (UK), Newberry Library (Chicago), Lilly Library (Indiana), and Harry Ransom Center (Austin TX).

Nicholas G. Brown is an artist-composer and writer. He makes various kinds of work, from films, installations and theatrical performances to handmade books. He has also composed an extensive body of concert music and written film scores that have been released on DVD by the British Film Institute. His music has featured in festivals such as the BBC Promenade Concerts, Huddersfield Contemporary Music Festival, Three Choirs Festival and Haarlem Koorbiënnale (NL). As a writer, he has published articles on the philosophy of music, particularly theories of music & embodiment. He was educated at Oxford University and Manhattan School of Music, New York.

Marcel Cobussen studied jazz piano at the Conservatory of Rotterdam and Art and Cultural Studies at Erasmus University, Rotterdam (the Netherlands). He currently teaches Music Philosophy and Auditory Culture at Leiden University (the Netherlands) and the Orpheus Institute. Cobussen is author of the book *Thresholds: Rethinking Spirituality Through Music* (Ashgate, 2008), editor of *Resonanties. Verkenningen tussen kunsten en wetenschappen* (LUP, 2011) and co-author of *Music and Ethics* (Ashgate, 2012) and *Dionysos danst weer. Essays over hedendaagse muziekbeleving* (Kok Agora, 1996). He is editor-in-chief of the open access online *Journal of Sonic Studies* ([www.sonicstudies.org](http://www.sonicstudies.org)). His Ph.D. dissertation *Deconstruction in Music* (2002) is presented as an online website located at [www.deconstruction-in-music.com](http://www.deconstruction-in-music.com).

Kathleen Coessens is a philosopher and artist, exploring the crossings of science and art, perception and imagination, embodiment and epistemology. She graduated in piano and chamber music in Paris (Ecole Normale de Musique Alfred Cortot) and Brussels (Royal Conservatoire), and in philosophy, sociology and psychology at the Vrije Universiteit Brussel. In her PhD in philosophy she investigated cartography and mapping as fundamental aspects of the human condition. With this background in both art and human sciences, she works as a professor and post-doc researcher at the Vrije Universiteit Brussel in the Centre for Logic and Philosophy of Science (CLWF), at the Orpheus Research Centre in Music (ORCiM), Ghent, and at the Conservatoires of Antwerp and Brussels. Beyond teaching semiotics and sociology of artistic practice and artistic research, she supervises PhD students. She recently launched the artistic research group CORPoREAL on embodied practices in performance arts at the Conservatoire Antwerp. Topics of research in the arts are perception, experimentation, imagination and the corporeality of the artist. Her artistic research practice is linked to both a broad philosophical and artistic research output and to an artistic practice. She has published many writings on and in artistic research — including the book *The Artistic Turn*, 2009, with Darla Crispin and Anne Douglas. She creates, performs and collaborates in artistic projects (with Champ d'Action, Antwerp; Grays School of Art, Aberdeen; ORCiM, Ghent) merging visual and performance arts and exploring the boundaries between the cultural and the ecological, between arts and life.

**Paul Craenen** is a composer, music teacher, and director. As a maker and teacher of music, he links a classical training to work with the newest instruments and techniques. In his role as a researcher and director, he attempts to bridge the gap between existing music practice, scientific findings, and the wider cultural context in which musical activity can unfurl. He earned his master's degree in piano and chamber music from the Lemmensinstituut in Leuven, Belgium. Since then he has taught piano and experimental music at various music schools. He has designed several pioneering educational projects involving new music and the use of new media in music education. He has been a composer and sound artist since the late 1990s. He has taken part in several international composition seminars and his compositions have been performed in Belgium and abroad at a range of new music festivals. Conceptuality, the use of electronics and choreographic and audio-visual elements are characteristic of his compositions. Another ongoing theme in his work is attention to corporeal presence in music performance. He began postgraduate research into this subject at the Orpheus Institute in Ghent, later pursuing it through docARTES, a doctoral programme for practice-oriented research in the arts. He has been a member of various research groups and was a guest lecturer on intermediality at Amsterdam Conservatory for several years. On 29 March 2011 he received his doctorate from Leiden University with a musical portfolio and the thesis on which this book is based. Since 2012 he has been the director of Musica, Impulse Centre for Music.

