Sound & Score

Essays on Sound, Score and Notation

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Prelude

Paulo de Assis

Music inhabits the realms of the invisible. A sound, a melody, a rhythm, an harmonic field, or a cluster are never "seen"—starting from an instrument, they travel through the air, reaching the listener as immaterial vibrations of energy. The specific materiality of music-making lies on the moment of the production of the sound. After that, music exists outside of graspable matter, being perceived aurally and triggering complex systems of perceptual articulations in the listener. In the course of history, however, diverse attempts were made to render music "visible," to establish codes of signs and symbols that could allow for graphic (re)presentation as well as invention of sonic events. Such codifications engendered highly sophisticated artefacts—sheets of paper full of graphemes, both written and drawn—which defined musical notation as an essential part in the fabric of music making. The relation of "invisible" sound to these "visual" artefacts and, more specifically, the musician's relation to notation are the central and recurrent themes of the present publication.

  The fourteen essays in this volume are selected and extended versions of papers presented at the conference "Sound and Score," held at the Orpheus Research Centre in Music, Ghent (Belgium), in December 2010. For that conference, and during preliminary meetings of the organising committee, other titles (like "Sound and Symbol" or "Sound and Sign") provoked lively discussion before the final choice was made: "Sound and Score." Understanding "score" not as a specific form of manuscript or printed music in which the staves, linked by bar-lines, are written above one another in order to represent the musical coordination visually, but in the broader sense of any artefact containing a graphic representation of a musical work, this title seemed to be at the same time sufficiently clear and specific for the general topic of discussion and open and flexible with relation to the concrete papers to be presented. Moreover, it related to a seminal research focus at the Orpheus Research Centre in Music [ORCiM]: the musician's relation to notation. Considering "notation" as the totality of words, signs and symbols encountered on the road to a concrete performance of music, this research endeavour aims to embrace different styles and periods in a comprehensive understanding of the complex relations between invisible sound and mute notation, between aural perception and visual representation, between the concreteness of sound and the iconic essence of notation. From the silent music of the score to the unseizable momentum of the performance, musical notation seems to occupy what Brian Ferneyhough has described as "a strange ontological position: a sign constellation referring directly to a further such constellation of a completely different perceptual order" (Ferneyhough 1998, 2).

Score and sound are both sign systems. But they might also be seen as models for imitation (cf. Boucquet 2010, 72). To see something, to listen to something, is always to enter into another reality, into other systems of reference, thought and experience. What do we listen to when we see a score? What do we see while listening to music? On the one hand, the musician is capable of transcribing (representing) what he/she hears; on the other, he/she is able to project the written thing into the sphere of the audible. To notate is, therefore, representation, but also to put imagination into action, to realise an invention (cf. Boulez 2005, 558). That this invention is voluntary and the result of a more-or-less structured, conscious will (even if unveiling unconscious processes) is an essential feature of Western art music. Another is the enormous variety of notational systems and practices over diverse geographies and times. Even the conceivability of notation was not always evident.

Around the year 630 AD, Isidore of Seville (560–636) compiled the first known encyclopaedia of the Middle Ages—the *Etymologiae*, a work that is preserved in Brussels at the Royal Library of Belgium. In Book III, eight chapters are dedicated to music, and Isidore laconically states that "unless sounds are remembered by man, they perish, for they cannot be written down" (Isidore of Seville [c. 635] 1472, bk iii, chap. 15). Beyond the evidence that the Greek system of notation had been forgotten by the seventh century (at least in Isidore's Andalusian circle), this sentence underlines the fundamental importance of memory, of an "oral tradition," and, inspired by St Augustine and Plato (cf. *Phaedrus* 274e–277a), proclaims the impossibility of notation. Sounds are kept alive only through the use of memory. To write them down is inconceivable.

Even if we now know that the earliest documented forms of musical notation date back to 2000 BC and that there were notational practices in Ancient Greece (as in the *Delphic Hymns*, dated to the second century BC), they were rudimentary and fragmentary attempts to codify sounds in direct relation to poems. As Amnon Shiloah pointed out in relation to diverse authors/composers of medieval Arabic music treatises, "Owing to the absence of notation, no artefacts transmit the music from remote ages" (Shiloah 2007, 11). The breakthrough of music notation, a soft revolution of unpredictable consequences for the future of music history, was to happen only 400 years after Isidore's laconic statement, on the turn from the first to the second millennium, around the year 1000 AD.

It was then that concrete forms of notation began to develop in monasteries in Europe, using symbols known as *neumes*, before Guido d'Arezzo combined them with a four-line staff, paving the way for modern notational practices. The transformation of sounds into symbols and, soon after, the rise of new sound combinations induced by these symbols was to have a tremendous impact on Western art music (cf. Stevens 1960, 211), defining a completely new way of *conceiving* and *perceiving* music, as well as establishing "the composer" as a new representative of new forms of musical thought and production. With the invention of more and more complex signs and symbols the single note became increasingly graspable and mouldable even beyond the voices or instruments that originally gave life to it. "The fixation of a flow of sound by

means of symbolic notation caused the replacement of an irreversible time-axis by a symbolic space, the two-dimensional space of a music manuscript," as Konrad Boehmer observed during the "International Orpheus Academy for Music Theory 2003" (Boehmer 2004, 157–158), continuing:

> Without this step from an art of time into a symbolic encoded art of space, not only would "composition" be impossible (at least as we have understood it for the last millennium), but also the highly acrobatic arts of counterpoint … would be unthinkable. (Boehmer 2004, 157–158)

Further developments in notational praxis led to more and more complex and abstract configurations of symbols, shaping "top-to-bottom" constructions, defining a divisive segmentation of time, and, finally, imposing periodicity on the flow of time. In spite of historical and geographical diversity, three elements seem to be inherent to any notational system (Ferneyhough 1998, 3): the ability to offer a *sound-picture* of the events for which it stands, the need to offer all essential *instructions* for a concrete performance, and the conflation, mutual resonance or even collision of these two elements (sound-picture and performing instructions), incorporating an implied *ideology* of its own process of creation.

The complex relations between these three elements—sound-picture, performing instructions, and implied ideology—makes two things evident: first, that "no notation can presume to record information encompassing all aspects of the sonic phenomenon for which it stands" (Ferneyhough 1998, 3); and secondly, that every period of music history used not only the best possible, but also the most adequate notation for its own music. Therefore, in addition to a continuing need to devise new notational practices for new music, there is also a need to permanently revisit and reconsider our understanding of past notational systems.

Reversing the statement of Isidore of Seville ("unless sounds are remembered by man, they perish, for they cannot be written down"), we could be tempted to say that "unless sounds are written down, they perish, for they cannot be remembered." Between this two positions there is, however, a broad field of practice, discussion, enquiry, and experimentation.

The fourteen essays and the three interludes in this volume are all written by experts in the field, the overwhelming majority of them being performers or composers, i.e., music practitioners—researchers in the burgeoning discipline of artistic research. In an age characterised by a turn from text-based production and reflection in music to sound-based understandings, this collection of essays shifts the debate about "sound and score" from the "object/subject" dualism, from the classical distinction of sound and idea, from abstract analytical considerations, onto the immanence of sound itself as produced by the human "interface," that vital element of integrity and synthesis.

The essays are arranged in four parts, ordered and bound together by different approaches and diverse perspectives: a conceptual approach that opens the discussion to other fields of enquiry, namely philosophy and semiotics;

a practical approach that takes embodied understanding as its point of departure; an experimental approach, challenging state-of-the-art practices; and, finally, an exploratory approach to relations with other forms of art (dance, landscape art, painting).

The first part—Score and Idea—poses general questions around the composer's relation to his own scores ("what I say / what I do"), the performer's relation to his own body ("what I can / what I do"; "fingerings") and the unspeakable, unutterable aspects of music (the "mysterious"). In Chapter 1, Jeremy Cox questions composers' intentions through the opposition "what I say / what I do," exploring composers' performances of their own works and reflecting upon the autonomous identity of a musical work. Are there "moral imperatives" concerning its performance? In Chapter 2, Paul Roberts investigates the "pressure" of what cannot be notated—the "mysterious," whether seen as "inspiration or alchemy." How can the performer divine and harness these elements, and how to communicate them? Chapter 3, by Andreas Georg Stascheit, focuses on the "I can." Considering the body as medium between the score and the sound, musical practice becomes an extension of the horizon of the "I can," providing access to something up to now inaccessible. The entangled relationship between "I can" and "I do" leads to a questioning of practising "as practice of permanent beginning." Finally, Darla Crispin (Chapter 4) discusses to what extent performance annotations mediate between text and act, taking Webern's *Piano Variations*, op. 27, as a case study.

The nature and contents of the next parts (II. Mapping the Interface; III. Extending the Boundaries; IV. Choreographies of Sound) invited Kathleen Coessens, the co-editor of this volume, to elaborate short "interludes," presenting the single chapters but offering wider perspectives on the topics under discussion. Such interludes not only help situate the discourse but define contrapuntal moments of reflection, true *intermezzi* in the long breath of this book.

Every chapter ends with a compact bibliography, facilitating information for all those wishing to scrutinise particular topics in greater depth. At the end of the volume there is a thorough index of names, works, and concepts. Its aim is not merely to provide references but also to open new horizons, revealing possible links between certain topics, works, and concepts.

I would like to thank Joyce Desmet and Heike Vermeire for their help while organising the conference in December 2010; Heike Vermeire for her careful proofreading of the final typescript; and Kathleen Coessens and William Brooks, co-editors, for the many valuable discussions in the last years.

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Part I
Score and Idea

What I Say and What I Do

The Role of Composers' Own Performances of Their Scores in Answering Our Research Questions about Their Works and How We Should Interpret Them

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The title of this article refers to the old adage: "Do as I say, not as I do." It implicitly poses the question: "when composers perform their own music and the results diverge from their own scores, which performance cues should we follow: those of the score or of the performance?" If we were to observe the spirit of the saying, the answer would be "do as they say"—i.e., follow the instructions of the score. But, of course, things aren't as simple as that, and the article will examine how, as artist researchers, we might use the special case of the composer as performer of his or her works as a kind of interpretational "triangulation" tool for addressing some of our key research questions concerning how best to probe to the inner core of the musical work and connect with the embedded knowledge and understanding which we believe to be located there.

Western art music, with its strong tradition of transmission via the notated score, has given rise to the concept of the musical work, once written down and disseminated, as having an autonomous identity to which it is our individual and collective responsibility, as performers, to be faithful. This notion of *Werktreue* has been predominant since the nineteenth century. *Werktreue* brings with it a set of quasi-ethical imperatives concerning the preparation and execution of a "proper" performance, of which adherence to the evidence set before us—rather than wilful pursuit of our own subjective instincts and speculations—is the cornerstone.

In most cases, the primary, and most obviously concrete and stable, evidence is the score; work-fidelity, as a result, is widely equated with score-fidelity. But there is a range of secondary factors, which become increasingly important the further back in time one goes. These include utterances by the composer,

whether set down by him- or herself or transcribed by others; knowledge of the circumstances of performances contemporaneous with the work's composition, whether personally sanctioned by the composer or not; awareness of the kinds of instruments and numbers of them likely to have been employed in such performances; and testimony from theorists and treatise writers about what, for them, constituted sound performance practice (and, often as importantly, what didn't) at the time of the work's composition. In general, the principle applies that the more evidence we amass, and from the greater variety of sources, the more confident we may feel that we are on a warm trail leading us towards fidelity.

But when the pool of available evidence includes actual performances given by the composer him- or herself, the question of which evidence to use, how to use it and with what relative priorities becomes both richer and more problematic. In particular, we are led to reflect more intently than we might otherwise on the assumed primacy of the score and whether what the composer tells us to do through the instructions encoded in it is more, or less, reliable than what he or she does him- or herself. And insofar as the act of musical creation has an important speculative phase that exists *a priori* to the ostensibly dogmatic certainties of the notated score, we may find ourselves reminded by a given composer's relative freedom in the execution of his or her own music that the act of performance, too, might legitimately seek to recapture something of that speculative dimension. The article will propose a possible theoretical framework for these reflections, based upon a model developed by in the 1930s by the composer and writer Ernst Krenek, and will then examine through a case study how Stravinsky, as both composer and conductor of his music, sheds some characteristically stimulating light on these issues.

Of course, the availability in stable, durable form of evidence as to the nature of composers' possible compositional intentions deriving from their own performances is a phenomenon of the era of recorded sound or, at best, may be pushed back to the advent of technologies such as the piano roll. Moreover, the very notion of a composer's performance as something unique and fundamentally separate from the entire class of performances given by others is only as old as the concept of composition as a specialist vocation, distinct from that of the production and performance of music more generally. It goes hand in hand with the rise of the cult of the musician-creator as heroic individualist and the concomitant sense of the rank-and-file musician-executant as merely a necessary adjunct to the transmission of the creator's unique vision.

Before the nineteenth century, a composer's performance of his or her own works was the norm and only remarked upon if his (and it *was* usually his) performance style or ability were in some way out of the ordinary. Many of the nineteenth century's great individualist creators, such as Chopin and Liszt, were also outstanding performers of their compositions; their works and their ways of performing them were two sides of the same virtuoso coin. But this was also the century where it became acceptable and, by gradual degrees, commonplace for composers to write music beyond their own capabilities as performers—and to expect there to be a ready supply of highly-skilled executants able and willing to expend the time and effort necessary to master the demands

of their compositions. Through this process, composers and performers have become consolidated as complementary specialists linked in a symbiotic relationship. Musicians achieving specialist-level accomplishment and status in *both* the composing *and* performing spheres are now the exception, rather than the norm. In matters of performance, the performer possesses certain areas of exclusive expertise which the composer may either defer to overtly or, at least, acknowledge implicitly. Nevertheless, the relationship has a certain hierarchical imbalance in that the composer's work (by now, closely equated with the score) necessarily comes first and remains the fundamental point of reference for the performer's interpretation.

From the above it is clear that the period of time across which we have had durable evidence of composers' performances of their own works and that during which the *mores* of performance ethics have broadly followed the principles of *Werktreue* are roughly coincident. Moreover, they both broadly coincide with the emergence of a generalised schism between the specialist composer and the specialist performer. As a result, the preserved evidence provided by composers' performances where these do occur is a tantalising mixture of the intriguing and the problematic. What the composer does, and its relationship to what he or she says, may bestow rare insights or just muddy the waters.

On the one hand, composers' performances may seem to offer uniquely direct and un-mediated indications of how the work should be performed, in that they circumvent the need to translate pure creative impulse into notated form and back out again into sonorous realisation. On the other, these performances may end up confounding, rather than revealing, the composers' intentions through the myriad exigencies of real-time performance—not forgetting the fact that, as we have seen, in a world of specialisation, a musician with great compositional talent may very well have distinct limitations as a performer or conductor. Even assuming that he or she does have the ability to execute a performance fully consistent with his or her intentions, a composer may legitimately deliver interpretations that are less bound by the conventions of score-oriented *Werktreue* than are those of other performers—for example, incorporating spontaneous insights reaching back into the work's genesis which may inflect, or even contradict, the notated score. However, whether such performances may then stand as exemplars for authenticity—which other performers may access, imitate, and use as justifications for their own departures from score-based instructions—is a far from straightforward question.

Despite—or perhaps because of—its problematic nature, the question is squarely in the target area for artistic researchers. Their "research questions" are often cognitive crystallisations of the more general and affectively driven desire of artists to enter as fully as possible into the interior world of the artworks they are either creating or interpreting. As part of this desire, composers' own comments about their works are often studied avidly for the glimpses of inner meaning that they might confer; where composers do perform their own compositions, there is a similar sense that these performances might reveal special insights. Although many performers are wary of exposing themselves to the interpretations of others before their own is reasonably well consolidated,

they might well make an exception for a composer's own performance. And performers who enter into the realm of full-blown artistic research have no qualms about "pre-conditioning" their own artistic conception with external information; on the contrary, in the context of artistic research, all prior information is a positive tool and grist to the research mill, in the same way that the literature search is an essential preliminary to the original enquiry that generates an expansion of knowledge and understanding in traditional research.

If artistic research is "research where the artist makes the difference"[1] then the fact that the composer approaches his or her works *as a performing artist* when performing them makes the evidence which may be drawn from these performances particularly rich from an artistic-research perspective. Artist-researchers whose artistic expertise lies in performance will feel able to enter empathically into the experience of the composer-as-performer and thereby to intuit which of the cues emanating from the composer's performance may be intentional and significant and which inadvertent or the product of limitations as a performer. Their artistic know-how gives them an additional interpretative tool compared with music scholars who analyse "from the outside" the ways in which composers' performances reinforce and/or contradict their scores. In this way, artist-researchers have the potential to use composers' performances of their works as test cases for a re-engagement with the *Werktreue* principle, but one that, crucially, transcends its tendency to stamp out any impulse to creative speculation in the act of performance.

As already stated, when composers perform their own music we are reminded of the stages in the compositional process that come before the reification of the creative act as notated score. Those stages are, by definition, personal to the composer and intrinsically private. Indeed, many composers have gone to some lengths to "cover their tracks." Others, however, have offered us insights into the technical and aesthetic principles which guide them from conception to realisation—one may think of Messiaen or Hindemith in this context (Messiaen [1944] 1966 and Hindemith [1937] 1942). A few composers have sought to construct entire theories to explain what, in their understanding, takes place in the critical moment between their having yet to conceive their next composition and its being conceived but not yet adumbrated as melodies, harmonies, rhythms, etc., within a given structural and instrumental framework. One twentieth-century composer who chose to go into print on these matters was Ernst Krenek, who propounded what he described as "Basic Principles of a New Theory of Musical Aesthetics" in an article of that title written in 1937 (Krenek 1937, 1958, 1966).

Krenek's primary goal in this article is to set out a theory of musical aesthetics that is not bound to any one stylistic norm and that therefore might have the capacity to integrate modern views of aesthetic "quality" appropriate to the new atonal and post-tonal music of his day with those associated with more traditional musical styles. It is this intention which directs his focus towards the earliest phase of the creative process on the basis that, if melodies, harmonies,

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1 A working definition used widely in the literature of the Orpheus Institute. See, for example, Orpheus Institute website at: http://www.orpheusinstituut.be/en/about-us.

rhythms, etc., are not yet defined at this stage, neither are stylistic norms or style-dependent notions of aesthetic quality. This embryonic stage represents a kind of "free zone" where music is all potential and zero actualisation, and where the factionalism and ideological in-fighting of the adherents to different style-norms have no place.

It should be remembered that Krenek wrote this article when polemics raged not only between the traditional and the modern in music but also amongst the various modern schools—above all, the twelve-tone method of Schoenberg and the Neoclassicism of Stravinsky. Krenek, as an exponent of the admixture of jazz elements into "serious" contemporary music—most notably, in his opera *Johnny spielt auf* (Krenek 1926)—might be thought to lean more towards the Stravinskian way of thinking; and he, along with Stravinsky, had been the object of Schoenberg's caustic attack in the latter's *Drei Satiren* (Schoenberg 1926). But he subsequently adopted Schoenberg's twelve-tone approach to composition and his writings are frequently evocative of the modes of thought and verbal expression of Theodor Adorno, whose anti-Stravinsky, pro-Schoenberg stance in the modernist polemic, most extensively elaborated in 1947 in his *Philosophy of New Music* (Adorno 2006), was both unequivocal and hugely influential. Krenek's writing frequently shows something of the combative zest of Adorno's, but in this article, he seems instead to be yearning for a healing synthesis. At the same time, his gravitation towards the earliest moment of creation, and his conviction that composition is a deductive process whereby the parts derive from the whole rather than vice versa, is obviously profoundly embedded in his whole compositional outlook and not just an expedient tool seized upon in the search for a non-divisive musical aesthetics. He is both explicit and emphatic "that the parts (which one proceeds to study after studying the whole) are a function of the whole which exists *a priori*, and not that the whole is the sum of the parts" (Krenek 1966, 137).

The same deductive/inductive dichotomy could also be seen as applying when, as performers, we begin the process of formulating an interpretation of a work. This is where Krenek's model becomes directly relevant to the main question of this article. To a large extent, the issue of whether one should follow what the composer says or what he or she does boils down to whether one sees the compositional process primarily as one of moving from pre-cognitive conception to detailed realisation or of starting from brief, isolated fragments of realised material out of whose proliferation and organisation an emergent, holistic creative vision arises. If the latter, the notes themselves contain the seeds of the whole creative process, and what the composer says in the score should be regarded as paramount; if the former, the notes are "merely" the final outcome, and the composer's own, perhaps idiosyncratic, performing choices may take us closer to the true "source" of the work than these end-product materials. Before presenting the model in detail, it is therefore worth dwelling a little longer on Krenek's conception of the sequence of compositional creation and, in particular, on the meanings he imputes to certain key words which he uses in the model.