**Darla Crispin** is an Associate Professor of Musicology at the Norwegian Academy of Music (NMH), Oslo. She works there as a member of a research team of pianists, composers and musicologists exploring collaborative and interdisciplinary research techniques and their application to both newly-composed and canonical piano repertoire. A Canadian pianist and scholar with a Concert Recital Diploma from the Guildhall School of Music & Drama, London and a PhD in Historical Musicology from King's College, London, Darla specialises in musical modernity, and especially in the music of the Second Viennese School. Her most recent work examines this repertoire through the prism of artistic research in music, a process that has been reinforced through her work as a Research Fellow at the Orpheus Research Centre in Music from 2008 – 2013. As well as developing her own research, Darla has been responsible for the development of innovative postgraduate programmes in two leading UK Conservatoires: the Guildhall School of Music & Drama and, from 2002-8 the Royal College of Music, where she was the founding Head of the College's Graduate School, overseeing both Masters and Doctoral programmes. She is an Honorary Member of the RCM, a Fellow of the Royal Society of Arts and a member of the Advisory Board for the Platform for Artistic Research (PARSE) for the Faculty of Fine, Applied and Performing Arts, the University of Gothenburg, Sweden. Darla's publications include a collaborative volume with Kathleen Coessens and Anne Douglas, *The Artistic Turn: A Manifesto* (Leuven, 2009) and numerous book

chapters and articles. Some of the more recent of these include 'Allotropes of Advocacy: a model for categorizing persuasiveness in musical performances', co-authored with Jeremy Cox, in *Music & Practice*, Vol. 1 (1) 2013 and 'Of Arnold Schoenberg's *Klavierstück Op. 33a*, "a Game of Chess," and the Emergence of New Epistemic Things', in *Experimental Systems – Future Knowledge in Artistic Research*, ed. Michael Schwab (Leuven 2014). She is currently working on a book entitled *The Solo Piano Works of the Second Viennese School: Performance, Ethics and Understanding* (Boydell & Brewer).

Henrik Frisk (PhD) is an active performer (saxophones and laptop) of improvised and contemporary music and a composer of acoustic and computer music. With a special interest in interactivity, most of the projects he engages in explores interactivity in one way or another. As an artistic researcher he has, among other things, contributed to the *Routledge Companion to Research in the Arts*. Frisk is assistant professor at the Royal Academy of Music and the Malmö Academy of Music, Lund University.

Bob Gilmore is a musicologist writing about recent contemporary music in western and central Europe and north America. His work falls into the categories of composer biography, music theory and analysis, and the critical historiography of music. Areas of specialism include American experimental music, microtonal and spectral music, and the new music scene in Ireland. He has written about music of highly diverse kinds, manifesting strongly divergent aesthetic positions; the underlying thread is a fascination with creative individuals with strong, distinct identities. He is the author of *Harry Partch: a biography* (Yale University Press, 1998), recipient of an ASCAP/Deems Taylor Award for works of excellence on American music, and *Claude Vivier: a composer's life* (University of Rochester Press, 2014). He is director and keyboard player of Trio Scordatura, an Amsterdam-based ensemble specialising in music exploring alternative tuning systems. He has taught at Queens University Belfast, Dartington College of Arts and Brunel University in London. In September 2013 he became a Research Fellow at the Orpheus Institute. He is Editor of *Tempo*, the UK-based journal of new music.

Valentin Gloor (tenor) achieved his diplomas at the Music University Winterthur-Zurich (P. Steiner) and at the University of Music and Dramatic Arts Graz (U. Bästlein) with distinction and got a prize of appreciation for outstanding performance at Graz. He attended master classes by Charles Spencer, Norman Shetler, Brigitte Fassbaender, Dietrich Fischer-Dieskau and others. In up to 100 concerts a year he performs a broad repertoire, starting in the Renaissance and leading up to a number of premières. He achieved further specialization in lied and oratorio, and he participates in opera projects. He has released a number of CD recordings and he sang on tours to the US, to South Korea, Hongkong, Mainland China and Brazil. He completed his doctoral studies at the University of Music and Dramatic Arts

Graz in 2013 with distinction, and since summer 2013 has been carrying on his research work on performance concepts as an ORCiM Research Fellow.

Yolande Harris is a composer and artist engaged with sound and image in environment and architectural space. Her most recent artistic research projects, *Sun Run Sun: On Sonic Navigations* (2008-2009), and *Scorescapes* (2009-2011) explore sound, its image and its role in relating humans and their technologies to the environment. These works consider techniques of navigation, sound worlds outside the human hearing range, underwater bioacoustics and the sonification of data. They take the form of audio-visual installations and performances, instruments, walks, performative lectures and writings. Her work is presented internationally in the context of visual art exhibitions, music venues and media art festivals. These include: MACBA Barcelona, Schirn Kunsthalle Frankfurt, Hayward Gallery Touring UK, Netherlands Media Art Institute Amsterdam, ISEA, UCLA Hammer Museum, Villa Croce Genova, Issue Project Room NYC, Shedhalle Zurich, Transmediale Berlin, Atlantic Center for the Arts Florida, STEIM Amsterdam, Ear to the Earth Festival NYC, WRO Media Art Biennale Poland, HKW Berlin and Sonic Acts Festival Amsterdam. She received her Ph.D. 'Scorescapes: On Sound, Environment and Sonic Consciousness' from Leiden University, through the docARTES programme hosted by the Orpheus Institute, Ghent (2011). She holds an M.Phil. in architecture/moving image from the University of Cambridge (2000), a B.A. in Music from Dartington College of Arts (1997), and studied music and art history at Edinburgh University (1995). In addition she has studied musical composition with leading figures in experimental music, Frank Denyer, Louis Andriessen, Lou Harrison, Peter Sculthorpe, Alvin Lucier, Pauline Oliveros and David Dunn. She is currently Artist in Residence at the Center for Digital Arts and Experimental Media - DXARTS - University of Washington, Seattle.

Mieko Kanno specialises in the combined disciplines of performance and musicology in contemporary music. Since her winning of the Kranichsteiner Musikpreis at the Darmstadt New Music Institute in 1994 for the interpretation of contemporary music, she has collaborated with many composers Europe-wide, commissioned and premiered new works, and has established herself as one of the leading exponents of contemporary music. Her current long-term projects are on John Cage's *Freeman Etudes* and on music involving electronics (Mieko works on the AHRC funded project "Live Performance, the Interactive Computer and the Violectra," a collaboration with composer Sam Hayden). She regularly performs these works in concerts—she is interested in how musical works change their identity with time and this research is much informed by her practice. In addition to her solo work Mieko is widely experienced as ensemble violinist and has been a leading participant in groups such as the New Music Players, Exposé, Apartment House, the Utrecht-based ensemble *insomnio* and others. She

also plays the Baroque violin and has toured worldwide with the ensemble Florilegium. Her background is the traditional school of violin playing: at the age of 19 she was invited to England to study with Yfrah Neaman at the Guildhall School of Music & Drama, and achieved outstanding success in numerous violin competitions including the Rodolfo Lipizer Competition Italy (First Prize), London Carl Flesch Competition (Third Prize), Queen Elisabeth Competition Belgium (Bronze Medal), Tokyo International Violin Competition (Third Prize), Hannover Competition (Fifth Prize) and Jacques Thibaud Competition, Paris (Sixth Prize). Since then she has been performing worldwide and continues to do so today. Mieko was Head of Performance at Durham University Music Department for 2001-2012. She has held residencies at the Dartington Summer School (last in 2007), the Banff Arts Centre (Canada, 2008), and was Research Fellow at the Orpheus Institute (2008-10, part-funded by the Leverhulme Trust) and at the Cini Foundation (Venice, 2010). She joined the Royal Conservatoire of Scotland (RCS) in January 2013 as new Head of Strings.