For Krenek, there is a preliminary stage of the compositional process which is entirely abstract, when an idea comes into being but, as yet, has no specifically

musical identity—it takes its stimulus from the extra-musical world and might, at least theoretically, find its expression in any number of art-forms. This notion is understandable enough if one takes the deductive view; it is what comes next that is more striking. One might imagine that, for the composer in the grip of this general and undefined idea, the next step would be the formulation of more concrete and specifically musical questions, such as: what kind of musical creation is this going to be? will it be absolute music or programmatic, vocal or instrumental? which instrumental/vocal forces will it employ? will it be through-composed or divided into movements? etc. None of these decisions yet requires a single note to be specified, but they are all unequivocally *musical* decisions and each takes us a decisive step closer to concrete realisation of the work. Krenek's insight is to examine the infinitesimal but critical space between the abstract idea and these already concrete, although broad and generalised, choices. In this space, he identifies an intermediate phenomenon, which he calls the "musical thought." As its name implies, the musical thought has already crossed the boundary into one specific artistic medium:

> We are dealing with the *musical* thought, that is, a thought which belongs exclusively to the sphere of music and can only be expressed with musical means, which is identical with its realisation in musical material and cannot be separated from it; it cannot be encountered, described, defined or even named in verbal language. (Krenek 1966, 138–9)

Krenek relates this musical thought to a second concept crucial to his aesthetic theory, that of the musical "Gestalt." The musical Gestalt is nearly identical in its significance to the musical thought, and they have a reciprocally symmetrical character and function which Krenek expresses in the following terms:

> Without getting involved in endless casuistry it may be said that the "musical thought" is what conditions and fills a musical *Gestalt*. The musical *Gestalt* is the way the thought manifests itself in musical material ... However, we must beware of seeing anything dualistic in the pair of terms thought–Gestalt as though the thought were something existing in itself and being expressed, symbolised or copied in the musical Gestalt. (Krenek 1966, 140)

Both thought and Gestalt belong "exclusively to the sphere of music." And, although the Gestalt edges us closer to manifestations "in musical material," this does not mean that we may yet discern any specific musical features within it:

> When we consider the medium in which the Gestalt appears, the material out of which it is made, we must always bear in mind that we are starting from a *tabula rasa* and know nothing of keys, scales, keynotes, consonances, dissonances, chords, or anything of the sort. (Krenek 1966, 141)

However, when these elements do begin to emerge through the compositional process, it is important to see them not only as *post hoc* to the musical thought and Gestalt but also as *propter hoc*. Krenek describes the musical thought as

having an "inherent need to present itself" (Krenek 1966, 142), and he sees the Gestalt as the expression of this need. It follows from this that not only does the unfolding of the musical work in its discernible features arise as a pressing necessity out of the springing into existence of the musical thought and Gestalt, but it also generates features which are symptomatic of these, and which therefore reflect the thought's essential and irrepressible "self." Krenek identifies a hierarchical sequence by which this progressive realisation of the musical thought unfolds. For him, the first concrete manifestation is on the level of musical Language. From this there flow, in turn, Articulation, Relation, and Form until, finally—and only finally—we arrive at The Work. After describing this sequence verbally, Krenek summarises the flow of logic that it embodies by setting things out in a synthesising diagram. [Fig. 1]

It is immediately obvious from this diagram that Krenek's theory has potentially profound consequences for the concept of *Werktreue*. If the Work is merely the final link in a causational chain that begins with the musical thought, then we risk missing the mark in making it the focus of our attempts at fidelity. Provided that every single step of the realisation process—through language, articulation, relation, and form—is executed without distortion of the generative thought and its associated Gestalt, this need not matter. However, the act of composition is not an exact science; the creative struggle of the composer is to give concrete substance in melodies, harmonies, rhythms, etc., to his or her original musical inspiration (in Krenek's terminology, to the musical thought and Gestalt) with as little distortion as possible; but every completed composition should arguably be regarded as some kind of qualified success in this respect. Or, putting it another way, the act of composition could be seen as that of weaving metaphors in sound which seek to give us intimations of the musical thought and Gestalt that only the composer can know—and which even he or she can only know tacitly. Whether imperfect realisation or sonorous metaphor, the finished work hopefully bears a meaningful resemblance to the original conception, thanks to the composer's craft, but this does not make the two co-identical.

The conscientious performer, and perhaps the artistic researcher preparing a performance from a research perspective, might argue that it is misleading to suggest that it is only the final step of Krenek's diagram that constitutes the material available from the Work-as-score. Form, Relation, Articulation, and Musical Language are also concrete presences within the notated data of the score. A performer who is prepared to spend time with the score and to interrogate it from perspectives other than that of the one-note-after-another linear reading will be able to elucidate many of these "higher order" elements and use them to enrich his or her understanding of the Work. This is why a familiarity with the methodologies of analysis is seen as being important for performers— at least by advocates of informed performance. Certainly, in an inductive view of the way that meaning is constructed in a composition, the idea of climbing as high as one can up the "ladder" of Krenek's diagram makes perfectly good sense. And, in such a model of the compositional process which had nothing interposed between these concrete elements and the Idea, by observing all of the steps meticulously we might hope to find ourselves standing on the

Extra-musical world

Idea
(general, undefined)

Raw material
(continuum)

Thought
(Gestalt)

Musical language
(general structure of
material)

Articulation
(in sound: tension, dissonance-consonance; in
rhythm: thesis, arsis; disjunctive, individualising:
the phrase)

Relation
(repetition, variation, motif; conjunctive,
connecting: cohesion)

Form
(linking the thoughts)

Work
(the idea realised)

Effect on the extra-
musical world

Fig. 1

threshold of the Idea itself—and at the summit of all those elements which occupy the specifically musical sphere. All this seems nicely in accord with the statement made earlier in this paper that "in general, the principle applies that the more evidence we amass, and from the greater variety of sources, the more confident we may feel that we are on a warm trail leading us towards fidelity."

But, of course, Krenek's model *does* interpose the crucial stage of the formulation of the Musical thought and its associated Gestalt. To the performer seeking to climb a "ladder of access" towards the point where he or she is vouchsafed some kind of revelation of the composition's essence, this is a more than trivial degree of extra separation. Moreover, the process by which, according to Krenek, the musical thought and Gestalt translate themselves into musical Language is not a symmetrically reversible one. The thought may have made the Language what it is, but we will search in vain for a way of extrapolating from the Language any reliable notion as to just what it was in the thought

Extra-musical world

Idea
(general, undefined)

Raw material
(continuum)

Thought
(Gestalt) 🚫

[Unavailable via any kind of
extrapolation from the
preceding steps]

Musical language ---------►
(general structure of
material)

Available
through analysis
of genre and
rhetoric

Articulation ------------►
(in sound: tension, dissonance-consonance; in
rhythm: thesis, arsis; disjunctive, individualising:
the phrase)

Available
through
syntactical
analysis

Relation ------------►
(repetition, variation, motif; conjunctive,
connecting: cohesion)

Available
through motivic
analysis

Form -------------►
(linking the thoughts)

Available
through formal
analysis

Work -------------►
(the idea realised)

Available
through a linear
reading of the
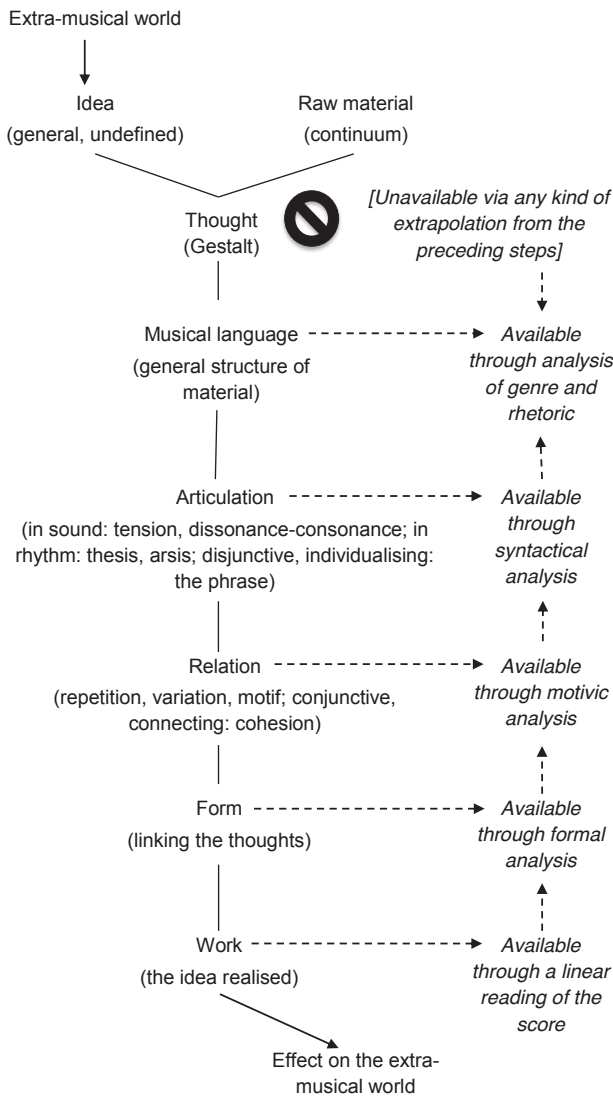score

Effect on the extra-
musical world

Fig. 2

or its associated Gestalt that meant that this Language, and not another, was the one most appropriate to be chosen. Whilst we can obviously infer certain things about a musical thought and Gestalt from the Language, etc., that they give rise to, there is no way that we can pin down with any certainty or completeness one unique musical thought and its associated Gestalt and say that they, and only they, must have been the progenitors of the musical Language, Articulation, Relation, and Form which we observe in the work. Theoretically, any number of thoughts and Gestalts might be implicated; and since, at the stage of the thought/Gestalt we "know nothing of keys, scales, keynotes, consonances, dissonances, chords, or anything of the sort" (Krenek 1966, 141), even if we could single out a pair of prime suspects we should scarcely be any the wiser as to their nature because our horizon of conscious understanding stops short of the realm which they inhabit. We may see the impasse graphically (in both senses) in the adaptation of Krenek's diagram, depicted in figure 2. [Fig. 2]

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Figure 2. The performer's "ladder of access" to the essence of the Work.

It is into this state of apparent deadlock that the special case of the composer performing his or her own works brings potential remedy, although accompanied by further complication. As we have already seen, the composer cannot resolve all our questions for us straightforwardly and unambiguously merely by dint of the fact that he or she experienced, personally and uniquely, the coming-into-being of the musical thought and Gestalt and, to the best of his or her abilities, based every subsequent concrete musical decision upon that experience. Nevertheless, the composer's uniquely personal experience has to be significant in terms of what it might add to our collective understanding of the music, however cautious we need to be about the cues that we read from—and, perhaps, into—his or her performance. At the very least—and returning to the paradox of the impossibility of deducing by reverse logic the nature of the musical thought and Gestalt from the Language, etc., which they generate—we may perhaps regard the composer's performance as offering us a kind of "triangulation" tool. This would operate in the following way.

If the composer's written score and his or her performance *both* derive from a still literally unknowable thought and Gestalt, they potentially provide us with not one but two sets of coordinates for that derivation. This effectively doubles our knowledge about the nature of the musical thought and Gestalt. Of course, since our knowledge of these elements under normal circumstances is limited in the extreme, doubling it hardly makes it any less minimal. On the other hand, when knowledge is so scarce and precious, any strategy that might increase it by one hundred percent is correspondingly valuable. Although the number of musical thoughts and Gestalts that might give rise to both the musical score and the composer's performance is still too large to be grasped definitively, it must unequivocally be smaller than that which might have generated either of these independently. Once again, an adapted version of Krenek's diagram shows us how this "triangulation" might work. [Fig. 3]

It is with these thoughts that we turn to the case study of Stravinsky as composer and performer—in this case, conductor—of his own music. Stravinsky devoted one whole lecture of his *Poetics of Music in the Form of Six Lessons* to "The Performance of Music" (Stravinsky 1970, 160–181). At first reading, his comments there on the relationship between music-as-score and music as the set of qualities in any particular performance which it may receive are unpromising to the thesis of this paper. His famous assertion that "The sin against the spirit of the work always begins with a sin against its letter" (Stravinsky 1970, 163) seems to offer a dogmatic and unequivocal injunction to the performer to "do as I say." However, Stravinsky does acknowledge that, beyond the performer as mere executant, there exists the phenomenon of the performer as interpreter: "Every interpreter is also of necessity an executant. The reverse is not true" (Stravinsky 1970, 165). Interpretation is required because each performance depends for its success on

> … the unforeseeable and imponderable factors that go to make up the virtues of fidelity and sympathy, without which the work will be unrecognizable on one occasion, inert on another, and in any case betrayed. (Stravinsky 1970, 165)

Extra-musical world

Idea
(general, undefined)

Raw material
(continuum)

[Non-specific, but inevitably informing the composer's performance]

Thought
(Gestalt)

[Still strictly unavailable, but brought closer to availability by triangulation with the composer's performance]

The Composer's Performance — ► Musical language
(general structure of material) — ► *Available through analysis of genre and rhetoric*

Articulation
(in sound: tension, dissonance-consonance; in rhythm: thesis, arsis; disjunctive, individualising: the phrase) — ► *Available through syntactical analysis*

Relation
(repetition, variation, motif; conjunctive, connecting: cohesion) — ► *Available through motivic analysis*

Form
(linking the thoughts) — ► *Available through formal analysis*

Available in durable form through the medium of recording — ► Work
(the idea realised) — ► *Available through a linear reading of the score*
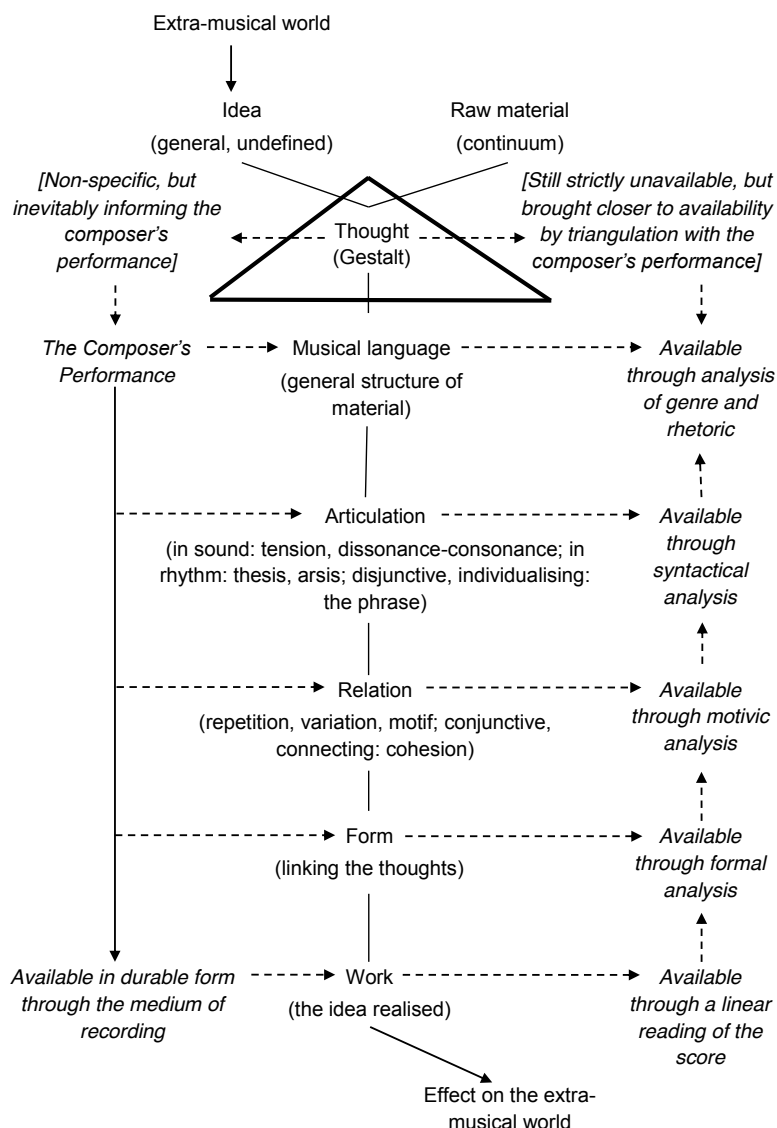
Effect on the extra-musical world

Fig. 3

If this begins to sound more encouraging to the notion of there being a speculative space within the act of faithful and sympathetic performance, such hope is reinforced by Stravinsky's distinguishing further between the role of the executant, whose only function is "the translation into sound of his musical part, which he may do willingly or grudgingly" (Stravinsky 1970, 165) and that of the interpreter, from whom "one has a right to seek ... , in addition to the perfection of this translation into sound, a loving care" (Stravinsky 1970, 165). Admittedly, Stravinsky concludes this dichotomy with a warning that loving care "does not mean, be it surreptitious or openly affirmed, a recomposition" (Stravinsky 1970, 165). Nevertheless, he does suggest that that for the interpreter (and this is what sets him or her apart from the executant) there is a certain ethical space, keeping the right side of a "point of conscience" (Stravinsky 1970, 165), within which loving care may add something to mere perfection of translation into sound. Indeed, as seen above,

Figure 3. The composer's performance as "triangulation" tool.

he characterises this not simply as a degree of licence offered reluctantly by the composer to the interpreter but as something which the composer "has a right to seek" from him or her.

The foregoing shows that it is important to situate Stravinsky's remark about the "sin against [the work's] letter" within the context of the ideas that surround it. Doing so reveals a more complex view of the relationship between score and performance on Stravinsky's part than he is often credited with. This complexity becomes helpful when we turn to Stravinsky's own recorded acts as interpreter of his own music and may be of further assistance when we apply it to our wider understanding of the obligations, but also the finite but crucial areas of responsible freedom, which bear upon performances that aim at "the virtues of fidelity and sympathy."

Stravinsky's role in the public and professional domain as interpreter of his own compositions really got underway in the 1920s. Indeed, a number of works from this decade, notably the *Concerto for Piano and Wind Instruments* (1923–4) and the *Capriccio for Piano and Orchestra* (1929) were written specifically as vehicles for himself as keyboard soloist. This was partly a means of generating additional income, interest in new works gaining him a string of engagements as a performer of them, and a similar motive lay behind many of his forays into conducting. Nevertheless, for a composer from well into the era of musical specialisation discussed earlier, he was both unusually active in the professional sphere as an interpreter of his own compositions and far from dilettante in his approach to these performing activities. His first recording as a conductor dates from 1928 and his grand project with Columbia Records in the late 1950s and early 1960s to make studio recordings of virtually all his works is rightly famous and the subject of considerable critical discussion. In addition to this encyclopaedic project, we have numerous examples of sound and film recordings where he conducted his own works. The total body of these recordings forms an exceptional resource for the performer or artistic researcher interested in exploring the inner workings of his music and how it should be interpreted. As Anthony Tommasini, writing in the New York Times, put it:

> Perhaps there is no such thing as a definitive performance. Still, whatever their flaws, Stravinsky's have awesome authority and are impossible to ignore. (Tommasini, 06 June 1999)

In the case of the work to be discussed here, the *Symphony in Three Movements*, composed between 1942 and 1945 and commissioned by the New York Philharmonic-Symphony Orchestra, Stravinsky was the conductor of the work at its première in January 1946 and made his first recording of it with the same orchestra four days later. This recording therefore offers fascinating evidence of the composer's conception of the work at a point still close to its completion. It also makes for interesting comparison with the performance recorded in 1961 and issued in the Columbia series. But the main reason for choosing this work is that its slow movement, *Andante—Interlude: L'istesso tempo*, contains

First appearance of "Chorale"
theme (harp and strings)

First appearance of "Chorale"
theme (harp and strings)

Fig. 4

an anomalous feature in the score which appears at the very least problematic, and potentially contrary to musical "common sense." It is therefore an excellent test case for examining the competing claims of letter and spirit and for observing which of these the composer follows when acting as his own interpreter. Moreover, because the work has also been recorded by many distinguished orchestras and conductors, some of the latter acknowledged composers in their own right, it offers a wealth of perspectives from which to examine what the composer says, what he does and what others appear to have drawn from these two sources of evidence.

The anomaly in the score of the second movement concerns the two appearances (the first at rehearsal number 124 and the second at 133) of a short but striking passage of homophonic writing which, both times that it appears, is audibly different from its surrounding material and, in some unmistakable sense, "special." This quality is partly a function of its having an ethereal, spiritual air, like some kind of angelic chorale—an impression heightened by the harp-and-strings scoring of its first appearance and hardly diminished in the second, where the harp is used again but this time alongside a choir of wind instruments. For this reason, it will be referred to as the "Chorale" theme in the discussion that follows. Here is the complete theme in its two appearances. [Fig. 4]

Not only the sound of the passage but also where it is deployed marks it out as special. In a broadly straightforward ternary-structure movement, the "Chorale" theme initially appears towards the end of the A section, heralding the transition to the B section. Correspondingly, its second appearance is at the end of the B section, ushering in the A section for its shortened reprise. It is this functional deployment, as a terminating gesture for the first A and the B sections respectively, that gives rise to the anomaly mentioned above.

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Figure 4. Extracts from *Symphony in Three Movements*, rehearsal numbers 124 and 133.

The A and B sections of the movement have separate tempi, delineated as *Andante (Tempo I)* and *Più mosso* and defined by metronome markings of quaver = 76 and 92 respectively. The difference between these two tempi is such that, even if neither is observed mathematically, the distinction between them should nevertheless be audible in performance. Each time the "Chorale" theme appears, it does so without any notated modification to the preceding tempo. It therefore follows that faithful adherence to the letter of the score will yield a first appearance at quaver = 76 and a second at quaver = 92. Now, whilst it is not unknown for the same musical material to appear at different points in a work in different tempi, this is usually with some specific affective intention, for example as part of a deliberate process of thematic metamorphosis. Here, we are not dealing with such a case; the two appearances feel as if their effect is intended to be fundamentally similar, albeit with altered instrumental colouration, such that the second appearance recalls the first, rather than transforming it. In this context, making it appreciably (but by no means dramatically) faster seems to serve no obvious purpose and, on the contrary, strikes the musical senses as illogical and defective.

   Such is the authority of the written score that this illogicality has not prevented conductors from making recordings which take it at face value. Indeed, these recordings demonstrate that a resourceful interpreter can make something perfectly plausible out of the sequence of tempi indicated in the score and the resultant dual-tempo identity of the "Chorale" theme. In this respect, conductors are helped by the fact that right at the end of the theme in both appearances there is a *ritenuto* marked to assist in easing the music into the next section—B and the reprise of A respectively. Since a *ritenuto* is an imprecise notated instruction, in the sense that how *much* the music is to be held back is at the discretion of the performer, it is possible to affirm the common identity of the "Chorale" theme in its two appearances through the way in which it slows at its close, even if the tempi at which it commences are different. All the same, this still seems a matter of making the best of a less than ideal set of instructions, rather than discovering any positive interpretational insight in the fact that the two appearances of the theme are marked in different tempi.

   To appreciate what a scrupulous but also musically astute conductor can make of a score-faithful interpretation, the reader might wish to refer to either Colin Davis' 1965 recording with the London Symphony Orchestra (Philips Q AL3490) or that of Charles Dutoit with L'Orchestre de la Suisse Romande (an ensemble with a strong and distinguished lineage of recordings of Stravinsky's works) made in Geneva in April 1981. To facilitate the present discussion, this latter recording, and the others referred to, will be examined in relation to a simple template of sections and tempi as follows: [Fig. 5]

	Andante	Reh. no. 124 [String "Chorale"]	Più mosso	Reh. no. 133 [Wind "Chorale"]	Tempo I
Score markings (quaver =).	76	Still 76 (implied)	92	Still 92 (implied)	76

Fig. 5

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Figure 5. Sections and tempi in the score, second movement of *Symphony in Three Movements*.

Dutoit's 1981 recording shows the following tempo patterns at these structural points: [Fig 6]

	Andante	Reh. no. 124 [String "Chorale"]	Più mosso	Reh. no. 133 [Wind "Chorale"]	Tempo I
Score markings (quaver =).	76	Still 76 (implied)	92	Still 92 (implied)	76
Tempi employed (Dutoit: 1981)	74	Still 74	90	Still 90	74

Fig. 6

By any reasonable standards—and especially allowing for any variation of tempo through the recording and reproduction process, to say nothing of errors in the measurements taken—this is as near as makes no difference a score-faithful recording with regard to tempo. Nor is it drily or pedantically metronomic. It has gracefulness in its precision and a spirit and energy that make it easy to see why Dutoit, with this orchestra and with the Montreal Symphony Orchestra, is seen as a first-rank interpreter of Stravinsky. Of course, by the date of his recording of the *Symphony in Three Movements*, Dutoit had access, should he have wished, both to the early Stravinsky recording, four days after the première, and to the more famous and readily available recording from 1961. Given the way in which it will be seen that Stravinsky deals with the two appearances of the "Chorale" theme in both these recordings, between which there are important differences but also certain striking and consistent aspects, we can only assume that Dutoit either didn't consult these pieces of evidence or, if he did, concluded that the weight of the evidence derived from the score over-ruled them—in short, he followed what Stravinsky says, and not what, on two occasions preserved for posterity, he did. It is now necessary to examine what indeed it is that Stravinsky did, both in 1946 and 1961.

So far, I have suggested that a more logical performance might render both appearances of the "Chorale" theme at the same tempo, but I have not considered what this might mean in practice: it could involve a faithful reading of the score up until rehearsal number 133 and a return to Tempo I at that point; less likely, but at least feasible, would be already speeding up to quaver = 92 at the first appearance. Each of these solutions alters the overall structural scheme of the movement compared with what we find in the score. Taking tempo as a structural element, the score implies a ternary structure as follows: [Fig. 7]

A		B		A
Andante	Reh. no. 124 [String "Chorale"]	Più mosso	Reh. no. 133 [Wind "Chorale"]	Tempo I
76	Still 76 (implied)	92	Still 92 (implied)	76

Fig. 7

Applying a slower tempo at the second appearance of the "Chorale" theme implies the following structural change: [Fig. 8]

A		B		A
Andante	Reh. no. 124 [String "Chorale"]	Più mosso	Reh. no. 133 [Wind "Chorale"]	Tempo I
76	Still 76 (implied)	92	(slowing to 76)	76

Fig. 8

Figure 6. Charles Dutoit with L'Orchestre de la Suisse Romande, April 1981 (Decca 414 272–2).

Figure 7. Structure of movement implied by score.

Figure 8. Structure of movement implied by using quaver = 76 at both appearances.

Conversely, speeding up to the *Più mosso* tempo at the first appearance implies the following:^[Fig. 9]

A		B		A
Andante	Reh. no. 124 [String "Chorale"]	Più mosso	Reh. no. 133 [Wind "Chorale"]	Tempo I
76	(Speeding up to 92)	92	Still 92 (implied)	76

Fig. 9

Both of these alternative schemes display a palindromic symmetry which the score, as notated, lacks. However, they still assume that the "Chorale" theme will be tied to one or other of the main tempi of the movement. The final and more radical option is to introduce a *third* tempo, one not in thrall to either of those in the score, but audibly shared in common between the two appearances of the "Chorale" theme. This would yield a structural pattern as follows:^[Fig. 10]

A		B		A
Andante	Reh. no. 124 [String "Chorale"]	Più mosso	Reh. no. 133 [Wind "Chorale"]	Tempo I
76	New tempo	92	Tempo as at 124	76

Fig. 10

Now, among the various options, this is surely the one which involves the most "mortal" sin against the letter of the score: it entails not one but two transgressions and it is unequivocally a sin of commission, rather than omission, adding something for which there is no sanction in the score (except that, as we shall see, the score arguably hints towards it subliminally). Perhaps only the most confirmed ironist would be unsurprised, therefore, to discover that both of Stravinsky's recordings introduce a new tempo for the "Chorale" theme. In the first case, the result confounds the letter, but perhaps not the spirit of the score; in the second, we find something almost precisely corresponding to the last scheme set out above. Here both letter and structural spirit are transgressed, but a certain musical logic is restored. Again, tables will show how Stravinsky's two performances unfold.^[Fig. 11–13]

	Andante	Reh. no. 124 [String "Chorale"]	Più mosso	Reh. no. 133 [Wind "Chorale"]	Tempo I
Score markings (quaver =).	76	Still 76 (implied)	92	Still 92 (implied)	76
Tempi employed (Stravinsky 1946)	82	76	92	86	82

Fig. 11

This performance is more sprightly in the A section than the tempo indication but, at the moment of the first appearance of the "Chorale" theme, relaxes and finds exactly the indicated quaver = 76. Its *Più mosso* is squarely on the indicated tempo; but this time, when the "Chorale" theme appears, Stravinsky once again

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Figure 9. Structure of movement implied by using quaver = 92 at both appearances.

Figure 10. Structure of movement implied by using a third tempo at both appearances.

Figure 11. Stravinsky with New York Philharmonic-Symphony Orchestra, January 1946 (Andante AND1140).

allows the tempo to relax. It is faster than the first appearance, but the amount by which it slows from the immediately preceding music exactly mirrors the degree of relaxation introduced at the first appearance. We might see this as producing a variant of the structure implied in the score as follows: [Fig. 12]

A	A1	B	B1	A
Andante	Reh. no. 124 [String "Chorale"]	Più mosso	Reh. no. 133 [Wind "Chorale"]	Tempo I
82	76	92	86	82

Fig. 12

Each time slower by quaver = 6

When we turn to the later, 1961, recording, the phenomenon of perceptible slowing at the appearances of the "Chorale" theme recurs, but this time with a vengeance. Once again, the main tempo is slightly on the fast side of the metronome markings; however, when the "Chorale" theme appears for the first time, the tempo slows all the way to quaver = 62, which is considerably below the marked 76. And in this performance, the second appearance, although slightly faster at quaver = 64, is very clearly conceived as matching the first, rather than relating in any way to the *Più mosso* tempo. Not only is the passage slower than the marked quaver = 92, it is so much slower that it significantly undercuts the Tempo I. We truly are dealing here with a third tempo, slower than the other two, which links the two "Chorale" theme appearances and distinguishes these passages from the rest of the movement: [Fig. 13]

A	B	C	B	A
Andante	Reh. no. 124 [String "Chorale"]	Più mosso	Reh. no. 133 [Wind "Chorale"]	Tempo I
80	62	92	64	80

Fig. 13

In retrospect, it is possible to discern seeds of this later interpretative strategy in the 1946 recording, which already takes the crucial step of slowing perceptibly for the "Chorale" theme in both its appearances. Nevertheless, whilst the earlier recording might be seen as "bending" the letter of the score but still essentially conforming to it, the later version breaks faith with it unequivocally. How is it that Stravinsky, often cited as the arch-advocate of faithfulness to the letter of the work, can produce such a transgressive performance as that of the 1961 recording? And should the fact that he does so encourage us to pay greater or lesser attention in general to what a composer does, alongside what he or she says?

The first thing to remember is that Stravinsky himself, as we saw, recognised a role for the interpreter, as opposed to the executant, in completing the act of transmission of the work. In fact, in the same lecture quoted from before, he goes so far as to say:

> But no matter how scrupulously a piece of music may be notated, no matter how carefully it may be insured against every possible ambiguity through the indications

Figure 12. Implied structure of Stravinsky's 1946 recording.

Figure 13. Stravinsky with Columbia Symphony Orchestra, February 1961 (Sony SM2K 46 294).

> of tempo, shading, phrasing, accentuation, and so on, it always contains hidden elements that defy definition, because verbal dialectic is powerless to define musical dialectic in its totality. The realization of these elements is thus a matter of experience and intuition, in a word of the talent of the person who is called upon to present the music. (Stravinsky 1970, 163)

If we are thus dependent upon the interpreter's experience, intuition and talent to elucidate the elements that defy definition, then the fact that it is the composer himself who is called upon to present the music should not only offer us the greatest insurance but also, arguably, persuade us to grant the maximum freedom.

And when we come to examine the musical score of the second movement of the *Symphony in Three Movements* more closely, searching for notated cues for the slower tempi employed by Stravinsky for the two appearances of the "Chorale" theme, we are swiftly rewarded with possible evidence. It is true that there is no overt indication calling for a slower tempo, but there are implicit instructions to slow down embedded in the music immediately preceding both appearances of the theme. In a movement which, by Stravinsky's standards, poses little in the way of metrical challenge, these prefacing bars stand out in a number of ways. Taking the first appearance of the theme, we can map these distinctive features across four consecutive bars. The first of these, just before rehearsal number 124, interpolates a 3/16 bar, destabilising a metre which elsewhere moves almost entirely in quavers, although these may be grouped in twos or threes. This destabilisation is also a prolongation—a kind of "metrical *rallentando*." There then occurs an arresting figure in the oboes, somewhat like a muted and melancholy fanfare. The figure, in parallel thirds, consists of a crotchet followed by semiquaver triplets in a turning pattern; it is immediately followed by what feels like a varied sequential repetition but this time with a dotted crotchet and quaver rest followed by semiquaver quintuplets in the space of two quavers. The repetition is therefore an almost exact augmentation of the first figure, with the additional slowing and "stretching out" effect of this exaggerated by the fact that the quintuplets, occupying the space of six normal semiquavers, are close to, but slower than, the three semiquavers of the original figure. The diagram below shows all these features as annotations on an extract from the score: [Fig. 14]

Fig. 14

Figure 14. Metrical *rallentando* in the bars before rehearsal number 124.

What is striking about Stravinsky's 1961 recording is that, in these bars and their counterparts at the "Chorale" theme's second appearance, far from fighting the music's innate tendency to signal a *rallentando*, he positively colludes with it; his tempi for the two appearances of the theme itself actually involve a small speeding up compared with these preceding bars.

Without the cue given by Stravinsky's two recordings, a conscientious conductor might well feel the need to fight the slowing tendencies of this passage, so as to remain faithful to the notated score. This is the case, for example, with Pierre Boulez, who recorded the *Symphony* with the Berliner Philharmoniker in 1996. Boulez selects relaxed tempi, especially in the *Più mosso* section, thereby allowing himself scope to give space to the "Chorale" theme without needing to make a *rallentando*. However, with the exception of this licence, he stays faithful to the letter of the score in terms of the relationship between the various tempi: [Fig. 15]

A		B		A
Andante	Reh. no. 124 [String "Chorale"]	Più mosso	Reh. no. 133 [Wind "Chorale"]	Tempo I
70	Still 70	80	Still 80	70

Fig. 15

Leonard Bernstein, recording the work in 1982 with the Israel Philharmonic, not only opts for slower main tempi (although making a greater contrast than Boulez at the *Più mosso*) but also relaxes the tempo considerably at the two appearances of the "Chorale" theme, matching almost exactly the speeds adopted by Stravinsky in his 1961 recording. Moreover, he, too, employs significant *rallentandi* during the bars preceding the two appearances of the theme. Although his overall tempi are slower, he does seem to be following an interpretative strategy that strongly resembles that of Stravinsky in 1961. Whether intuitively or through knowledge of the Stravinsky recording, he pursues a fidelity that is as much in sympathy with what Stravinsky does as with what he says: [Fig. 16]

A	B	C	B	A
Andante	Reh. no. 124 [String "Chorale"]	Più mosso	Reh. no. 133 [Wind "Chorale"]	Tempo I
68	64	88	64	68

Fig. 16

The final example to be considered here is that of Simon Rattle with the Berliner Philharmoniker. Rattle is known to gather evidence from more than just the score when forming his interpretations, regarding a work's performance history as an important source of insight and understanding. His choice of tempi suggests a judicious compromise between the overt instructions of the score and the aural evidence of Stravinsky's 1961 recording. Like Stravinsky, he adopts a third, slower tempo for the two appearances of the "Chorale" theme and makes a *rallentando* before each appearance. Also, like Stravinsky, his main Andante tempo is somewhat faster than the notated quaver = 76, as though the decision not to maintain the same tempo for the "Chorale" theme frees him

to emphasise the perky vitality of the main theme—a trait apparent in both the Stravinsky recordings. But his tempi are less extreme than Stravinsky's in 1961; above all, the "Chorale" theme, although slower than the main tempo, is relatively close to the notated quaver = 76: [Fig. 17]

A	B	C	B	A
Andante	Reh. no. 124 [String "Chorale"]	Più mosso	Reh. no. 133 [Wind "Chorale"]	Tempo I
78	72	90	72	78

Fig. 17

It should be emphasised that each of the performances discussed here makes a persuasive case for the approach which it adopts. What emerges from considering the interpretations as a group is a sense that the "Chorale" theme does seem to benefit from the greater spaciousness that a slower tempo—and, above all, a preparatory *rallentando*—affords. Even Dutoit and Boulez, the two conductors who stay closest to the score and sustain the tempo from the preceding sections for this theme, seem to acknowledge this by selecting main tempi that are slightly under the notated metronome marking. Stravinsky himself may achieve a metronomically accurate tempo for the first appearance of the theme in his 1946 recording but he falls perceptibly short of the implied *Più mosso* tempo for the second appearance. By the time of his 1961 recording, he gives room for the theme to blossom in a manner which only Bernstein comes close to matching. And, as we have seen, while his interpretation may contradict the overt letter of his score, there is encouragement, and perhaps even sanction, built into the very structure of the music for a *rallentando* before the theme.

For the artistic researcher, the array of interpretative solutions discussed here may not produce any definitive conclusion as to how the second movement of the *Symphony in Three Movements* might best be performed, but it does enrich and deepen our understanding of how a composer's own performance can shed light upon the instructions inscribed in his or her score. As suggested earlier, it does so by proposing using such performances as a "triangulation" tool. This tool can give us clues that guide us in situations where what the score overtly instructs to do seems at odds with artistic instinct; it can spur us on to find underlying connections between the score and performance choices adopted by the composer which may at first appear contradictory to it; above all it offers us a reminder that the Work, to which we aspire to be faithful, and the Score, which might seem to provide a user's guide to achieving fidelity, are not identical.

When the composer produces a notated score, he or she is also attempting a kind of "work-fidelity" (in the sense of seeking to capture faithfully the musical thought which first triggered the compositional process). Composers are engaged in a process that, using Krenek's terminology, might more accurately be described as Gestalt-fidelity, or "*Gestalttreue.*" As a concept, *Gestalttreue* may similarly hold out the prospect to the exponents of Artistic Research of a guiding principle for re-integrating the artistic sensibility into what can otherwise become a sterile quest for faithfulness based on slavish adherence

Figure 17. Simon Rattle with the Berliner Philharmoniker, November 2007 (EMI 2 07630 0).

to the notated score. Crucially, it re-establishes a foothold for the speculative dimension within the performer's role as interpreter as he or she seeks to combine, in Stravinsky's phrase, "the virtues of fidelity and sympathy" (Stravinsky 1970, 165).

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Chapter Two

"The Mysterious Whether Seen as Inspiration or as Alchemy"

Some Thoughts on the Limitations of Notation

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The opportunity to consider the relationship between sound and score led me to the following speculation: a composer's notation arises from the pressures of what cannot be notated, and hence it can only be fully understood in relation to these elements. This paper is concerned with testing that statement. The quotation in my title comes from a comment on Ravel's compositional process by G. W. Hopkins, the full context of which will emerge in due course (Hopkins 1980, 615). For the present it is enough to say that the word "mysterious" I take to be in some way tied up with what cannot be notated.[1]

It has long been accepted that there are elements of music that cannot be notated. The most obvious that spring to mind, certainly for the repertoire within which I have spent much of my life, are those implied by such questions as "how loud is loud?" and "what is *espressivo*?" (My field is the performance of piano music from Haydn to the present day, and I have an especial interest in what I might call descriptive music, such as the programmatic and descriptive compositions of Schumann, Liszt, Debussy, Ravel, and Messiaen.) What does a performer do *with* or *to* the notes indicated on the page in order to "be expressive"?

But what do I mean by a composer feeling the "pressures of what cannot be notated"? What are these pressures? Compositions, of course, don't have to be notated. Notation, after all, is only the process through which music is passed

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1 Jeremy Cox has pointed out to me that my concept of "the pressure of what cannot be notated" has affinities with the theory of Ernst Krenek concerning "thought-*gestalt*," put forward in his lecture "Basic Principles of a New Theory of Aesthetics," published in *Exploring Music: Essays by Ernst Krenek*, London: Calder and Boyars, 1966, 129–149. I did not know this book or Krenek's theory, and I am indebted to Jeremy Cox for some illuminating conversations on the subject; see chapter 1, above. My paper touches on Krenek's concept of the "Idea (general, undefined)" that exists prior to the actual realisation of the musical language that will express it, the "idea" being the initial spur for musical creativity that Krenek points out might be closest to the extra-musical world.

on to others, a process of recording. This remains true despite the fact that in our rich Western tradition notation became the actual mode of composition (without which the complex acrobatic procedures of counterpoint would be unthinkable, as Paulo de Assis pointed out in his "Prelude," above). But in crucial respects, for notated music, what is written down is actually the result of something that is not notation—and this "something," I contend, is pressing on composers all the time they are in the process of notating what they *can* notate. I think performers come to know this—our own process is one through which the notation, scrupulously observed, is then gradually left behind as we take possession of the score and memorisation, or identification, take over.

Debussy said, "Music remains forever the most beautiful means of expression there is" (Debussy 2005, 586). He also said, "It's not even the expression of a feeling, it's the feeling itself" (115). I don't quote him in order to endorse those statements, but merely to show the direction I am coming from and the kind of music I will be dealing with. I certainly endorse the passion of his reactions, though I would not care to grapple with the factual, let alone philosophical, implications.

So, to simplify, what I mean by those "pressures" on a composer is what is meant by the term expression—so I am talking about the composer's struggle to "express." Express what? My particular interests as a pianist have been in French impressionism, and of late I have gone back from there into the no less "impressionistic," or descriptive, works of Schumann and Liszt. So we might say these composers are expressing what they are suggesting in their titles, all those images of water, evening landscapes, valleys, night scenes, devils, gnomes, and water sprites. But this, though true up to a point, is for obvious reasons highly limiting as a method for discussing expression, as it excludes almost all the music of Beethoven, Chopin, Brahms, Rachmaninov, and many others.

Without a descriptive title to guide us, what might we say Beethoven is expressing at the opening of his piano sonata op. 111? I would say he is "expressing" (and here I am bound to use the warning quotation marks) the nature of a diminished seventh, all the possibilities of which he exhausts—he uses all three. He is expressing his own experience of the diminished seventh within the Western tonal system and, by extension, his experience of the stability of a key centre. He experiences these things, does he not, on his nervous system? He is also employing, in this introduction, deliberately, the prestige of the baroque overture, so his final sonata, in that opening declamation, claims lineage—and, as we know, the work underlines this lineage with a massive two-part invention in the sonata structure that follows and further underlines it in the second, and final, movement's Arioso theme and those extraordinary variations. We might say that Beethoven is expressing his final view of the possibilities of the classical piano sonata, which he brings to its pinnacle through a final identification with and development of Baroque forms. We *might* say this, but of course we do not actually know whether he intended this sonata to be his last. Nevertheless our attitude to this mighty work is forever affected by our knowledge that it *is* his last; we cannot escape this, just as we cannot escape relating to the work through our knowledge of his other sonatas, and

his quartets and symphonies too. None of this is actually part of the notation of op. 111—it lies beyond the notation, it is what we need to know at the same time as we are faithfully learning about the nature of the work from the notation itself. All this, and we have not even begun to discuss expression in the more conventional senses of feeling or rhetoric or transport or spiritual insight—all characteristics usually associated with Beethoven.