Andrew Lawrence-King is baroque opera & orchestral director, Early Harp virtuoso and imaginative continuo-player, specialist in baroque gesture and Historical Action, one of the world's leading performers of Early Music and the most recorded harpist of all time. In 2012, he opened the new hall of the Natalya Satz theatre, Moscow with a production of the earliest surviving opera, Cavalieri's *Anima e Corpo*, which won the Golden Mask, Russia's top theatrical award, as the Jury's Special Prize in all categories of music-theatre (opera, operetta, musicals, ballet etc). More recently, he directed the first performance in modern times in Spain of the earliest surviving Spanish Oratorio, in a staged production at the Portico de Paraíso festival in Ourense cathedral. He also directed (stage & music) the first staged production in modern times of Stefano Landi's 1619 tragicomedy *La Morte d'Orfeo* at the *St Petersburg Philharmonia*. He has directed baroque operas, oratorios and chamber music at *La Scala, Milan; Sydney Opera House; Casals Hall, Tokyo; Berlin, Vienna & Moscow Philharmonics; Vienna Konzerthaus; New York's Carnegie Hall and Mexico City's Palacio de Bellas Artes*. As harp soloist, he won the 2011 Grammy for Best Small Ensemble Performance in *Dinastia Borgia* directed by Jordi Savall. As Senior Visiting Research Fellow for the Australian Centre of Excellence for the History of Emotions, he is investigating medieval music-drama and early opera. Andrew Lawrence-King's ensemble, The Harp Consort, combines state-of-the art early music performance with stylish improvisation and entertaining stage presentation. He has now founded Il Corago, a close-knit production team researching, performing and teaching historically informed stagings of early opera. He also directs the Research, Education & Performance projects of the International Baroque Opera Studio.

Catherine Laws is a pianist and musicologist. She is a Senior Lecturer in Music at the University of York and a Research Fellow at the Orpheus Institute. As a performer Catherine specializes in contemporary music. In addition to her solo work, she performs with two ensembles: the music theatre group *Black Hair* and amplified experimental ensemble [*rout*]. Catherine's current practice-led research is concerned with: 1) embodiment and subjectivity in contemporary performance; 2) processes of collaboration between composers and performers. Much of her musicological work examines the relationship between music, language and meaning: her book, *Headaches Among the Overtones: Music in Beckett/ Beckett in Music* was published by Editions Rodopi in 2013. Other recent publications include editing and contributing to the ORCiM publication *The Practice of Practising*, and editing the special journal issue 'On Listening' for *Performance Research*.

Stefan Östersjö is one of the most prominent soloists within new music in Sweden. Since his debut CD (Swedish Grammy in 1997) he has recorded extensively and toured Europe, the US and Asia. His special fields of interest are the interaction with electronics, and experimental work with different kinds of stringed instruments other than the classical guitar. As a soloist he has cooperated with conductors such as Lothar Zagrosek, Peter Eötvös, Pierre André Valade, Mario Venzago, Franck Ollu, Andrew Manze and Tuomas Ollila. The past ten years he has been deeply involved in intercultural work, most notably with the Vietnamese/Swedish group The Six Tones. His thesis *SHUT UP 'N' PLAY! Negotiating the Musical Work* is published by Lund University as are two edited books: *(re)thinking Improvisation: artistic explorations and conceptual writing* (2012) (co-edited with Henrik Frisk) and *Spår av Musik* (2014). He is at present engaged in artistic research on musical gesture at the Malmö Academy of Music and, since 2009, engaged as a Research Fellow at the Orpheus Institute. He is currently also working in a CMPCP project together with the composer David Gorton and prof Eric Clarke and in the AHRC-funded environmental sound art project Landscape Quartet headed by Newcastle University.

Juan Parra Cancino studied Composition at the Catholic University of Chile and Sonology at The Royal Conservatoire of The Hague (NL). Part of several ensembles related to Guitar Craft, a school founded by Robert Fripp, he is a regular collaborator of artists like Brice Soniano, Richard Craig and Ensemble KLANG. Juan is founder and active member of The Electronic Hammer (a computer and percussion trio) and Wiregriot (voice and electronics). He is currently a PhD candidate of Leiden University (NL) and his research focuses on performance practice in Computer Music, supported by the Prins Bernhard Cultuur Fonds. He is also a researcher at the Orpheus Institute.