We might ask a further question, to broaden the point without expecting an answer: what was the most compelling pressure on Beethoven when he came to write op. 111? Was it the pressure of the sonata style itself, or was it the pressure of "saying" something, reaching a mode of insight that could be expressed in no other terms than musical? Of course these two questions are actually the same. The source of the expression in this work, its legitimate power, its final spiritual ascendancy—what Beethoven "says"—comes from his total mastery of, and manipulation of, sonata style. What he tries to notate is the actual experience of this dialectic. *Beyond* this, beyond the notation, lies my and your collaboration, my and your knowledge, what the performer and the listener bring to bear on the notation from their own experience of those three diminished sevenths on the nervous system.

This process is what I might call the alchemy to which I refer in my opening quotation. What about the word that is paired with it, inspiration?

To approach this theme I will move from the sublime to the ridiculous. I had my attention drawn recently to the following passage in a book published a few years ago in the United States. It refers to Ravel's *Le tombeau de Couperin*:

> In the concluding "Toccata" ... the hail of sixteenth notes that virtually never falter throughout the piece invite an alternating set of images; the steep ascent of aircraft, followed by the plummeting dive; a series of swooping spirals; the hypnotic regularity of the engine and the propeller, and, when deployed in a series of repeated staccato notes, in various ranges, a rain of meticulously coordinated and deadly machine gun fire at high and low altitude. (Watkins 2003, 178)

I read this with considerable unease, as I saw it as the possible and perhaps inevitable endgame of my own interest in contextualisation, my concern with how students studying the art and nature of performance might relate to a composer's biography, and how contextualisation might be insightfully related to the way we communicate and receive music. I feared I was being asked to endorse a particular interpretation of Ravel's creative purpose, the assumption that he unconsciously (or even consciously) transposed his experiences in the war into music in this particular way. Ravel wanted to be a pilot in the war; he tried to join the air force, and he was fascinated by machines and by aeroplanes. These are facts of Ravel's biography, but what can they possibly have to do with his music, and how far can we investigate before valid meanings, the result of careful probing and testing, tip over into extravagant speculation?

Yet there is an inescapable juxtaposition of *Le Tombeau de Couperin* and the First World War, beyond simple historical accident, that provides a legitimate and fruitful line of enquiry. Ravel began the work just before the outbreak of war and completed it in 1917. In the interim he showed extraordinary courage

as an ambulance driver at the battle of Verdun, had a hair-breadth escape from a mortar shell—which killed seven of his group and whom he helped pull from the rubble—and witnessed the science-fiction-like desolation of villages and countryside after battle.[2] Each of the six movements of *Le tombeau* is dedicated to friends he lost in the war. Such information has to be relevant to the way we relate to this music because, in a way, it is part of the music's notation: there, at the head of each piece, are the dedications, "*à la mémoire du capitaine Joseph de Marliave*" or "*à la mémoire du lieutenant Jacques Charlot.*" If we can put ourselves in the position of the pianist Marguerite Long, who gave the first performance of *Le tombeau* in 1919, we might appreciate what the work meant to her, in addition to what it must have meant to Ravel. The dedicatee of the Toccata, Joseph de Marliave, was Long's husband. What an extraordinary experience it must have been for her to play this music.

Of all reactions to the experience of war, Ravel's is among the most interesting. *Le petit* Ravel supped on horrors, but his reaction was to protect himself with their antithesis. Not for him the explicit extroversion of expressionism— the harrowing imagery of the war poets, or the bitter irony of Debussy's *En blanc et noir*—but rather the calming, civilising elegance of eighteenth-century French dance forms, plus a prelude, a fugue, and a toccata. Was that an adequate response? How can we be expected to judge that? I have never found *Le tombeau* quite the unalloyed, lively experience it is sometimes made out to be, but then I cannot be sure I didn't know from the beginning, when I discovered it at the age of 18, about all those dead lieutenants. What interests me is the extent to which such information impinges on our reception and interpretation of the music. But I trust I don't start finding fighter planes in the Toccata or, if I do, that I keep them to myself.

I might, however, find birdsong. One of the tropes of war poetry, memoirs, letters home from the front, is the presence of birdsong in the silence after battle. Birdsong has long been a metaphor of hope—take, for example, Emily Dickinson's poem "Hope is a thing with feathers" (a statement which comprehensively depoeticises a familiar image). In Siegfried Sassoon's poem *The Distant Song* we find the line "Beyond the German line a blackbird sang." And Sebastian Faulks, in his novel about the First World War, *Birdsong* (which draws on the harrowing imagery of Sassoon's memoirs as well his poetry), describes "a moment completely quiet as the bombardment ended and the German guns also stopped. Skylarks wheeled and sang high in the cloudless sky" (Sebastian Faulks 1997, 181). And here is an account by one of Ravel's closest friends that places Ravel's experiences in this community of shared images:

> As a truck driver at Verdun [Ravel] witnessed the most indescribable chaos and the most deafening noise of war. The silence following the battle seemed supernatural, the peace returning to the countryside, a limpid sky and then suddenly, at daybreak,

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2 There is a remarkable letter, dated April 4, 1916, in which Ravel describes his experience visiting an abandoned village near the front line. "Undoubtedly I will see more terrible and more repugnant things," he wrote, "but I don't think I will ever experience anything more profound or strange than this kind of mute terror" (Ravel 1989, 151).

the song of a warbler [*fauvette*]. He was so captivated by this unexpected song that he vowed to write a piece "La fauvette indifférente". But war and illness prevented him from realising this project. (Jourdan-Morhange 1939, 166)

This must be the same piece "about which he spoke many times" to his friend and pupil Manuel Rosenthal, "a piece from *Le tombeau de Couperin*," recalled Rosenthal, "which was to be called 'Le rossignol indifférent'" (Rosenthal 1995, 178). So Rosenthal remembers the warbler as a nightingale. But it is the association with *Le tombeau*, not made by Jourdan-Morhange, which is especially intriguing. It seems certain, whatever the bird, Ravel was thinking of the titles of Couperin's bird pieces from the third book of his harpsichord suites (*Ordre 13 Livre 3*), especially "Les fauvètes plaintifs" and the celebrated "Le rossignol en amour." Roy Howat, noting an additional echo of Rameau's title "L'indifférente" (from the Suite in G in *Nouvelles suites de pieces de clavecin*), suggests we might hear Ravel's experience of the birdsong "quietly encapsulated in the Menuet of *Le tombeau*" at the point where the minuet returns in bar 73, "piping as a quiet descant over the last echoes of the desolate *musette*" (Howat 2009, 148). This is a fitting idea, but it is no more possible to verify than Watkins' aeroplanes—though we might note that Ravel actually notated birdsong at this time, while at the front (Ravel 1990, 176).

Whether birdsong is present or not in the Menuet, consciously or unconsciously, what is inescapable, I would suggest, is an attitude towards *Le tombeau* that can only be affected by our knowledge of the war. Either we are shocked that such an elegant, formal, and apparently untroubled work should have been brought to fruition at a time of such cataclysm, or we embrace the work in the full knowledge of its contemporary as well as archaic context and deepen our understanding of its imaginative impulses by noting the dedicatees, the possible echo of birdsong (and what that meant to Ravel at that moment), and even the title word *tombeau*, meaning tomb. In terms of the music *tombeau* should of course be taken to mean "homage"—a homage to Couperin—in the tradition of the eighteenth century, when a *tombeau* had no need to be mournful.[3] But the dark irony of the word, for Ravel, is also plain to see.

There is another attitude we might take towards *Le tombeau de*. We can regard it as an autonomous art-object having no relation whatsoever to anything outside itself—its *self* being the set forms of an eighteenth-century harpsichord suite, a sealed system, as it were. Ravel himself, or an important part of him—the part he was happy to show—would have encouraged such an attitude. But I am arguing that there are ways of understanding art works that go beyond the object—and this is an argument we also find validated by Ravel. Roland-Manuel, Ravel's pupil, close friend and first biographer, recalled a comment Ravel made towards the end of his life that suggested an awareness of "mysterious influences" (*puissances mysterieuses*) at work on the products of the imagination, beyond skill and technique. He was comparing his early String Quartet to the later Piano Trio, and declared that "with little regret he would exchange

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3   I am indebted to Roy Howat's insightful chapter, "The Clavecinistes," in Howat 2009, for guiding my remarks here on *Le tombeau de Couperin*.

the *know-how* of the works of his maturity for the artless *power* displayed by the String Quartet of his youth." Roland-Manuel continues:

> Coming from him this is something of a surprising statement. It shows, nevertheless, that this little man of steel, so sure of himself and usually so mistrustful of anything to do with "inspiration", could not escape an awareness, common to us all, of the mysterious influences that bypass our understanding and without which we could do nothing. He felt that the power of these hidden forces, with which his work normally had little communication, decreased the more assured and authoritative his work became. (Roland-Manuel 1938, 125–6)

The title of this paper was taken from Bill Hopkins' account of Ravel's life and music in New Grove. He wrote: "the mysterious, whether seen as inspiration or as alchemy, was clearly understood [by Ravel] to have a leading role in the process of composition" (Hopkins 1980, 615). We can see now that this comes from Ravel himself, via Roland-Manuel. I would like to lay claim to "the mysterious" as having a leading role in performance too, but only when constant vigilance grounds it in the plausible, knowable, and verifiable. I accept this is something of a contradiction—the mysterious, after all, is by definition not fully knowable—and I accept the dividing line between the plausible and the ludicrous might be a fine one. For now my position is: birdsong, yes possibly; but deadly machine-guns...?

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Artistic Practice, Methodology, and Subjectivity

The "I Can" as Practical Possibility and Original Consciousness

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When in the *Phenomenology of Perception* Merleau-Ponty introduces the case of playing a musical instrument in order to show how "habit has its abode neither in thought nor in the objective body, but in the body as mediator of a world" (Merleau-Ponty 1962, 167), he sketches with the following words the character of the musician's involvement in the process of "music in the making": "Between the musical essence of the piece as it is shown in the score and the notes which actually sound round the organ, so direct a relation is established that the organist's body and his instrument are merely the medium of this relationship" (1962, 168).

Without going into a critical discussion of the first clause of Merleau-Ponty's excursion into the field of musical praxis from the point of view of philosophy, I want to take up his characterisation of what musicians have been dreaming of for generations: to establish a connection between the musician's body and his instrument so immediate that both act merely as the medium of music. Anyone who has tried to put this into practice has experienced that it cannot just naturally be done. It appears as an unsolvable problem to the beginner, transforms into a mystery for the advanced student and remains posing a continuous open task to the most proficient performer. The "I can" (Edmund Husserl) has its limits.

In the context of Husserl's phenomenological analysis of subjectivity, the "I can" attains focal relevance. As Alfred Schutz has pointed out in his review of Edmund Husserl's *Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy, Second Book, Studies in the Phenomenology of Constitution* (Husserl 1989[1]):

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1 For a brief overview of the history of this text, see Rojcewicz, Richard and André Schuwer 1989, XI–XVI.

"The I as a unity is a system of faculties of the form 'I can'" (Schutz 1966, 32). This is to say that the notion of the "I can" marks the fundamental shift from static to genetic phenomenology: the "I" no longer is conceived as an "empty pole of identity" (Bernet et al. 1993, 8). It is now understood as defined by capabilities, by positions taken, by convictions assumed, by the pregivenness of the world as the horizon of "I can" that is itself developing over time, pointing back to earlier experiences (Bernet et al. 1993, 199ff.).

In *Studies in the Phenomenology of Constitution* (Husserl 1989), the section dedicated to the analysis of "The 'I can' as logical possibility, as practical possibility and impossibility, as neutrality modification of practical acts, and as original consciousness of abilities (subjective power, faculty, resistance)" (Husserl 1989, 270) starts with the following words: "Now what does all that mean? What I can do, what is in my power, what I know myself capable of and am conscious of as such, that is what a practical possibility is" (Husserl 1989, 270). And a few sentences later Husserl continues:

> Then just what sort of modification is the "I can," "I have the power to," "I am capable of"? In experience, the "I can" is distinct from the "I cannot" according to their phenomenological characters. There is a resistanceless doing of things, i. e., a consciousness of an ability that meets no resistance, and there is a doing as an overcoming of resistance, a doing that has its "against which," and a corresponding consciousness of an ability to overcome the resistance. There is (always speaking phenomenologically) a gradient in the resistance and in the power of overcoming it, a continuum in "active power" versus the "inertia" of the resistance. The resistance can become insurmountable; in that case we come up against the "it won't budge," "I cannot," "I do not have the power." Obviously, connected to this is the transferred apprehension of action and counter-action outside the sphere of my doings and my abilities. After all, things are "active" in relation to one another, have "powers and counterpowers" in relation to one another, resist one another, and perhaps the resistance one thing exercises is insurmountable, the other "cannot surmount it." (Husserl 1989, 270–71)

As demonstrated by the praxis of music, dance, painting, etc., extending the horizon of the "I can"—i.e. opening up access to something, which at the beginning of the endeavour is experienced as resistant to a degree that it lies beyond my ability to overcome the resistance—*can* be achieved by specific modes of praxis. Three ways to open up access to something that for the time being presents itself as not accessible have to be distinguished: to play, to train, and to practice (Stascheit 2003, 215–38). These modes differ with regard to the subject's involvement; while in playing it is the play that forms and in a way creates the player,[2] it is the acting and intending subject who forms the process of training and practising. Both do share a common starting point;

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2 See the discussion in Gadamer, *Truth and Method*, particularly the section "The concept of play" (Gadamer 1979, 91–99). "The real subject of the game (this is shown in precisely those experiences in which there is only a single player) is not the player, but instead the game itself" (Gadamer 1979, 95–96). "We have seen that play does not have its being in the consciousness or the attitude of the player, but on the contrary draws the latter into its area and fills him with its spirit" (Gadamer 1979, 98).

practising and training—in contrast to playing[3]—commence at a point where something cannot just naturally be done but turns out to be a problem. However, practising and training differ with regard to their goal-directedness and motivation. The objective of training essentially is to achieve assertiveness by developing the most perfect control and self-control. Where training seeks for achievements, practising is done for the sake of its effects on the subject of practice. It requires an attitude characterised by the simultaneity of directed acting and, to put it in words by Ludwig Landgrebe, "discerning without intention to control."[4]

In this paper, I concentrate on practising—a term very commonly used in music to designate the various methods and means aiming at the *intended development* of new potentialities of agency and the incorporation of new *ways and means* into one's repertoire of animate-bodily expression. "Practising" in the sense of a praxis that extends the horizon of the "I can," providing access to something resistant, something up to now inaccessible, is also literally present in phenomenological writings in the context of the methodological questions essential to the phenomenological approach: the frequently discussed problem "of the phenomenological reduction as a method of access to the sphere of phenomenological research" (Bernet et al. 1993, 59). In the following six sections, this paper sketches a phenomenological analysis of practising in the sense of the specific "mode of the 'I do'" (Husserl 1970, 106) that provides access to intentionally extending, modifying or restructuring the "horizon of ability."

I. THE PRODUCTIVITY OF REITERATION

"Practising and repeating belong together…" This saying seems to be one of the most well known, of course, regarding practising. However, practising is not defined *as* reiteration but makes use of the productivity of a recurrent involvement: reiterating, understood in the sense of re-doing, re-taking, and re-vising, acts as an elementary instrument in opening up whole ranges of possibilities for acting and re-acting. However, a persisting "again" does not at all necessarily mean continuing "progress." It is connected or confronted with a specific resistance that is sometimes even created only in the course of this reiterated involvement and that configures the variable dynamics of *practice history*. This resistance is rooted in the physical realm and in the animate-bodily personality and history of the practising subject. As the described reiterated involvement

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3 "It is part of play that the movement is not only without goal or purpose but also without effort. It happens, as it were, by itself. The ease of play, which naturally does not mean that there is any real absence of effort, but phenomenologically refers only to the absence of strain, is experienced subjectively as relaxation. The structure of play absorbs the player into itself, and thus takes from him the burden of the initiative, which constitutes the actual strain of existence" (Gadamer 1979, 94).

4 "Denn wenn sich zeigen läßt, daß das in der Unmittelbarkeit der Erfahrung sich erschließende Prinzip des Wirklichseins des Wirklichen, der Grund seines Seins, zwar kein im Entwurf der Vernunft Beherrschbares, darum aber doch ein Verstehbares und verbindlich Auslegbares ist, dann wird von daher die Aufforderung an den Menschen begründet werden können, diese Fähigkeit des Vernehmens, das nicht herrschen will, wieder auszubilden und sich einer Ordnung des Seins zu fügen, die eine ihm schlechthin und unverfügbar gegebene und auferlegte ist" (Landgrebe 1978, 140–41).

takes place in "real practical life," the recurring effort of the practising subject has the quality of a re-taking or, better, re-living. Certainly re-taking and re-living do represent an essential structure in everyday life as well; they even may be seen as a basis for the stability of the subject's day-to-day architecture. But what makes practising differ fundamentally from simple "doing-something-again" is that the productivity of reiteration is applied intentionally. Nonetheless, both activities have in common that they result in the embodiment of certain habits, elements, and styles. However, getting used to or accustomed to something does not need any special attentiveness or intention; it happens by the way and often even contrary to the intentions of the subject. Practising—in contrast—cannot simply happen. It is based on a well mapped-out, purposeful, and directed commitment, which does not at all allow one to maintain an indifferent attitude.

II. VARIATION

Reiteration, at the same time, means *variation*. On an *implicit level*, it is the permanent monitoring by supervising and analysing, comparing and distinguishing that is essential and indispensable in practising, which causes every repetition to appear *as* variation. On an *explicit level*, the intentional variation of issues represents one of the fundamental procedures to be performed in practising. It is particularly the effort of varying influences, stimuli and examples within a lived situation, a situation marked by the tension between "being able" and "not being able," which distinguishes practising from imitating and copying. The procedure of variation is grounded in a dynamic previous knowledge that incorporates traditional and communicated experiences concerning the effects of certain measures of practice as well as pragmatic and aesthetic aspects. Variation and the history of variations in turn create progressive variability, as the repertoire of possible variations expands with the accumulation of experience.

III. DIALOGUE

The constitutive foundation and motor of the above mentioned "explicit variation" in practising is *dialogue*, in the sense of demand and response. As no convergence between demand and response is possible, dialogue in the sense of demand and response demonstrates a fundamental asymmetry, as opposed to dialogue as a process that is oriented toward common goals and follows common rules. In musical practice, demand-and-response structures may be found in various levels and scenes. First, there is the dialogue with the environment, particularly with regard to the fundamental relevance of room acoustics in music. The acoustical environment does not merely determine the sound of the already produced tone. Rather, the acoustical qualities are already having an effect before the sound unfolds, namely in the stage of its creation; the process of sound-creation is already a response to "how it *will* sound." This important result of a phenomenological analysis of music may serve as an example

(with the potential to be practised as a phenomenological exercise) in what Merleau-Ponty presents to us in a working note on music that was only published in 2001 in *Chiasmi International*:

> The evidence in music.
> While listening to beautiful music: the impression that this movement that starts up is already at its endpoint, which it is going to have been, or [that it is] sinking into the future that we have a hold of as well as the past—although we cannot say exactly what it will be. Anticipated retrospection—Retrograde movement *in futuro*: it comes down towards me entirely done. (Merleau-Ponty 2001, 18)

Another level of dialogue in practice is the level of dialogue with the past. This reference to history only rarely has the form of an intended reflection or an explicit remembering. Primarily the past emerges within the present in the form of single subjects removed from their contexts, returning either as a souvenir or as a demand, making a claim for something.

Finally, in the context of listening-to-oneself and commenting-on-oneself practising acquires characteristics of a conversation-with-oneself, ranging from a silent communication to an audibly pronounced monologue. The permanent installation of this "referring to oneself as other," accompanied by a recording attentiveness, pertains to the foundations and prerequisites of practising. Such a recording activity—a kind of "mental tape-recorder"— is indispensable. It allows one to notice when something decisive is going to happen—decisive in the sense of emerging new dimensions of "I can do this and that," in the sense of a restructuring, comparable to a key incident that does not take place *within* a certain structure but rather causes a new structure to emerge. Hence practising is revealed to be a practice of restructuring and transforming.

IV. TRANSFORMATION

We said before that "to practise" never simply happens, never takes its task or object without a specific interest or question, without treating the matter of practice as problematic in this or that respect. This results in a process of methodically cultivated differentiation that unfolds through selective focusing on specific single aspects. This intended placement of attention sets in motion a process of disengagement which *transforms* its object and produces the paradox that what is to be practised is not practised as itself, but as something different.

To illustrate the contrapuntal methodology of practice the context of music offers both spectacular and inconspicuous examples. The well-known technique of practising a certain, small section of the respective work of music in different tempi, particularly in slow ones, already represents such a transformation, as the microscopic effect of a slow tempo changes the musical meaning of a melody in such a radical way that one has to speak of a different piece of music. And the consequences that such an alteration of tempo evoke within the domain of movement are as radical as the consequences on the level of

musical meaning: a substantially different tempo means different movements, not only a change in speed or mode. But, at the same time, to practise a section in different, slow tempi, even in slow motion, proves to be the fastest, safest and in the end indispensable method to be able to perform a virtuoso passage with superior ease and competence.

V. SIMULTANEITY OF ACTOR AND SPECTATOR

To institute reflection, more precisely to institute the subject as actor *and* observer, marks a further distinction between practising as specific "mode of the 'I do'" and other varieties of "doing" that, in contrast, are often built on the avoidance of any reflecting activity during ongoing action. The uncomfortable challenge of the simultaneity of actor and spectator cannot be defused by assuming an alternating change between the two. Acting in the mode of practising implies the co-presence of the observing activity if one is not to replace practising by playing or training. On the other hand, a complete constriction of practice to observing and the corresponding operations of reflection and analysis would make practising impossible. The spectator always implies the co-presence of the performer and vice versa.

As regards the spectator's *observations*, they typically will be the more rich and detailed the more one dedicates enthusiastically to plain observing, the more one welcomes whatever is revealed in this process, and the less the observing activity is animated by expectations, hopes, and desires. This committed disengagement, this specific style of reflecting upon oneself during the process of performing, is synonymous with striving for a liberating distance, giving space to the unexpected, and producing a "disinterested" spectator in so far as the desire of the practising subject to reach the goal "as quickly as possible" is faded out for the benefit of understanding the unexpected, the deviating, disordered, and extraordinary as something positive, something productive, and hence to welcome it.

This committed disengagement implies liberation, excavation, unveiling *of what is given* in all its surprising, unwelcome or unknown diversity, while simultaneously implying *the subject's* disengagement from an involvement with plans, intentions, expectations, desires, and objectives. The fact that the described disengagement never can develop to be total and complete belongs to its fundamental characteristics. Thus, to strive for the liberating distance of a "spectator" by definition cannot mean to aim at developing an objective, unbiased perception and practice of observation. In the context of practising, the implicit resistance against total transparency that inheres in perception develops into the quality of an explicit resistance against any radicalism of surveillance, which would extinguish, together with any spontaneity, the ability to act and react in a differentiating way.

The intention of such committed disengagement is to develop a specific modification of the *reflective attitude*, to shape a style of reflection in which not only *what* is perceived becomes thematic but also the perceiving activity itself and how its flux unfolds. In this context, with the thematic focus resting on "me" and

moving with my lived presence, there is no opposition of activity and passivity, of reception and production. In the first place, what is found is not reflection, neither in the sense of contemplation nor in the sense of analysis, neither as reflection on something given within the horizon of "now and here" nor as reflection on remembered experiences; in the first place there is the attentive, careful and conscientious following of a process of *generation* rooted in the animate body, without the process of acting being transformed into a "quasi-object."

The process of practising unfolds based in the simultaneity of permanent reflection and active commitment on the level of the animate-body, the link between acting and observing being immediate and inseparable. And in the course of a repeatedly renewed *somatic intention* this process circumscribes and carves out the initially unknown and clandestine destination of practising.

VI. PRACTISING AS PRACTICE OF PERMANENT BEGINNING

Whereas "progress" in the sense of linear stepping forward corresponds to the structural characteristics of training, which in contrast to practice is based on the mentoring activity of a trainer, the concept of "progress" is not applicable to the performance of practising, which requires—as has been discussed—the bracketing of any explicit orientation towards goals and results. This attitude—perhaps best described as "positive aimlessness"—is accompanied by an intensive concentration on the vivid presence of which is given. It will not install itself on the basis of mere knowledge about its importance; it requires an opening up through an intensive search, in the course of which the described productivity of reiteration may provide important contributions. "Positive aimlessness," itself being a precondition of practice, is only developed *within* the process of practice itself.

Nevertheless, to practise necessarily implies an understanding about the theme, the direction and the destination of the process of practice; otherwise at best a "try and see" is possible. However, as revealed in retrospect, the understanding concerning the direction and destination of practising is not defined (or acquired) before, but developed as part of the process of practice itself, by permanently re-starting from the beginning, by permanently modifying the approach, thereby developing, in a more and more detailed shape, an understanding of practising as a "mode of the 'I do'". The motor of this *productivity of practice* may be found in the *Gestalt* of the established permanent beginning, where the relieved "feeling-at-home" is repeatedly dispensed, but where at the same time even the failure and the inaccessibility of something by no means provide a definite proof for the conclusion that I might be facing something I definitely will never be able to do or to access. Thus, practising implies the continuous presence of incapacity, which not only marks the boundaries of ability, but at the same time makes ability possible. The implicit or explicit co-givenness of incapacity keeps the horizon of ability open.

With the risk of every new attempt, the horizon of ability again becomes a matter of redefinition and confirmation, thus provoking the dynamics of practising as practice of permanent beginning.

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From Territories to Transformations

Anton Webern's Piano Variations Op. 27 as a Case Study for Research in-and-through Musical Practice

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> "Real art has the capacity to make us nervous."
> Susan Sontag, *Against Interpretation*, 1994, 8.

This article has two purposes: the first is to shine a sidelight (Nyrnes 2006, 3) on some intellectual and performative ideas prompted at this moment in history by Anton Webern's Piano Variations, op. 27—at a time when the world of Webern performance has gone a bit "quiet." The second is to explore more generally some of the promises and pitfalls of the approach that is known by many European musicians, visual artists, theatre practitioners, and their colleagues in varied media as "artistic research."

The fundamental premise of artistic research is that there is a special mode of functioning as an artist that goes beyond the natural and intuitive enquiring of the artistic mind and embraces something of the more systematic and explicitly articulated aspects of research as the term might be understood in more scientific contexts. At the same time, artistic research distinguishes itself from its scientific counterpart by the stance it takes towards the objective disengagement of the researcher. In artistic research, the unique personality of the artist-researcher is not something to be excluded from the research process but, on the contrary, is an invaluable touchstone for testing and evaluating the evidence generated by that process.

I embarked upon the study that led to this article through a personally articulated dual perspective: as a pianist and a musicologist. My encounters with Anton Webern's Piano Variations, op. 27 have manoeuvred these two elements of my Self into a peculiar and challenging set of oppositions including, but not limited to, the dichotomy of sound and score. As a thinker, it is natural that I should want to learn from the study: to know, and to be, more. But I also hope that the process of "working through" that is articulated here may help me to

integrate these aspects of my being and guide me to a better "sounding" of the work in performance. A project of this nature may succeed, or it may fail. So, as both thinker and performer, I have had to cope with doubt. Doubt is a natural condition of the questioning mind, but it is generally not a happy condition in the performance situation.

Because these dual aspects of my search reside uniquely in the performer and scholar whom I know and recognise in the first person, this article will be more liberally sprinkled with the authorial "I" than is normal in scholarly essays. This is both unavoidable and, I have come to feel, something to be welcomed as intrinsic to the nature of the kind of study I am attempting. As well as this pro-moting of the personal aspect of my enquiry, the article will also pose some more general questions about the areas of ownership that some of the propo-nents of artistic research may lay claim to; and it will suggest, unsurprisingly, that annexing territory will probably not yield the kinds of answers that we need for well-informed, communicative and ethically coherent performances.

So with this in mind, how should one embark upon a responsibly contextu-alised study of op. 27? My pianist self wants to grab Anton Webern's score and move straight to the keyboard. But first, I think that we need to reflect on the idea that this is a work which causes us to question almost every aspect of what Hans Robert Jauss calls "the horizon of expectations" (Jauss 1982, 141) set up by the genre of variations. First of all, as Elaine Sisman points out in her thorough-going article on variation for *The New Grove Dictionary of Music and Musicians*, Webern's variations pose the question "What is the subject for variation?" The easy, aurally identifiable "theme signature" of more orthodox variations is absent in the work, especially in the first two movements, where we might ask: "What makes these musical utterances variations, and what is it that they are varying?" The enormous amount of analytical writing about this testifies to the significance of the question, especially because there remains disagree-ment between commentators about how the op. 27 variations work. The final movement, with its six sections of eleven bars each, appears generically more consistent with the idea of variations, but even this movement abstracts itself, with no identifiable theme beyond the notion of the utilisation of the row as a saturating thematic progenitor, permeating the musical material with a kind of elusive but omnipresent variability (Sisman 2001–02, 318).

Of course, this is where Theodor Adorno steps in with some of his strong-est pronouncements from *Philosophy of New Music*, since the crux of his Schoenbergian critique yokes twelve-tone technique together with the idea of variation in a kind of musico-historical dance-of-death:

> Twelve-tone technique proceeded from the genuinely dialectical principle of variation. … By means of variation, that which has been defined in terms of music—the "theme" in the strictest sense of the word—transcends itself. Twelve-tone technique elevated the principle of variation to the level of a totality, of an absolute; in so doing it eliminated the principle in one final transformation of the concept. As soon as this principle became total, the possibility of musical transcendence disappears. … This brings the tendency of the total history of European music since Haydn … to a standstill. Composition *per se*, however, is also brought to a standstill. (Adorno 1973, 102–103)

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Conclusive and terminal though this may seem, Webern's composition prompts us to search further. One reason for this is that his particular way of working with variation itself is one that encourages reflection. As Kathryn Bailey writes: "I consider Webern's reinterpretation of familiar formal structures to have been one of his most significant contributions to the history of atonal music" (Bailey 1991, 3). There are also Webern's own statements to consider here; for example, in his second "Path to New Music" lecture (April 1933) he says the following:

> To develop everything else from *one* principal idea! That's the strongest unity. ... But in what form? That's where art comes in! ... One form plays a special role—the *variation*. (Webern 1963, 35)

So there is a disconnection here, between Webern's assertion of expressive vitality and the immobile endgame that Adorno sets out. There is more to learn. For performers, there is a natural contradiction between Adorno's formulation and the fact of twelve-tone music being performed in the "here and now," a symptom of more wide-ranging problems associated with when, and if, performers of music actually encounter philosophical precepts. "Not at all!" would be the assertion of some. After all, most performers are not philosophers, not trained in this field, and generally ill equipped to cope with its languages. Yet if there is any kind of veracity in the notion that musical material is imbued with "truth content," and that such material carries with it the tone of its history of philosophy—as Adorno asserts in the quoted passage—then it could be argued that some form of philosophical encounter does take place through musical practice itself. Moreover, some performers do engage in a deliberate way with the network of thought-writings associated with a repertory, however unorthodox such engagements may be. So we need to look more carefully at how this process might take place. My own experience provides a case study.

I first performed the Webern Variations at the age of nineteen, and the piece became a core work in my small and tightly focused professional repertoire. The thought-encounters I had with the work were very quickly imprinted with the Adorno stamp—thanks to a rigorous North American musicological training— and that imbued my performances with not a little sense of aporia. After twenty-seven years, a heavy European postgraduate re-immersion in Adorno and numerous performances later, and in collaboration with others in the research centre in which I work, I am re-considering Webern's music in light of ideas of Gilles Deleuze and Felix Guattari. This is because of what I regard as a slim but potentially common ground between these two thinkers and Adorno concerning notions of *immanence*. In this sense, as James Nesbitt notes, "the relation between a Deleuzian music of internal difference and Adorno's musical dialectics is complex, at once one of identity and difference" (Nesbitt 2004, 62).

Perhaps there could be a point of contact between a Deleuzian notion of immanence—of always being in the middle of things—and the annotated score of op. 27 produced by Peter Stadlen that reflects the unique, personal guidance that he received from Webern when preparing the work. Does Stadlen's score provide evidence of open, co-creative possibilities between

composer and performer, or does his score give yet more credence to Adorno's negative reading of serialism as composition brought to a standstill by its own all-consuming determinism?

To explore this, I should like to look at a conceptual scheme devised by a colleague at the Orpheus Research Centre in Music, Professor Kathleen Coessens, since I believe that this model is important for our understanding of artistic research. According to Coessens, we could understand the whole of a unique artistic performance or creation as merely "the visible manifestation of the artist's patient integration of multiple tacit dimensions" (Coessens).

embodied artistic
know-how

cultural-semiotic
codes

personal
knowledge

musician's act

interactivity

ecological
environment
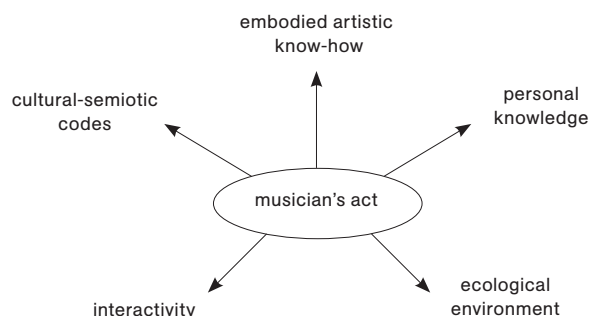
Fig. 1

Coessens groups these into five dimensions [Fig. 1]: the dimension of embodied know-how, the dimension of personal knowledge, the ecological dimension, the cultural-semiotic dimension, and the receptive dimension. She calls these dimensions tacit because they are variably present in the background of the musician's creative act; they form a "web" of artistic practice, "woven and re-woven by the artist over multiple periods of education, exploration and performance" (Coessens). The diagram unites philosophical approaches with a model for physical embodiment that, nevertheless, concentrates on the "tacit" world, the world beyond speech.

In artistic research, the performer, in some ways, becomes a subject for his or her own scrutiny. But at the centre of Coessens' model is the musician's act of creation, *not* the performer. As the means of embodiment for this act, the performer become a locus for the network of tacit knowledge that he or she delineates, but the performer is *not* the subject of research, the *act* is. Nonetheless, the performer is likely to undergo some process of personal development, both through embodying the tacit network and by asking explicit research questions. Thus the engagement with particular ideas makes subtle changes in the forces acting within this web of artistic practice and, in so doing, has the potential to change performance itself.

Now this is where we need to look at the Webern/Stadlen annotated score, since the kind of questions elicited by that score for the performer are very different from those that a "clean" score would pose, and thus change some of the forces within the web of artistic practice. When I re-engaged last year with this particular edition of op. 27 with a sense of a Deleuzian vision, I was very

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Figure 1. Coessens' web of artistic expertise.

excited. Perhaps the material would reveal entirely new facets to me, despite the numerous performances that I had given. Perhaps there would be novel ways to go beyond what Robert W. Wason, citing Stadlen in his article on the performance score of op. 27, calls "the literalistic Darmstadt-style performances of the fifties and early sixties" (Wason 1987, 57). Perhaps, previously, stuck in a haze of angst and in recoil at the end of the history of Western Music unfolding at my fingertips, I had never really understood the piece at all.

The reality was different. What I had not understood was just how "controlling" this 1979 Webern-Stadlen score can be. A fresh reading of its Preface was the starting point for this realisation. It shocked me. This piece of writing is significant for a performer; it is potentially the first port-of-call for anyone opening the score; presented in an impeccably scholarly way in both German and English, with all references "present and accounted for," it is a weighty piece. But to give just one example of its oddness, consider this opening gambit, in which Stadlen recounts Webern's exasperation with Otto Klemperer, when the conductor performed his *Symphony*, op. 21, in Vienna in October 1936. Stadlen writes: "I vividly recall Webern's frustration because Klemperer had refused to let the composer acquaint him with the spirit of the work ... '*mit dem Geist dieses Werkes...*'" (Stadlen 1937 [1979], v). This statement potentially implies many things:

– that Klemperer needed extra tuition, or needed to be controlled in his exercising of interpretational discretion—and that his eventual disliking of the piece, also noted in the Preface, had to do with his unwillingness to submit to instruction;
– that the score alone could not convey sufficient information to the conductor at that time in history;
– that the essential spirit of the work still lay in Webern's personal gift to bequeath, at that time;
– that, by analogy, Stadlen was thus an initiate into an exclusive stable of performers of whom Eduard Steuerman is named in the Preface as "*the* pianist of the Schoenberg School";
– that a mastery of the Stadlen score itself forms a kind of vicarious initiation rite;
– and, thus, that the study of this particular score is far from neutral ethically.

Whether or not the last point is correct, studying this score obliges one to make a series of commitments that the original, "straight," score does not. If one chooses to plunge in and work at the score without reading the Preface, then misapprehension and error will follow. An example of how this could occur is to be found in bar 44 of the third movement. [Fig. 2] Stadlen explains that this particular bar

> bears witness to Webern's curious relationship with musical time. He experienced fluctuations of tempo even during rests and would, for example, every time we arrived at the empty bar [44, movement III], continue the preceding acceleration by excitedly shouting "one, two three!"; only then did he indicate, silently, the fermata over the following bar line. (Stadlen 1937 [1979], vii)
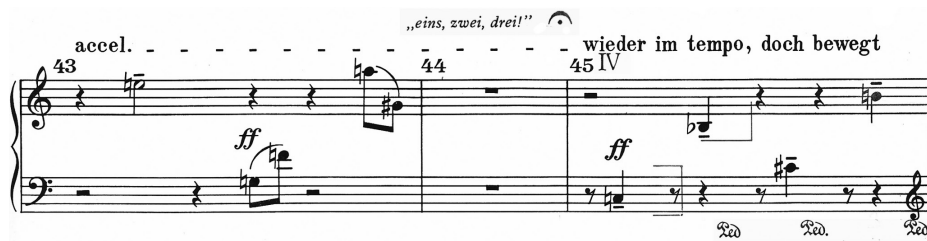
Fig. 2

The annotated score needs many glosses of this kind, and all the more so because of its undoubted fascination, amplified by the visual appeal of its Paul Klee-like array of red and green annotations. While it is true that all musicians studying editions have to deal with the ramifications of editorial markings, the more one studies the Stadlen score, the less Deleuzian it becomes. The real contribution of Deleuze, for me, has been *not* in transforming my view of the score, but in altering my awareness of how the complex apparatus of performing, the web of artistic practice, plays out for me in relation to this particular score and in relation to performance in real time. There must be what Janet Atwill calls "the convergence of 'knowing how' and 'knowing when', the faculty of observing and realising in any given case the available means of artistry" (Atwill 1998, 59).

This brought forward for me a re-vivification of Webern the composer, as opposed to Webern the censorious arbiter of performance—and again to a notion of Webern's music itself as an ethical discourse, needing to be approached through a model that is intrinsic to each performer, not conferred (or withheld) at the whim of a privileged elite. In performance, the ethical dimension is, in part, a matter of dealing with all aspects of the web of artistic practice in a manner informed by the specifics of a given repertoire as it interacts with each individual performer's irreproducible journey to the moment of that performance. For each work, the artistic web and its lines of flight constantly change. So the places in which performance is taught—the institutions of higher music education—need always to revitalise the ethical sense in light of the present moment.

While it is not my intention here to go over all the specific markings on the Stadlen score, I do want instead to underline an important irony: many of the markings given, the poetic language used by Webern and quoted by Stadlen, and the references back to Bach and Beethoven, are all employed precisely to beat Theodor Adorno over the head, so to speak. Stadlen refers in his Preface to "such misjudgements as the 'total objectification' of which the usually so well informed Adorno speaks" (Stadlen 1937 [1979], v). But this kind of fissure is really a symptom of the kinds of debates we are still having about how performers and thinkers work together and work differently.. The fissure could be an energetic and volatile fault-line—full of potentiality and scope for new knowledge—provided that the relevant parties work in concert, rather than treating it as a dangerous no-go zone. In the latter case, they will set up boundaries and defend their respective territories with ideological stances based either on nostalgia for the past (associating this with the period of relative dominance of both musicology and the nineteenth century model of performance) or on a striving for false utopias (focussing upon the sectarian pursuit of their own separate destinies without regarding each other at all, let alone in new ways).

At the bottom of this latter possibility is fear—but I do not think it is merely the fear that one kind of community has for another. I think that each discipline is articulating aspects of the necessary awe we have for art itself. As

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Figure 2. Webern Variations Op. 27, III, 43–45 (Stadlen edition, Universal Wien).

Sontag points out, "real art has the capacity to make us nervous" (Sontag 1994, 8). Conditioned as we are to move away from fear to places of greater ease, we instinctively substitute our sense of art's uncontainable otherness with different, more manageable, "others."

Hopefully, the more established disciplines will welcome the work, and the new perspectives, of those who research "in-and-through" musical practice, whose particular modes of working and questioning acknowledge, but also potentially heal, the disciplinary fissure by situating their enquiries right at "ground zero," as it were, and often, though not always, embodied within a single, dynamic being: the artist-researcher. This perspective prompts us to read aspects of performance differently—to consider, for example, that the impact of the Stadlen score resonates through the whole post-digitisation recording catalogue of the Webern Variations, perhaps especially the authoritative Maurizio Pollini disc of 1978, and through the programme notes that accompany that disc.

This line of enquiry could form the subject of a whole study in itself. And what about the peculiar disposition of the parts, exemplified by the cross-hands manoeuvre opening the second half of the second movement of op. 27, which Glenn Gould "fluffed" in a television broadcast of 1964 and then entirely re-choreographed in another TV broadcast ten years later, in which he "uncrosses" the hands, so that the score-based and deliberately implanted physically difficulty is entirely removed?[1]

This is a common question for performers of all kinds of repertoire. When does such a practice, the redistribution of parts and fingerings so customary for pianists, become an unethical move? I bring up the questions of ethics again in response to Gould's 1954 concert notes on Webern, in which he states that "Webern's approach to the problem of unifying the musical idea reveals an impeccable conscience" (Gould 1954). Was Gould's conscience clear in the second video? Does the close-up of the hands at precisely the point when the re-interpretation of the score is made constitute a kind of video confession? Is it an inside joke? Is it a small reminder of frail humanity in a pianist who was conscious of competing with his past self? Or is it a reflection of his seeing his later re-working as entirely legitimate and in keeping with his own ethical project of redefining the creative potential of the recording studio? A challenge for the performer of op. 27 concerns the decision as to whether the physical disposition of the parts is indeed essential to that impeccable rhetoric.