Larry Polansky is a composer, theorist, teacher, writer, performer, programmer, editor and publisher. He lives in Santa Cruz, California, teaching at UC Santa Cruz. He is also the Emeritus Strauss Professor of Music at Dartmouth College, and co-director and co-founder of Frog Peak Music.

Stephen Preston established an international reputation as a pioneering period instrument performer. He was involved as a founder member with the UK's leading period-instrument ensembles of the 1970s and made pioneering recordings of major works for baroque flute. Subsequently, pursuing his interest in dance, he worked as choreographer and director for two decades. In 2001, reapplying himself to the baroque flute he undertook a doctoral research project into improvisation and performance techniques modelled on birdsong, which resulted in the development of Ecosonics and the formation of the Ecosonic Ensemble. Recently, with the aim of enriching contemporary practice and thinking about historical instruments, he formed TRIO APORIA, which since 2012 has commissioned a wide repertoire of acoustic and electro-acoustic music. Currently Trio Aporia is collaborating with Jean-Philippe Calvin on a composition research project focused on Jean-Philippe Rameau. Stephen also performs with the electro-acoustic improvisation group Automatic Writing Circle, an evolution from his Ecosonic Ensemble. In addition to playing historically derived instruments he plays the Beaudin flute, a 21st century evolution of the one-keyed flute developed by French Canadian flute maker Jean-François Beaudin. He teaches at the Royal Northern College of Music and at Trinity Laban.

Godfried-Willem Raes is a music-maker in the broadest sense of the word. Until 2014 he was Professor of Composition and Acoustics at the Ghent School of Arts. Nowadays he is mostly charged with post-doctoral research into extending expressive possibilities of acoustic instruments and their human interfaces. He is the designer of what has become known as the largest robot orchestra in the world and the inventor of a fully wireless expressive gesture recognition system (the invisible instrument, the topic of his doctoral dissertation). At this moment he is working on the refinement of automated musical instruments with playing possibilities that by far exceed anything possible by humans. He was awarded the Louis Paul Boon prize (1982), the Tech-Art Prize (1990) and has been Cultural Ambassador of Flanders (1997). He is the founder and director of the Ghent-based Logos Foundation.

Hans Roels is a Ph.D. researcher in the School of Arts, University College Ghent, Belgium where he teaches live electronic music. Since 2010 he has also worked as a researcher in the Orpheus Institute. Hans Roels studied piano and composition and during the fifteen years that he has been active as a professional composer his works were played in several European countries by ensembles such as Champ d'Action, Spectra ensemble, the electric

guitar quartet Zwerm and Trio Scordatura. Between 2001 and 2008 he was responsible for the concert programming in the Logos Foundation, a centre for experimental audio arts.

**Michael Schwab** is an artist and artistic researcher who interrogates post-conceptual uses of technology in a variety of media including photography, drawing, printmaking and installation art. He holds a PhD in photography from the Royal College of Art, London, that focuses on post-conceptual post-photography and artistic research methodology. He works as a researcher for the Zurich University of the Arts, Switzerland, and is a research fellow at Orpheus Institute, Ghent, and the University of Applied Arts, Vienna. He has presented his art and research in a number of publications, exhibitions, invited keynote lectures, conference papers and seminars. Since 2003 his exhibitions and associated events have increasingly focused on artistic research, and he has been a collaborator and advisor on a number of research projects. He is co-initiator and inaugural Editor-in-Chief of JAR, the *Journal for Artistic Research*.