Webern, via Stadlen, instructs us to maintain the difficult disposition of the hands, despite—no, indeed, *because of*—the temporal disruption it might cause: "*die Schwierigkeit, diese 4 Noten in Tempo zu spielen, bringt gerade den richtigen*

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1   Gould's 1964 performance of the Webern *Variations* op. 27, was part of the CBC television recording of the Concerti for Four Wednesdays, Program No. 1, "Anthology of Variation" (Festival, 3 June 1964). Gould acted as performer and commentator in a programme including works by Bach, Beethoven, Sweelinck, and Webern. The 1974 performance is included in Bruno Monsaingeon's film *Glenn Gould the Alchemist*, directed by François Ribadeau, 1974, remastered 2002 (Ideal Audience and IMG Artists, licensed to EMI Records 2002). But Gould's relationship with the work had been long established; in January 1955, he performed op. 27 during his American debut at the Phillips Gallery, Washington, and on 11 January of the same year, he played the work again in Town Hall, New York.

DESCRIPTIVE (INVIOLATE)	DIRECTIVE (SUGGESTION)		
This is the musical end you should achieve For example, play a top G on the piano	*These are the means you should employ to achieve it* For example, use the Right Hand or Left Hand; use the third or fourth finger		
The performer has an ethical obligation not to depart from this musical end	The means and the end are inextricably linked. Different means may appear to lead to the same end but something in the nuances of performance will distort the end	The performer is entitled to employ a different means specific to his or her own experience, provided that it results in the same end	
		The performer may be able to achieve the same end by different means but still severs some kind of haptic/kinetic connection with the composer	While the composer is responsible for the identity of the work as it exists outside time and the context of any one performance, an individual performance is the true preserve of the performer
A score, as published, determines the musical end and offers recommendations as to means	A score, as published, is a set of instructions for performance and every element of information it contains should be followed as closely as possible	A score, published with additional annotations supplementing the composer's wishes represents an additional, vital, link to the composer's intentions. The annotations should therefore be treated with the same literal authority as the original score markings	A score, published with additional annotations supplementing the composer's wishes as expressed to one performer represents the result of one specific interchange in a particular performing context. It may offer further guidance but can/should be interpreted more freely than the original score markings

Fig. 3

Charakter heraus; unmöglich wenn bequem verteilt" (Stadlen 1937 [1979], 6a).[2] That would seem to be categorical—but is it? In working towards a performance of the piece, such questions have come to seem more to the point for me than trying to figure out a permanent, fixed solution to exactly where I stand in relation to the maze of Stadlen's markings, and whether Webern was correcting Stadlen or his own posterity—although, of course, these questions are also worth reflection. As a result, I have become increasingly interested in fingerings and physical dispositions as symptoms of an embodied ethical apparatus [Fig. 3].

Let us propose something that we might call "the performer's ethical space." What might be the consequences of such a concept? First of all, it relates to a continuum between control and freedom. The agencies of this continuum are complex, not merely relating to the score itself, but also to the performer's internalised study, to what is learned and taught, to ideas of social and cultural norms, and so on. On one side is an idea of the musical end—something which we would presumably regard as inviolate; on the other, the idea of the means through which this end is achieved—something which many of us might consider to be at least partly at the performer's discretion.

In the Webern cross-hands high point, for example, the inviolate "play a top G on the piano" may have additional instructions as to which hands to cross or fingers to use, which may—or may not—be applied with discretion. Realisation of the musical end is an obligation for the performer—but life has hazards: one can miss the high G through any number of accidents. This brings us to

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Figure 3. The performer's "ethical space."

the means—are they, too, inviolate, or are they at the performer's discretion? This issue is also a kind of continuum. Maybe the means and ends are linked and must not be changed, or maybe the performer's discretion is paramount. Maybe this differs with each piece, perhaps even within single pieces.

Let's look at the possible consequences of the primacy of the performer's discretion. What if, in exercising this performer's prerogative, I sever a haptic/kinetic connection with the composer? Does this mean that I have abnegated my responsibility? Or does my responsibility lie precisely in taking these choices in such a way as to present the musical ends most persuasively, even if, in doing so, I depart from the implementational aspects of the score in some way? Now, let's turn to the counter-argument, thinking about the score itself as a carefully constructed network of instructions each of which relates to the whole. Let's say that the reading of score as inviolate means that the high G that we've been examining must be executed through exactly the means stated. The result is that the discretionary aspect appears entirely removed here—insofar as it ever can be.

So the score as published could be a set of instructions for performance that must be as closely followed as possible, or it could be determinant of musical ends but only suggestive of musical means. These recommendations should be treated seriously but not necessarily followed to the letter if alternative solutions feel more authentic—yes, a dangerous word—to a particular web of artistic practice. Again, this brings up all kinds of questions about what the performer's discretion entails. And the situation becomes even more problematic when we apply some of this thinking to Stadlen's annotations of the Webern score. These annotations could form an additional, vital link to the composer's intentions, treated with the same literal authority as the original score markings, *or* they could be the result of one, specific interchange in a particular performing context. Again, there is an apparent duality here, which is probably further evidence of a continuum between the descriptive and the directive.

If all this talk of areas of the composer's intentions, as encoded in the notated score, being "inviolate" smacks of an un-reconstructed *Werktreue* approach, I should emphasise that my interest here is located precisely in those areas where discretion may be seen to lie. I should also underline that, for me, such discretion, where it does occur, is not merely an ethical licence but an ethical obligation. This distinction is especially important when one is considering repertoire, such as that of the Second Viennese School, whose acceptance into the concert hall still lags significantly behind the recognition of its importance as a body of work. For me, performers who focus upon this repertoire must continually tread the finest of lines in their advocacy, always driven by their own commitment but never allowing their desire to reach out communicatively to an audience to tempt them into an ingratiation that is alien to the music's essential character.

My own decision about hand-crossing in the Webern *Variations* during my re-acquaintance with the work went back to music analysis. Maintaining the cross-hands gesture allows me to keep some kind of embodied link with the idea of the axis of inversion of the row, because of the tension that crossing the hands creates in my body. If I do not execute the hand-crossing, the experience

of the inversion is less poignant for me. I'd also suggest that the same is true for a viewing audience. Interestingly enough, this might be less true for an audience listening to a recording; and, at first, I thought that this might have been Gould's rationale in reorienting his hands, since in a recording he would not be "seen" doing this. But Gould actually executed this gesture with a deliberate video close-up of the hands at the point of what he might have called "creative cheating." Nevertheless, Gould's writings about musical performance in the era of sound recording disclose a highly evolved ethical sense, but the ethical aim is the liberation of the performer from what Gould saw as the deleterious dictates of live concert performance. For Gould, it is the "uncrossing" that becomes the ethical gesture.

This demonstrates that the search for ethical approaches raises complex questions. At the most fundamental level: how can we gain clarity about our positions in such situations when there is such complexity and inter-relatedness in our roles as artists, researchers, teachers, and so on? As their physically internalised questions become the point of origin for their researches, artist-researchers must have consistency and clarity about their own standpoints, the platforms upon which their questions rest. We need tools through which we can make these determinations and maintain some consistency about them through the process of research. One such tool might be an attempt at mapping in a systematic way how our roles function in relation to each other.

The purpose of the matrix shown in figure 4 is to attempt to locate artistic research in music within a wider context of more familiar modes of engagement with the musical art-form. [Fig. 4] It is in the nature of a matrix such as this that it implies multiple compartmentalisations; but in reality, the various elements presented here should be seen as points on a series of continua, one activity blending into another and one individual's approach having the capacity to migrate from one set of coordinates on the matrix to another.

The fundamental basis of the matrix is a set of four paired opposites relating to the ways in which we engage with music. These are:

> Affectively — Cognitively
> Subjectively — Objectively
> Practically — Theoretically
> Improvisationally (spontaneously) — Methodically

Again, few types of engagement are composed uniquely of one or other pole of these pairs, but we may certainly observe the tendency of one or the other to predominate. The matrix adopts the premise that all combinations of these eight elements are possible in principle and suggests that a particular subgroup of these combinations maps out a territory broadly corresponding to what, to its exponents, constitutes artistic research.

The first step in the actual construction of the matrix is to determine its two extreme points: the affective/subjective/practical/improvisational pole and the cognitive/objective/theoretical/methodical one. These are seen as corresponding to extreme manifestations of musical performance, on the one hand, and musical research, on the other.

Matrix of practice and research

Column attributes (across): Affective, Subjective, Practical, Improvisational, Methodical, Theoretical, Objective, Cognitive

'Scientific' Research in Artistic Subject Areas

Row	Affective	Subjective	Practical	Improvisational	Methodical	Theoretical	Objective	Cognitive
Systematic theoretical enquiry	A	S	P	I	**M**	**T**	**O**	**C**
The 'Eureka' moment emerging from theoretical speculation	A	S	P	**I**	**M**	**T**	**O**	**C**
Empirically-situated systematic enquiry	A	S	**P**	I	**M**	T	**O**	**C**
The 'Eureka' moment arising from an empirical situation	A	S	**P**	**I**	**M**	T	**O**	**C**

Artistic Research

Row	Affective	Subjective	Practical	Improvisational	Methodical	Theoretical	Objective	Cognitive
Building a systematic web of such interrogations	A	**S**	P	I	**M**	**T**	O	**C**
Interrogating the processes of one's own artistic practice	A	**S**	P	**I**	M	**T**	O	**C**
Doing so through a systematic network of creative acts	A	**S**	**P**	I	**M**	T	O	**C**
Addressing a 'research quest-ion' *through* the creative act	A	**S**	**P**	**I**	M	T	O	**C**

Artistic Evaluation/Criticism

Row	Affective	Subjective	Practical	Improvisational	Methodical	Theoretical	Objective	Cognitive
Scholarly criticism	**A**	S	**P**	I	**M**	**T**	**O***	C
Journalistic criticism	**A**	S	P	**I**	**M**	**T**	**O***	C
Pedagogical feedback/ Formalised assessment	**A**	S	**P**	I	**M**	T	**O***	C
Artistic self-evaluation/ Feedback between artists	**A**	S	**P**	**I**	M	T	**O***	C

Artistic Practice

Row	Affective	Subjective	Practical	Improvisational	Methodical	Theoretical	Objective	Cognitive
Informed inquiry under-pinning P/CAs	**A**	**S**	P	I	**M**	**T**	O	C
Conceptual preparation for improvisational P/CAs	**A**	**S**	P	**I**	M	**T**	O	C
A planned set of P/CAs	**A**	**S**	**P**	I	**M**	T	O	C
Individual Performances/ Creative Acts (P/CAs)	**A**	**S**	**P**	**I**	M	T	O	C

* quasi-objectivity validated by inter-subjective consensus

Fig. 4

Figure 4. Matrix of practice and research.

As one moves from either end of the spectrum towards the centre, the polarities of the pairs begin to merge, but initially two primary pairs remain constant; that is to say, musical performance is seen as fundamentally affective and subjective (whilst it might demonstrate a variety of combinations of the practical and theoretical, the improvisational and the methodical) whereas musical research (whatever its practical/theoretical or spontaneous/methodological balance) is seen as fundamentally cognitive and objective.

Things become more controversial, but also more interesting, when one considers the types of activity that might combine the affective with the objective or the cognitive with the subjective. In the former case, the range of activities connected to music criticism and evaluation (including the kinds of evaluations that go into assessments in musical training) seems a strong candidate. Those who engage in these activities draw upon their affective responses but do so within a framework of supposed objectivity (or, sometimes, inter-subjectivity). Their professional expertise licenses them to ascribe a status to their affective responses that is more than merely what they, as individuals, think. Their feelings are deemed to hold good for others, too, whether as the basis for recommendations of concerts to attend and CDs to buy or as that for judgements that will determine the grades awarded to music students in formal examinations.

This leaves the fourth combination of primary pairings: musical activity which is both cognitive and subjective, which focuses upon the individual's unique feelings and sensibility but does so within the context of a disciplined framework of thought. The difficulties of such an activity are immediately obvious in that its ambition is little short of knowing the unknowable about oneself. Nevertheless, an artistic researcher would immediately recognise the core ambition of their activities as encapsulated in this paradoxical goal.

If artistic research in music is indeed this combination of the cognitive with the affective, it thereby possesses a definable relationship to, and distinction from, musical performance, music criticism/evaluation, and music research. The logic of this matrix further suggests that it may take both practical and theoretical forms (an important distinction when it is often seen as belonging uniquely to the practical realm) and that it may be more or less spontaneous/methodical (again, important if one is to understand how artistic research might function in the rapidly changing, real-time circumstances of live performance). Overall, the configuration of the matrix emphasises the affinity, through the cognitive dimension, between artistic research and its research counterparts, while also underlining that, in common with performance, it depends fundamentally upon the subjective aspect of human experience.

I believe that the development of this "sense of place and origin" for artist-researchers can be helpful both for individual researchers, in anchoring their questions, and for the development of the discourse around performance, which we are all attempting to share. In developing this analysis, I came to see that my work in research *through* practice was not generated from a single field of origin, but many. Furthermore, these fields would shift, depending upon the nature of each work and my specific interface with it. For example, the reflections on the cross-hands problem in the second movement of the

Webern Variations were crystallised through observation of a videotape of Glenn Gould's performance and assessment of it, a mode of thinking relating to music criticism, and something that might be absent from an assessment of a different work.

We are all familiar with the received wisdom that the musical work is greater than any single performance of it. I do believe, however, that it is necessary to recognise the reciprocal truth that, in any single performance situation, the total web of artistic practice that the performer brings to the event subsumes the work within it and, in that sense, is larger than it. Perhaps another way of expressing this would be to suggest that the work's "essential nature," rather than being delivered to the performer monolithically through attentive assimilation of the score, is dispersed "rhizomatically"—to borrow a key phrase from Deleuze and Guattari—throughout the interstices of the matrix that I have presented.

Using combined and variable webs and matrices of artistic practice and engagement may enable us to transcend the notion of a binary power-struggle between composer and performer in the dialectic of creation and interpretation. External and internal factors, and their interactions, are all essential; and at the centre of them, as emphasised earlier, is not the performer—the musician—but the musician's *act*. The relationship between performer and composer, once it is rhizomatically dispersed in this way, ceases to be competitive and becomes complementary. Moreover, the multivalency of these webs and matrices accounts for the fact that a performer giving successive performances of a work will, each time, operate within finitely different webs of artistic practice, and from subtly different positions within the matrix, shaped by changes in all the elements—and not least by the cumulative conditioning influence of each successive performance.

Sontag asks the question: "What kind of criticism, of commentary on the arts, is desirable today?" (Sontag 1994, 12). Some of us believe that one kind of commentary could be that which emerges from artistic research—research conducted in-and-*through* music practice. It can lead us to new approaches to, and contexts for, those messy strivings that are a necessary part of our lives as creative artists. The collaborative research-and-performance space, a place of multiple readings rather than singular interpretations, is the kind of habitat in which such discussions can really thrive. I believe that the multiplicity of these readings is not something to be worked on further, so as to collapse it into simpler and more unified solutions. On the contrary, the problematic of musical performance, especially the performance of repertoire such as the Webern op. 27, is precisely a matter of inhabiting the web of possible strategies through a passionate kind of sober engagement with musical texts and their realisations in performance. Within this maze of possibilities, the "Ariadne's thread" of the performer's ethical sense then holds out the prospect of something more: it gives us hope that the ramifications of a work such as this can be shared within the wider knowledge society, free from traditional gatekeepers, carried out with discipline and rigour, and communicated with joy.

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Interlude I

Exploring Musical Integrity and Experimentation

Kathleen Coessens

SYNTAX, SEMANTICS, AND PRAGMATICS OF MUSIC

A musical score is a semiotic medium, a visual representation of sound structures. It is a boundary object created by human beings, a graphic drawn in two dimensions in a conventional code. Like a map, it offers an immediate and complete overview of something that is otherwise not visually perceivable. As a representation it sustains mental schemata of a reality out there. But, different from a map, it mediates between radically different senses and dimensions, rendering in the visual that which can be heard, in the immediate that which is time-dependent. Moreover, there is no iconic relation: the score does not mimic nor resemble the music; it is not a photograph of the music. As such, a score is a symbolically loaded reduction and radical translation of something very different, requiring a high level of not only symbolic but also contextual unravelling, understanding, and translation. Where oral traditions of music rely upon mimetic and embodied acts of transmission, by way of action, written music relies upon symbolic instructions, which extend the embodied act of making music. The construction of notation depends on cultural agreements and artistic practices. Its understanding is culturally and institutionally mediated. Missing links in the tradition, caused by changing instruments, different interpretations, and translations or artistic—performer's or composer's—behaviours in relation to the score, often lead to problems of communication and transmission.

Considering scores as semiotic systems that convey signification by way of signs, we can analyse three aspects: the syntax or grammar of the score, its semantics or signification, and its pragmatics or relation to practice.

In the first place, a score has a syntactic structure and organisation. The syntax is manifest in the formal structure, the order and construction of the signs inside a symbolic system. Musical syntax has a certain closure: a score is determined by the prevailing system of notation embedded in a specific musical style and defined by rules and conventions. These are the expected order of harmonic progressions, melodic evolution, and rhythmic patterns. A score symbolises and, as such, "fixes" the "language" of music of a certain composer and the surrounding context. The syntax of music notation is quite clear, as the use of music symbols and the grammar of Western music notation have evolved by way of explicit and tacit agreements of artists and music communities over several centuries. At the same time it is a rather closed system that relies upon specific cultural traditions

and upon conventional symbols. A music score often displays other levels of syntax, like symbols and constructions related to the instrument and the artist's body: playing techniques like fingering or bowing techniques and instrumental cues like chord annotations or pedal marks. But here, too, contextual style and use of instruments lock in understanding. At a purely syntactic level of music notation, the main difficulty for the musician, composer, and most of all for the performer is to possess or acquire music literacy to understand codes and symbols and also artistic know-how to be able to translate the visual image into sound and vice versa. The distance between abstract and complex music notation, on the one hand, and the immediate aural and embodied perception of music, on the other, implies the need for an efficient learning process to enhance the complex process of translation that is involved. In other words, there is no direct, literal or embodied way of translating the visual codes into sound production.

To make this clear we might compare music to language: the score to written language, the music performance to spoken language. In semiotics, Ferdinand de Saussure made a difference between "langue" and "parole": the "langue" being the fixed rules of composition, order, and construction of the elements of a language, and "parole" being the practice of that language in everyday usage ([1916] 1995). In conversation we rarely follow exactly the grammatical rules of English, but circle around its "perfect" version. Moreover, different dialects, determined by historical or geographical contexts, circle in different ways around the standard version of English. If the "langue" of a certain period can be rendered by way of written documents, its "paroles"—the ways we speak the language, the accents, speed, and pitch—are most of the time lost, because they are ephemeral in practice and dynamic across history. Even if we obtain recorded material of that language from an exact geographical and historical context, we are still not sure in which situations such a rendition should be used, nor how we should behave and react, nor how to respond intellectually and emotionally. We can make a comparison with, for example, the interpretation of a seventeenth-century-music score. Searching for the best knowledge and imitation of musical and extra-musical elements such as space and instruments, as well as for "authentic" interpretation of the symbols of a score, gives us no guarantee that we can render that music as it was thought by the composer or interpreted in that period. Our musical practice is definitively different from seventeenth-century musical practices. The "langue" has been transmitted but the practices—different "paroles"—have altered the ways we can read this "langue."

This brings us to the second element in a semiotic translation or understanding: semantics. Semantics considers the relation between the construction of signs and their meaning. It is tied to the sound world of a period or a style and, more specifically, to the sound world of the composer. Symbols in a written language (here a music score) are not constructed for their own sake, as a kind of game playing with elements, but in order to convey meaning from one system to another, from score to sound. Indeed, in music, semantics implies that we have an understanding of the signification of certain harmonies or rhythmic patterns as described by the construction of symbols. The meaning inherent in the score can only be conveyed into sound through an understanding of how to

render this meaning. This entails decisions about pitch, timbre, speed, dynamics, phrase construction, and so on. Scores are closed systems; they reduce musical ideas to symbols that are agreed upon through what they show and how they show their information. As powerful tools of signification they offer orientation towards both sound production and playing technique. At the same time, a score appears both overdetermined and indeterminate, leaving a certain freedom in its "semantic" exploration. But how much subversive interpretation can it afford? A realisation of such a score will depend not only upon the intended interpretation of the musician but also upon prevailing expectations in the music community—with, necessarily, different practices—and therefore upon a broader society surrounding the music. Score interpretations can range from radically romantic interpretations at the beginning of the twentieth century to more virtuosic and technically clean performances at the end of the twentieth century.

Thirdly, the score enables pragmatic action. Its technical elements offer access to a delayed or mediated auditory perception by way of an embodied process. The interface between score and sound is the artist's body in the process of musical realisation. By way of this dynamic interface, the "presence" of the score, with its static semiotic status as a signifier, transforms into "duration," the transitional realisation of sound, the signified. This embodied process actualises the internal potentialities of the score in a unique way and lets the performer enter the world of the composer, confronting it with his/her own world. Times and spaces are blurred in the contact, in the dynamic moment of the now, the performance. The static object becomes changeable as it is perceptually experienced and conceptually imagined. As such, the score, fixed in the past, realised in a present, is open towards a future. A score is not neutral, nor transparent. It is opaque and multi-layered in its simplicity.

SCORE AND MUSICAL INTEGRITY

We are currently undergoing an historical shift from a text-based culture to a strongly mediated culture of image and sound. There is a need to reflect anew upon the relation between score and sound and to question the complex in-between space or interface where both merge and are realised as music. Score and sound reach each other by way of a third element, the actions of the musician. This implies the investment of the performer's body as a rich source of meaning, conveying the expressive intentions of coded messages, explicit as well as implicit, emotional as well as aesthetic. Embodied tension merges with the musician's intention. The musician's understanding of the music is projected in sound just as the body projects its own movements to fulfil the dynamic line of the intended music. The performer is not totally free, because he or she is bound by the score and its surrounding context, and yet at the same time he or she is the medium that transforms that score into music. *How* should one render that music?

At a deeper level, this brings to the fore the notion of musical or artistic integrity. Musical integrity is not about a formalistic view of the score; it does not imply the application of concepts and notational conventions for their

own sake. Nor does it imply an uncritical mimicking of notational procedures or historical performances. Musical integrity is also not about exactly copying an extra-musical context, be it through an architectural (re)construction of space or in the use of historically faithful instruments. Last but not least, it is not the replication or remaking of an "original" notation—a manuscript or an "urtext." While these ways of engaging with a score can be informative, they are monologic and can lead to sterile and one-sided interpretations.

The idea of musical integrity refers instead to the need for critical and reflective abilities in a musician. It urges the artist to reflect upon a paradoxical situation where negotiation at first view seems quite impossible. On the one hand, the musician is confronted with an impossible task of transcending meaning and know-how, detaching these from their original context, time, and place. All human culture arguably is tied to place, history, and context. On the other hand, he or she is confronted with the opposite force of bridging meaning and know-how over time and place. We are all human beings and share experience at some level, despite difference. This forces the musician both to consider scores as reshaping music cultures and to consider cultures as reshaping music scores. Both music and culture are integrated in artistic processes of experimentation and creativity. Musical integrity means the commitment of a musician to inquire into his/her embodied expression of the inherent—explicit or implicit—coded messages of different kinds and into the emotional and aesthetic messages to convey. It questions again and again the position of the musician, composer or performer, in between past, present and future, in between score and sound, in between an individual and an artist. It explores humanness rather than historicity, embodied commitment and communication rather than the blind application of rules and conventions.

Between score and sound, there is this presence of the musician facing both contexts—score and sound—hiding or displaying in a performance his or her musical integrity. The musician's practice is informed by different questions relating to this position, as the authors of the following four chapters will show. What indeed can a score, a graphic or symbolic representation of music, convey to the musician? How can we approach a medieval troubadour poem, having but scarce and incomplete sources about the melody and rhythm? What should a performer do with a revised late-twentieth-century edition of Lachenmann? Can we understand the transformations in the interpretation of scores of Brahms over more than hundred fifty years? Can a contemporary experimental composer introduce a score that can be understood within prevailing existing music conventions without betraying embodied relations to the sounds? While a score is an invitation to its music realisation, as complex, multi-level material, it still remains one of the most controversial aspects of the performer's study, rehearsal, and on-stage practice.

PERFORMING EXPERIMENTATION

The following chapters deal with an ambiguity: on the one hand, the score shows itself as an enabling tool for the realisation of music; on the other, it is

a complex semiotic tool that remains subject to multiple contexts and inter-pretations. All the authors are performing musicians who search for a deeper understanding of how to perform and are torn between different logics: the visual and the acoustic, the past and the present, artistic intention and soci-ety's expectations. Correspondence, translation and response can only be accounted for through a dialectical relation involving a third element: the art-ist's embodied creation and her or his search for musical integrity.

In Chapter 5, "Poem as Score: Finding Melodies for Unnotated Troubadour Songs," Robin Bier starts from troubadour texts. Reading these medieval poems of the troubadours, Bier seeks to recreate a music by exploring the orig-inal relationship between composer, performer, poem, and song. How can we perform this music, being deprived of the orality and familiarity with existing poems and melodies? The text and its subtle manipulations of metrical factors is the only material that the contemporary musician can draw on. The "langue," the written score, is not determined. The music—at least for our time—the *intended* music is left indeterminate in the absence of notation. As it is clear that troubadours intuitively used the musicality of language as the basis for mel-ody, the musician today has to search for a melody in the poem as a score. Bier tells us how she explores the texts, the original sounds of the original language, which most of the time is Old Occitan, a language with no more native speak-ers. She encounters the chronological and cultural distance through rigour where possible and through curiosity, creativity, experimentation, and her own skill as a singer. The patterns of words become, in her process of exploration and experimentation, melodic patterns, recreated as a twenty-first-century "parole" of a Medieval "langue."

In contrast to undefined troubadour texts, the pianist Anna Scott has a much more defined musical score at hand, the piano works of Brahms, which she exam-ines in Chapter 6: "Sound Drifts: The Phenomenon of Stylistic Change in the Interpretation of Fixed Texts." Analysing recordings and performances over time, she remarks how scores can remain the same, even as different readings of the score develop. Just as different snow layers can cover a tree, rendering its shape vague and slightly transformed, different particular performative contexts trans-form ways of reading and interpreting scores. As such, the score is not an ele-ment in itself but is dependent upon the historical situatedness of its performers. Again, one version of a "langue" is rendered in different "paroles" over time.

In Chapter 7, "Pression Revised," Tanja Orning reflects upon this question, being confronted as a cellist with the new edition of Lachenmann's work "Pression." Between the first edition and the new edition, a strange move appears. While the original first score approaches a rather embodied language, indicating for example the positioning of the musician's hands, the new edi-tion moves towards a more conventional symbolic language, adding bars and words. A process of abstraction occurs, moving from a more embodied to a more symbolic realm. Orning as a musician finds herself suddenly deprived of the immediacy and intuition of her own bodily language. As Lachenmann's music became known, performers created particular performative contexts, which at the same time offered opportunities to the composer to decide which

kind of performances he wanted to favour and adapt his way of writing to. The gap between the old and the new edition questions the development of notational techniques and its possible performance output: on the one hand it allows more creativity to the performer; on the other, it fixes in the best possible way a symbol that refers to the perfect sound output for the composer. Was Lachenmann disturbed by certain semantic misinterpretations?

As a composer, Miguelángel Clerc (Chapter 8) encounters the same problem, but the other way round. He composed a complex score, which allowed itself to be mimicked in embodied movement in a certain sense. The performers were puzzled by the necessity of bodily reading. Being familiar with more symbolic score writing, they could not immediately translate the score by way of the body. They missed the traditional symbolic parameters that were part of their music education and eventually asked the composer to reconsider the score, redrawing it in more conventional symbolic ways. The processes of translation, even if counterintuitive at a first approach, are so entrenched through learning and training that a performer draws on them more easily than on bodily linked signals. In his chapter, "The In(visible) Sound," Clerc is deeply concerned with the possibility of hearing the music by seeing a score. How can a score be musically imagined? And even more: Can all scores be musically imagined? His search through different contemporary scores as well as through his own compositions reconsiders the question of musical integrity concerning sound and score from the perspective of the composer.

Where both Robin Bier and Anna Scott as performers struggle to unravel time and context, "langue" and "parole," reaching back as strangers to other musical situations, the chapters by Tanja Orning and Miguelángel Clerc concern the contemporary creation and performance of music. The question of the relation to time and context, at least in the historical sense, disappears here, but it leaves space for another ambiguity—that between symbols and their actions, between syntax and pragmatics. Sound as a realisation of a score results from the transformation of the visual input into feedback that can be heard. In between both is a process, a mediated, multimodal, and layered experience of which the basic steps are the visual, the physical energy or movement, and the aural. The artist's body as such becomes the interface: an oscillating point of contact between score and sound.

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Part II

Mapping
the Interface

Chapter Five

Poem as Score

Finding Melodies for Unnotated Troubadour Songs

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INTRODUCTION

Though the intricate and colourful poems of the troubadours were intended to be heard in song, fewer than ten percent of the twenty-five hundred or so surviving texts are accompanied in manuscript by notated music (Bonner 1972, 85–86; Bruckner, Shephard, and White 1995, xiii). In the absence of a notated melody, the primary performance practice currently accepted as historically authentic is to create a *contrafact* by borrowing the melody of another song with the same poetic structure. The troubadours themselves practised contrafacture, and examples of original contrafacts survive in manuscript (van der Werf and Bond 1984, 72–75).[1] But the troubadours were also masters of versification, and as many as 1,200 of their poems contain unique metrical schemes for which no exact contrafact exists (Stevens 1986, 32). The only way to perform such songs to an original troubadour melody is to alter that melody to fit the poem. Nonetheless, most performers of troubadour song consider contrafacture to be the only way to retain an element of historical truth in their performance of unnotated songs and thus are limited in their performance to only a fraction of the repertoire. The prospect of composing or commissioning new music for poems lacking notated melodies is met with caution:

> … we are an "early-music" group interested in historically informed performance, and whilst there are many unknowns in the field of medieval music-making, our approach is to stick within the bounds of known practice as far as possible. To this end we would not consider working with a contemporary composer or setting medieval texts to contemporary music. (Brooks 2009)

This dependency upon notated melody is not an accurate reflection of the resources available to performers, even those committed to the pursuit of

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1   The CD liner notes to *"The Sweet Look and Loving Manner": Trobairitz Love Lyrics and Chansons De Femme from Medieval France* (Wishart 1993, 2) provide further evidence of this, as well as sources for the melodies used as contrafacts on the CD itself.

historical authenticity. A closer examination of the troubadour repertoire in the context of medieval and modern notions of the musicality of language demonstrates that troubadour poems themselves contain musical information and constitute a surviving musical source even in the absence of notated music. By emulating the troubadours' own process of *trobar* (the act of creating songs), it becomes possible to read these poems as scores and re-create a lost repertoire through the pursuit not of original notes and rhythms but rather of the original relationship between composer, performer, poem, and song.

THE TROUBADOUR REPERTOIRE: POEM AS SONG

In order to understand how a troubadour poem can be a source of useable musical information, a measure of familiarity is needed with the troubadour song repertoire and social context in which *trobar* took place. The troubadours were nobly born poet-musicians who flourished in medieval Occitania in the twelfth and thirteenth centuries. The song tradition launched by Guillem de Peiteus (1071–1127) spread northward with the court of Eleanor of Aquitaine, gradually exerting influence throughout Europe, developing sister traditions in what is now northern France (trouvères) and Germany (minnesingers).[2] Mimicking the rise and fall of Old Occitan as the *lingua franca* of the Mediterranean, troubadour song reached its height in the late twelfth century, gradually declined through the thirteenth, and evolved into a fixed literary art in the thirteenth and fourteenth centuries with the commissioning of the first *chansonniers*.[3]

The troubadours are best known today for birthing chivalry and *fin'amor* (courtly love), but in reality their subject matter ranged from shrewd politics to eroticism to bawdy comedy. These themes were manifested in a variety of song forms that served many social functions beyond entertainment; *trobar* was also a dynamic form of communication. Content aside, however, versification (the process of weaving of intricate webs of linguistic structure according to specific rules) was the true cornerstone of the troubadours' art. Through subtle, complex manipulations of metrical factors like the number of syllables per line, masculine and feminine endings, placement of caesuras within lines, number of lines per stanza, rhyme scheme at the level of the stanza and the song, and depth and variety of rhyme sounds, the troubadours achieved over a thousand similar but structurally unique poetic forms, hundreds of which appear only once in the manuscripts (Chambers 1995, 105).

What we know of troubadour melody comes primarily from the *chansonniers*, which are already editions themselves, irrevocably shaped by changes in

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2 Amelia E. Van Vleck (1995, 21) provides a brief overview of the rise of the troubadour song tradition and clarifies that Guillem de Peiteus is one of many surviving forms of the name of the first known troubadour; other titles include Guillem IX (ninth Duke of Acquitaine) and Guilhem VII (seventh count of Poitiers).

3 Occitan was one of the principal poetic and political languages of Europe from about 1100 to 1400 (Zumthor 1995, 11). For information on the dating of the elaborate medieval songbooks (*chansonniers*) in which troubadour songs and biographies were preserved, see William D. Paden (1995, 308). William Burgwinkle's (1999) chapter is also useful for understanding the role of the *chansonniers* in medieval literary culture.

aesthetic and perception between the time when the songs were conceived and when they were recorded in manuscript (Switten 1995, 3). In appearance, the music resembles plainchant; melodic motion is mostly stepwise, interspersed with less frequent movement by thirds and the occasional larger interval, the repetition of one pitch for several syllables is common, and most melodies remain within the range of an octave (van der Werf 1995, 133–134). Rhythmic content is sparse; though *musica mensurabilis* (implying the ability to notate measured rhythm) dates to the thirteenth century, the *chansonniers* overwhelmingly stick to older, nonmensural notation, leaving the modern performer with a degree of freedom that has sparked fierce scholarly debate for over a century (Haines 2004a, 5).[4] Performers' solutions have ranged from modal rhythm to declamatory rhythm and isosyllabism, each with their own historical problems and all of which are still in practice today.[5] The extent to which the melodies reflect the structure and meaning of their poems is also under debate. Some scholars claim to identify a correspondence between poetic structure and melodic structure, while others believe most melodies were through-composed or structured independently from the poem, though possibly to the same principles of proportion (Switten 1998, 15; van der Werf 1995, 139–146).

To appreciate the troubadour's art of *trobar*, which translates as literally "to find" but had many nuances of meaning, which included the acts of composing, singing, and sending a song, it is important to recognise the orality of Old Occitan culture in comparison to our own. Reading and writing were not the effortless acts they are today, and few troubadours would have known how to notate their own melodies. In this context, it is likely that the conception and transmission of troubadour songs were likely oral and inherently collaborative processes. Hendrik van der Werf paints a picture of *trobar* as "remembered improvisation" which took place while singing out loud, without the aid of writing tools, and relied strongly upon familiarity with existing poems and melodies.[6] Collaboration was also a prominent factor in *trobar*. As we have already seen, the *chansonniers* contain numerous contrafacts, which indicate that the troubadours willingly borrowed each other's melodic material. Many song texts include instructions to take them to another troubadour or trobairitz who is called upon to respond to or improve upon the original, while certain song forms like the *tenso* and the *partimen* (debate songs) are inherently collaborative.[7] Transmission was also a collaborative process; after a song was "found," it was passed on to others by rote until it was eventually recorded or forgotten (van der Werf and Bond 1984, 3–4). The *chansonniers* themselves

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4 Switten (1995, 5) believes that scribal avoidance of the new mensural system indicates that it was not considered appropriate for the songs they were notating.

5 John E. Stevens (1986) provides an overview of rhythmic performance practices. The key problem with modal theory is its assumption of regular scansion, which most romance languages do not display (494).

6 Van der Werf (1995, 146) also sees a possible reflection of the troubadours' compositional process in that of musically illiterate popular musicians today.

7 Press (1971, 35) provides an example: the final verses of the song "No sap chanter qui so non di," by Jaufre Rudel, instruct a messenger to learn the song and faithfully transmit it to several distant lords who are invited to make their own contributions. For an overview of the many troubadour song forms, see Bonner (1972, 20–22).

reflect the collective influence of generations of performers, to which is added the scribes' own contributions in the form of *razos* (short, colourful biographies of the troubadours), orthographic variation, and simple copying errors.[8] All of these factors suggest that for the troubadours, performance and writing were creative continuations of *trobar*, welcoming and perhaps even dependent upon additional development through intentional and unintentional variation.

Troubadour song reception and performance practice has undergone many transformations since the repertoire first attracted scholarly interest in the sixteenth century.[9] There are too many approaches to list in full here; they range from Charles Burney's 1782 transcription of a troubadour melody in modern notation with 4/4 meter, figured bass, and an English translation in his 1782 *General History of Music*, to the 1970s trend of seeking inspiration in the folk music of modern Occitania and the Middle East, to the *Gothic Voices*' unaccompanied, isosyllabic sound world modelled after the English sacred choral style of singing plainchant, to ensembles like *Duo Trobairitz* and *Sinfonye* who depend on contrafacture to explore unnotated repertoires (Haines 2004a, 90–91, 246–248).[10] In distinct contrast to these examples is the work of Brice Duisit (2003), who recorded the songs of Duke Guillaume IX d'Aquitaine (for which no notated melodies survive) accompanying himself on the *vièle à archet* while declaiming the texts in a manner closer to speech than song.

With the exception of Duisit, most performers of troubadour song who self-identify as historically informed are limited in their explorations by the availability of notated melody (whether original or contrafact), a dependence that contradicts the frequently cited desire to derive musical interpretation from the text. This contradiction between vision and approach is mirrored in the work of Old Occitan scholars who present troubadour song primarily in silent written form even while asserting that the songs were meant for live aural reception. Modern editors perpetuate this dichotomy through one of two approaches: in one the words are paramount, while melodies are attached as accessories or eliminated; in the other the music is paramount, and only the first stanza of text is emphasised while subsequent stanzas are ignored. Margaret Switten (1995, 70) observes: "on the one hand, then, we have a concept proposing the text as the song, on the other a concept proposing text and music together, but only part of the text."

The troubadours would have found this compartmentalised approach to their songs counterintuitive. Medieval treatises indicate that the linguistic sounds and poetic structure of troubadour songs were once equally or more musically charged than their melodies; in the Middle Ages a song consisted of words and music, but the relationship between the two was more mathematical

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8 Amelia Van Vlecak (1991, 26–27) addresses the multiplicity of versions (and variation between versions) of songs in the *chansonniers*, arguing that it demonstrates the troubadours and their audiences had a very "distinctly unmodern" approach to transmission and preservation of their songs.

9 Haines (2004a) offers a comprehensive overview of the history of troubadour song performance practice, arguing that despite the common claim that medieval music was rescued from oblivion at the turn of the twentieth century, the troubadour repertoire was never really laid to rest.

10 David Monrow and the Early Music Consort of London's (1991) CD *Music of the Crusades* is a good example of the Middle Eastern folk idea in practice.

than conceptual. In other words, the melody of a troubadour song was more likely to reflect the rhyme scheme and syllable count of the poem than to paint the meaning of the words. The word *musica* could indicate music in the modern sense, but it also encompassed speech sounds, acoustics, the balance of gesture, and the movement of the spheres (Stevens 1986, 25). To be musical a song had to possess *armonia*, or harmoniousness, but this referred to numerical structure and proportion rather than functional Western harmony; according to the Occitan treatise *Las Leys d'Amors* (1328–1337), no composition could be considered harmonious "unless it is properly measured and set in rhyme, and unless it has a fixed number of syllables" (Stevens 1986, 24–25). The numerical *armonia* of stanzas, lines, and syllables existed independently, "as a numerical reality waiting to be incarnated, as it were, either as music or as poetry (verbal music) or both" (ibid., 499).

This distinction between spoken music and sung music appears in numerous medieval sources. *Las Leys d'Amors* describes a certain kind of melody which is formed from the rising and falling of the voice in reading according to word accent, rather than from pitches (Switten 1995, 85–86). Dante's (1996, II 5–7) analysis of the harmony of troubadour songs in *De vulgari Eloquentia* (1302–1305) is carried out entirely through a detailed discussion of artful versification, with no mention of notated music. In the following chapter, Dante undertakes to define what he means by *canzone* (song):

5 Furthermore, we must now discuss whether the word canzone should be used to refer to a composition made up of words arranged with due regard to harmony, or simply to a piece of music. To which I answer that a piece of music as such is never given the name canzone, but is rather called "sound"; or "tone", or "note", or "melody". For no player of a wind or keyboard or stringed instrument ever calls his melody a canzone, except when it is wedded to a real canzone; but those who harmonise words call their works canzoni, and even when we see such words written down on the page, in the absence of any performer, we call them canzoni.

6 And so it seems clear that the canzone is nothing else than the self-contained action of one who writes harmonious words to be set to music; and so I shall assert that not only the canzoni we are discussing here, but also ballate and sonnets and all arrangements of words, of whatever kind, that are based on harmony, whether in the vernacular or in the regulated language, should be called canzoni. (ibid., II 8:5–6)

In other words, a mere melody alone cannot be considered a song, while any arrangement of words based on harmony (which Dante previously defined as artful versification) can, even if it is only written on the page with no notated melody or performer present. In chapter seventeen of his *Micrologus* (written in the late 1020s) Guido d'Arezzo (1955) stated that a harmonious poem, sung to equally well-structured music, would produce a duet in which one melody was built of pitches, the other of linguistic structure: "Thus in verse we often see such concordant and mutually congruous lines that you wonder, as it were, at a certain harmony of language. And if music were added to this, with a similar internal congruity, you would be doubly charmed by a twofold melody." Clearly, the troubadours' carefully crafted poems were songs in their

own right, musical because of, not in spite of, their texts, enhanced by notated melody but not dependent upon it.

The inherent musicality of language further enhances this picture of medieval poem as musical entity. Any language consists of sounds—subtle rhythms, micromelodic contours, vowels, and consonants—which can be arranged in patterns just as pitches and note values can be arranged in a melody. J. Campbell-McInnes (1939, 36) once said, "tones in speech are sounds in order, or in disorder, and that is all that music is." The musical qualities of Old Occitan in particular are indicated in part by its status as an international poetic language. Troubadour Raimon Vidal's twelfth-century treatise *Razos de trobar*, written to educate inept foreign poets in the proper use of Old Occitan, defends the language's suitability for verse (Marshall 1972, lxxix). From what scholars have discerned of its pronunciation, Old Occitan combined the best expressive sounds and qualities of the various languages it encompassed as a *koine*: abundance of rhyme alongside compact sentence structure, crisp consonants alongside smooth elision, bright, purely differentiated vowels alongside drawling diphthongs and triphthongs, all contributing to a linguistic energy John Potter (1992, 313) described as constant motion "at the level of the syllable." In the hands of wordsmiths obsessed with versification, this palette of sounds was a recipe for intentional linguistic music.