**Anna Scott** is a Canadian pianist-researcher interested in using the early 20th century recordings of the Brahms-Schumann circle of pianists to question the persistent gaps between the loci of knowledge, ethics and act in mainstream, historically-informed, and recordings-informed approaches to Brahms's late piano works. Far from advocating more historically accurate performances in general, Anna's off-the-record experiments both elucidate and disturb modern constructions of Brahms's Classicist canonic identity by encouraging the emergence of the corporeal and psychological conundrums more characteristically associated with Romantic pianism. Anna is an ORCiM Doctoral Researcher at The Orpheus Institute, a Masters Artistic Research Coach at the Royal Conservatoire of The Hague, and is currently pursuing a practice-led doctoral degree under the supervision of Daniel Leech-Wilkinson (King's College, London), Naum Grubert (Conservatories of The Hague and Amsterdam), and Frans de Ruiter (Leiden University, NL).

**Steve Tromans** is a pianist and composer working predominantly in the fields of jazz and improvising music. He has given over 6,000 performances in the UK, Europe and internationally, has recorded two dozen albums in his own name, as well as having contributed keyboard work and compositions to a host of others' releases. Tromans has received major commissions from Birmingham Town Hall/Symphony Hall and the arts organisation Jazzlines, and was featured on BBC Radio Three's "Jazz on 3" programme in Summer 2013 in light of his collaboration with improvising musicians from the avant-garde scene in Chicago. In recent years, Tromans has been undertaking doctoral research into creative process in improvised performance.

**Luk Vaes** studied piano with Claude Coppens (Belgium), Aloys Kontarsky (Germany) and Yvar Mikhashoff (US), won first prizes in several international competitions, and has concertised as a soloist at the most renowned festivals for new music as well as with musicians such as Uri Caine and Thomas Quasthoff. His recordings of the piano works of Mauricio Kagel won nine international prizes. In 2009 he obtained his doctorate with a dissertation on the theory, history and performance practice of extended piano techniques. Currently he is fellow in artistic research of the ORCiM group, and coordinates the doctoral program for musicians at the Orpheus Institute and the Royal Conservatory in The Hague.

**Bart Vanhecke** studied composition with André Laporte at the Royal Music Conservatory in Brussels and with Franco Donatoni at the Accademia Musicale Chigiana in Siena (Italy). Since 2009 he is researching the systematisation of atonality and dissonance in a motivic serial composition at the Orpheus Institute in Ghent and the University of Leuven. In 2010 he received a doctoral research grant from the University of Leuven and he became a doctoral researcher at ORCiM. Works by Bart Vanhecke have been performed at festivals including Ars Musica, the ISCM World Music Days and the Transit Festival, by ensembles and soloists such as the Neue Vocalsolisten Stuttgart, Ensemble Recherche, Ensemble Phoenix Basel, the Belgian National Orchestra, Het Collectief, Walpurgis, the Spectra Ensemble, Ictus, Jan Michiels, the Danel Quartet and many others.

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*This is the first anthology of writings on artistic experimentation in music. It is a result of the artistic research conducted by ORCiM researchers within the centre's Research Focus 2010-2013 on Artistic Experimentation in Music.*

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The Orpheus Institute has been providing postgraduate education for musicians since 1996 and introduced the first doctoral programme for music practitioners in Flanders (2004). Acting as an umbrella institution for Flanders, it is co-governed by the music and dramatic arts departments of all four Flemish colleges, which are strongly involved in its operation.

Throughout the Institute's various activities (seminars, conferences, workshops and associated events) there is a clear focus on the development of a new research discipline in the arts: one that addresses questions and topics that are at the heart of musical practice, building on the unique expertise and perspectives of musicians and constantly dialoguing with more established research disciplines.

Within this context, the Orpheus Institute launched an international Research Centre in 2007 that acts as a stable constituent within an ever growing field of enquiry. The Orpheus Research Centre in Music [ORCiM] is a place where musical artists can fruitfully conduct individual and collaborative research on issues that are of concern to all involved in artistic practice. The development of a disciplinespecific discourse in the field of artistic research in music is the core mission of ORCiM.

The Orpheus Institute Series encompasses monographs by fellows and associates of the Orpheus Institute, compilations of lectures and texts from seminars and study days, and edited volumes on topics arising from work at the institute. Research can be presented in digital media as well as printed texts. As a whole, the series is meant to enhance and advance discourse in the field of artistic research in music and to generate future work in this emerging and vital area of study.

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