Today's early music performers strive to begin their interpretations of medieval secular song from the text but are predisposed through convention to favour the written music. Yet once we realise that musical information is contained in the texts themselves, whose poetic structures were so carefully preserved, in comparison to their melodies, the troubadour repertoire changes dramatically. Where once there were surviving musical sources for only ten percent of the songs, there is now a surviving musical source for every surviving poem. We lack only a method of interpretation, of learning how to read the manuscripts as a kind of medieval musical score.

READING THE TROUBADOUR POEM AS SCORE

A troubadour poem, whether facsimile or modern edition, is not a score in the way that scores have come to be regarded since the twentieth century: you cannot hear the tune in your head during silent analysis, or sight-read it easily in real time, or use it, in the words of John Butt (2002, 106), "as a transparent recipe for performance, one that is indeed almost interchangeable with performance itself." But a troubadour poem *is* a score inasmuch as it is a vessel for musical information and inspiration, which through the development of the performer's own personal reading can lead to a very real interpretation/re-creation of the song. In order to achieve this kind of reading, certain circumstances must be met from the outset.

The performer must work in the original language. Old Occitan's musical value is inevitably lost through poetic translation, which tends to preserve nuance of meaning at the expense of rhyme and meter or vice versa, but never both. Douglas R. Hofstadter (1997, 459) attributes translators' willingness to relinquish the

Fig. 1

La Comtessa de Dia

I. Estat ai en greu cossirier
    per un cavallier q'ai agut,
    e vuoil sia totz temps saubut
    cum eu l'ai amat a sobrier.
5   Ara vei q'ieu sui trahida
    car eu non li donei m'amor
    don ai estat en gran error
    en lieig e qand sui vestida.

II. Ben volria mon cavallier
10 tener un ser e*n* mus bratz nut,
    q'el s'en tengra per ereubut
    sol q'a lui fezes cosseillier;
    car plus m'en sui abellida
    no fetz Floris de Blanchaflor;
15 eu l'autrei mon cor e m'amor,
    mon sen, mos huoills *e* ma vida.

III. Bels amics, avinens e bos,
    cora.us tenrai e*n* mon poder,
    e que iagues ab vos un ser,
20 e qe.us des un bais amoros?
    Sapchatz gran talan n'auria
    qe.us tengues en luoc del marit
    ab so que m'aguessetz plevit
    de far tot so qu'eu volria.

I. I have been sorely troubled
    about a knight I had;
    I want it known for all time
    how exceedingly I love him.
5   Now I see myself betrayed
    because I didn't grant my love
    to him; I've suffered much distress
    from it, in bed and fully clothed.

II. I'd like to hold my knight
10 in my arms one evening, naked,
    for he'd be overjoyed
    were I only serving as his pillow,
    and he makes me more radiant
    than Floris his Blanchaflor.
15 To him I grant my heart, my love,
    my mind, my eyes, my life.

III. Fair, agreeable, good friend,
    when will I have you in my power,
    lie beside you for an evening,
20 and kiss you amorously?
    Be sure I'd feel a strong desire
    to have you in my husband's place
    provided you had promised me
    to do everything I wished.

Fig. 2

musical integrity of a text to a misguided perception that sophisticated readers are unconcerned with "musical frivolity." Yet this frivolity was the heart and soul of *trobar*, the full aesthetic effect of which is impossible to recreate in a modern Anglo-Saxon idiom (Press 1971, 1–2). In the words of Old Occitan scholar William Paden (1998, 7), "precisely because the art of the troubadours is a lyric art, it demands to be studied in the original language." The communication barrier thus imposed fails to diminish Old Occitan's musical value, and may actually bring us closer to the source; regardless of their native language or dialect, all troubadours (as well as anyone who independently performed, read or copied their songs) adopted Old Occitan in order to participate in *trobar*.[11] This parallels the experience of today's performers and audiences every time they choose to engage with music in a foreign language for the sake of its sound.

The performer must work out loud. The reason for this becomes immediately apparent when confronted with a facsimile of a *chansonnier*. Because medieval scribes recorded text and melody alike in run-on lines with minimal punctuation, breaking only between stanzas if at all, the versification is not visually apparent in the manuscript and the poem must be heard aloud before it can be recognised as a song. The truth of this can be seen in a comparison of three versions (facsimile, transcription, and translation) of the song "Estat ai en greu cossirier," attributed to the Comtessa di Dia, circa 1160.

The facsimile text [Fig. 1] appears as prose: the only structural markers are the decorative letters indicating the beginning of each stanza, the syllables cannot be counted because it is unclear where one line of text ends and another begins, and the rhyming words are jumbled within the verses so the rhyme scheme is not apparent, though you would hear the rhymes if you read the poem aloud. The modern transcription of the Old Occitan [Fig. 2, left column]

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11 The various languages Old Occitan encompassed as the art language of troubadour song included Catalan, Gascon, Spanish, French, Italian, and various dialects of Occitan itself (van Vleck 1995, 23).

Figure 1. Facsimile of La Comtessa di Dia, "Estat ai en greu cossirier." Reproduced from Bertoni et al. (1979–82, Parte I, p. 85v) with kind permission from Mucchi Editore srl.
Figure 2. Transcription and translation of La Comtessa di Dia, "Estat ai en greu cossirier." Reproduced with kind permission from Brucker, Shephard, and White (1995, 10–11).

organises the text to allow for visual analysis of its structure but still does not bring the performer in contact with the musical possibilities of the language sounds, which need to be heard aloud and felt in the mouth to be explored. The editor of a given modern edition also may have chosen to standardise the Old Occitan spellings during the transcription process, rendering it more accessible to the reader but eliminating potential musical variation for the performer who would use the poem as a score. Finally, the English translation [Fig. 2, right column] reveals meaning but dismantles the numerical proportions and therefore the medieval *armonia* of the original song.

If the written versions of troubadour songs cannot visually communicate precise musical material to the performer in the manner of a modern score, they can act as a blueprint for emulating the troubadours' own composition process. Recall that the Old Occitan *trobar*, "to find," takes the place of later centuries' more familiar verbs "to write" and "to compose" (Menocal 1982, 139). In comparison to these modern equivalents, *trobar* evokes a sense of mysticism, chance, and the pursuit and sharing of treasure. What role did the linguistic music of the poem—its rhymes, syllable count, verse structure, vowel sonorities, inflection—play in the quest for a transcendent melody? In search of a plausible answer to this question, I decided to emulate the act of *trobar* as I imagined it, first by committing the words of a troubadour song to memory (in lieu of having written them myself), then by "finding" a melody through notationless improvisation, repetition, and memorisation.[12] The idea: if the linguistic music of the spoken poem helped the troubadours to find their melodies, a modern performer might use the same material to guide the finding of new, yet historically relevant melodies, thus gaining musical access to the full gamut of the troubadour repertoire. What follows is a description of my own process of putting this idea into practice.

Centuries removed from the cultural context and language of the poems I selected for my work, the process of emulating *trobar* had to begin with achieving the greatest possible intimacy with the texts through study of the sound and meaning of the Old Occitan language. This was when the manuscripts of the poems most literally served as my scores, whose musical content in a modern sense could not be unlocked until the sounds of words were lifted off the page through spoken exploration. There are many available editions of the troubadour lyric corpus, which handle the original Old Occitan and the task of poetic translation differently depending on the manuscript source(s) and the values of the editor. As discussed earlier, all approaches to translation result in some compromise of the music and meaning of the poetry. My own translations sought to clarify the literal meaning of individual words, a necessary step toward achieving fluency with the texts and their sounds. Ironically, the process of translating Old Occitan brought me into contact with a plethora of other languages; the most thorough Old Occitan dictionaries are in German and French, and because even these do not account for all the orthographical

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12 Memorisation, a necessary element of performance and transmission in an oral literary culture, is referenced specifically in original troubadour texts (van Vleck 1991, 48–49).

variations in my texts, I constantly turned to outside dictionaries for additional comparison, particularly Spanish, Catalan, and Modern Occitan.[13] Direct translation of certain words and phrases proved impossible, so I listed multiple possibilities instead of selecting one. Although visually complex, this approach revealed nuances of meaning that published translations are forced to simplify for the sake of presentation. My word-for-word translations, by virtue of ignoring the rules of English grammar, also drew attention to the composers' manipulation of syntax to achieve certain metrical and sonorous effects, an aspect of linguistic music that is "corrected" in modern poetic translations.[14]

Old Occitan has many scholars but no native speakers, making the study of its pronunciation a more creative process than one would expect. What we know of the pronunciation, interestingly, has been reconstructed through analysis of the same musical content that was the essence of the troubadours' art; rhyme sounds and schemes, syllable counts and stress patterns, as well as orthographic variation, Latin etymology, and the sounds of sister languages like Old French, Italian, Spanish, Catalan, and Galician-Portuguese. Because language sounds alter gradually over time, it is impossible to reconstruct the precise pronunciation of Old Occitan or any language at a specific point in history. Instead, scholars attempt to reconstruct a palette of plausible sounds that could have been heard in society at the time (Wray 1992, 295). Though I was a newcomer to Old Occitan and medieval studies in general, I undertook to construct my own palette in this way, in order to fully experience the extent to which musicality and expressivity could influence the process.

I began by learning the basic vowel and consonant sounds recommended by existing authorities on Old Occitan pronunciation, according to the approximate date of each song.[15] From there, the process developed aspects of a detective game. As we have already seen, numerical patterns were the backbone of troubadour versification. Much of my time was spent hunting for these patterns, trying to identify the syllabic breakdown of individual words, the coordination of masculine versus feminine endings, and plausible, metrically exciting distributions of stresses. This hunt was complicated by orthographic variation; I could not simply trust my dictionaries and pronunciation guides, because troubadours and scribes alike exercised a considerable freedom to elide, omit, contract or otherwise manipulate sounds to serve the needs of versification and available parchment space (van der Werf and Bond 1984, 62).

This astonishing variability of spelling, which occurs not only between manuscripts and composers but also within individual songs, quickly became my biggest source of both frustration and creative musical freedom. The most common explanations for it are (1) most of the *chansonniers* were com-

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13 For Old Occitan dictionary resources, see Paden (1998). The most thorough contain approximately 20,000 entries. Jeffrey Gantz (2008) calls Modern Occitan "a wordsmith's delight" for its vast lexicon, which is comparable in size to English. Hill and Bergin's (1973) anthology of troubadour songs contains a complete glossary of the vocabulary that appears in the anthology, which is extremely helpful for the performer.

14 Because word stresses in Old Occitan vary according to syntax, manipulation of syntax was a way of achieving rhythmic tension and release (Switten 1998, 17).

15 According to Robert Taylor (1996, 111), certain Occitan vowels shifted significantly between the twelfth and thirteenth centuries, for example [u] to [y], and tonic [o] to [u].

piled in countries outside of Occitania, generations after composition, by scribes who likely had only a distant understanding of Old Occitan, and (2) spelling and writing had not yet become codified to the extent they are now (Paden 1995, 308).[16] A compelling alternative explanation, and the source of my creative freedom, is that the spelling reflects the poet's intentional musical choice from within the rich variety of possible linguistic sounds, to be pronounced as written. According to Old Occitan scholar Robert Taylor, "Regional variants even occur within the same poem, and some poets seem to have used them at will as a means of enriching their fund of expressive words and sounds" (Taylor 1996, 104–105). Within the boundaries laid out for me by current experts and analysis of the songs' poetic structure, my actual execution of the pronunciation—how long to prolong the [rr], how slowly to move though the components of a triphthong, how long to linger on an ending [j]—reflected artistic choices that may always be under development. What sounds, within the plausible palette I had assembled, struck me as most musically charged? It is worth noting that this orthographic variation, and the creative musical freedom it inspired, is only accessible if the performer works from a facsimile or a literal transcription with no corrections by the editor; when reading poem as score, the choice of edition is just as significant as when studying a standard musical work.

I created working phonetic transcriptions and word-for-word translations [Fig. 3] of my pronunciation choices in IPA, to serve as a memory aid for me and guidance for future performers who might lack the necessary resources for thorough language study. Ironically, unless future performers are able to recognise the artistic subjectivity and experimentation that produced them, these transcriptions will help to "fix" the pronunciation of the songs I studied just as the *chansonniers* have fixed the content of the extant troubadour melodies for today's historically informed musicians. Nevertheless, the transcription process itself was invaluable as a vehicle for developing and refining my ability to read and interpret the linguistic music contained in the poems.

After studying the language and structure of the poems in such depth, during the course of which I committed the texts to memory, I was ready for the actual process of *trobar*. I began by reciting the lyrics repeatedly aloud, immersing myself in their sound and flow. As my spoken interpretation developed, I repeated increasingly smaller fragments of poetry (down to a single word, sometimes even a single syllable), listening to and heightening the rhythmic, melodic and dynamic contours that emerged. In this way I began to identify speech-derived, approximate melodic gestures for those fragments of text. These gestures then guided me in improvising increasingly pitch-specific melodic phrases, during which I maintained a speechlike vocal production to keep the subtle linguistic-melodic nuances as clear as possible. For example: the first two words of the seven-syllable line "Ara vei

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16 Bruckner, Shepard, and White's (1995, 96) edition of the song "Na Carenza al bel cors avinen" is a good
    illustration of this; the text displays deviant spellings that seem to clearly indicate the work of a foreign
    scribe.

I.						
I have	been	in	grievous	worry/perplexity		
Estat	ai	en	greu	cossirier		a8
[e'stat	aj	en	grew	cusir'jɛr]		
for	a	knight	that	I had,		
per	un	cavallier	q'ai	agut,		b8
[per	yn	kaval'jɛr	kaj	a'gyt]		
and	I want	it to be (for)	all	time	known	
e	vuoil	sia	totz	temps	saubut	b8
[e	vɥɔjl	'si·a	totz	tems	saw'byt]	
How	I	him have	loved	to	excess.	
cum	eu	l'ai	amat	a	sobrier.	a8
[kum	ɛw	laj	a'mat	a	subr'jɛr]	
Now	I see	that I	am	betrayed/deceived		
Ara	vei	q'ieu	sui	trahida		c7'
['ara	vej	kjɛw	syj	tra·'ida]		
For	I	not	to him gave	my love		
car	eu	non	li donei	m'amor		d8
[kar	ɛw	nun	li dun'ej	ma'mor]		
Wherefore	I have	been	in	great	torment	
don	ai	estat	en	gran	error	d8
[don	aj	e'stat	en	gran	e'rror]	
in	bed	and	when	I am	clothed.	
en	lieig	e	qand	sui	vestida.	c7'
[en	'ljejʃ	e	kan	syj	ve'stida]	

Fig. 3

q'ieu sui trahida" ("now I see that I am betrayed," ['ara vej kjɛw syj tra 'ida] in IPA), developed a falling-rising contour, wherein the two syllables of ['ara] initiated as an exclamation in middle chest voice that descended in a sighing gesture through the [r], after which the one-syllable dipthong of [vɛj] began on the same pitch area to which ['ara] had descended, scooping slightly upward to complete the sound of the [j]. Through repetition and exaggeration these two approximate melodic gestures eventually became fixed as a descending perfect fourth followed by an ascending whole step, the final pitch an unstressed liquescent.

The next step was to arrange these melodic gestures and phrases into a whole that reflected the larger musical structure of the verse. According to John Stevens (1986, 499), "the [troubadour] did not set the words of the poem to music; he set its pattern. It was this pattern, a purely numerical structure of stanzas, lines and syllables, which preceded both the melody and the poem." As I spoke and sang the words, I responded to linguistic patterns with melodic ones. Rhymes inspired repetition of melodic fragments and pitches. Striking consonant and vowel combinations induced vocal effects like ornaments, slides and particular rising or falling intervals. Refrains produced repetition of an entire melodic phrase. Rarely remembering exactly what I had previously sung, my composition took the form of improvised variations upon an increasingly solid melodic frame.

Though linguistic music guided my creation and arrangement of melodic gestures, when it came to style I was forced to confront the chronological and cultural distance between me and the artists whose process I was trying

Figure 3. Transcription of the first stanza of La Comtessa di Dia, "Estat ai en greu cossirier." Original text from Bruckner, Shepard, and White (1995, 10). Translation and IPA transcription by Robin Bier.

to experience. My process of *trobar* was what John Haines described as "… a work of the imagination whose inspiration is in the past but whose workshop is wholly in the present."[17] Though well aware that I was inescapably influenced by my twenty-first century perception of what constitutes "medieval," I modelled my choice of sound world after the characteristics of extant troubadour melodies as they are interpreted in modern transcriptions and recent historically informed recordings. It was difficult to avoid modern musical language that implied functional harmony and difficult not to become engrossed in the creation of melody for its own sake. My ear occasionally attempted to "find" in the poetry qualities of genres more familiar to me (i.e., a sonnet structure in iambic pentameter). I was also frequently tempted to imitate well-known troubadour melodies, unconsciously responding to similarities in poetic structure with contrafacts of my own creation; this final temptation I did not resist, because, as already discussed, the imitation of other melodies was likely a part of *trobar* for the troubadours themselves. The artistic results of my process of *trobar* restore unnotated troubadour songs to a compelling musical existence which not only compares convincingly with original melodies and avoids the compromises associated with contrafacture, but also successfully achieves the intimate relationship between words and music coveted by early and contemporary performers alike.

But why stop here, having arrived at a deeply personal realisation of a score that no other performer will be able to reproduce exactly, even via precisely the same process of *trobar*? Why not transcribe the results into a more transferable kind of score or remain even closer to the original source and literally transcribe the spoken linguistic music? This latter is not a new technique, and some scholars view medieval vernacular song as belonging to the same traditions as classical oratory, plainchant, and possibly even Arabic Quranic recitation, all of which tread the boundary between speech and song.[18] With such an ancestry, the notated troubadour melodies from the *chansonniers* could be understood as a stylistically enhanced formalisation of an expressive declamation of the poetry. By developing a musical recitation, attempting to notate it, and finally distilling a rhythmic and melodic framework out of the result, it might be possible to rediscover lost melodies by working backwards from the text.

This idea raises questions of feasibility and relevance. Western musical notation and musical vocabulary is ill-equipped to capture the subtleties of linguistic music, which moves "not by notes, but by slides, in which no graduated distinction of tones, or semi-tones can be measured by the ear; nor does the voice dwell distinctly, for any perceptible space of time, on any certain or uniform tone …" (Chapman 1818, 2). Were a precise transcription possible (such as a

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17 Haines (2004a, 291–292) is referring to the popular Occitan-inspired ensembles in Southern France who claim the medieval troubadours as their artistic and cultural heritage.

18 Quintilian describes a particular orator who required an attendant musician to provide notes from a pitch pipe during his speeches (Stevens 1986, 381). Stevens also discusses the relationship between early chant notation and nuances of spoken sound, calling chant a stylisation of the "music" of speech (ibid.).

computer analysis of a recording might yield), a human performer would be unable to precisely read and reproduce it. Such a transcription, capturing a single moment in a continuum of dynamic motion, is relevant and helpful only if recognised for what it is: one among many realities. And, on the other hand, if such a precise transcription executed multiple times were to reveal consistent musical content in the spoken recitation of a poem, why formally notate what is inherent to the score in its poem form and can be trusted to emerge in live performance?

CONCLUSION

From the perspective of historically informed performance practice, the most valuable contribution of reading troubadour poems as scores is not the substance of the melodies it yields. These, like all modern reconstructions of medieval music, are unavoidably influenced by the performer's twenty-first-century perception of what medieval music should sound like. Rather, the true value of this performance practice lies in the relationships it forges between the words of the song, the melody of the song, and the performer of the song. The process of *trobar* itself, for which the concept of poem as musical score serves as the essential point of departure for a modern performer, results in a deep familiarity with the song simply through repetition and exquisite attention to word sounds and poetic structure. By interpreting the linguistic music according to medieval definitions and allowing the melody to reflect linguistic sound and pattern rather than linguistic meaning, a musical richness appears that is was previously concealed.

Reading troubadour poems as scores and using them as a guide to play the game of *trobar* today, centuries removed from its inventors, yields a new performance practice that represents the most complete combination of primary sources. These are: surviving words, surviving melody, medieval definitions of music, and—perhaps most importantly from the perspective of the performer—the creative essence of *trobar*, in which the creative input of the performer as composer is embraced. By restoring these songs to a musical existence drawn from their linguistic *armonia*, reading the troubadour poem as musical score does not initiate, but rather continues and revitalises a composition process begun by the twelfth and thirteenth centuries. To follow the philosophy of Claude Sicre, a living troubadour from modern Occitania: "the best way to perpetuate the *art de trobar* … is to create new songs."[19]

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19 Haines (2004a, 287) includes in his history of troubadour performance practice the work of modern Occitan folk-fusion groups like Claude Sicre's Massilia Sound System. In an interview with Haines (2004b, 149), Sicre compared his work to that of the historical performance movement: "Historically, I do not care [if my music is descended from medieval troubadour song], that is not important. But when I listen to a piece by [here he names an "historical" performance group], I feel like I am at a first-class funeral, whereas when I listen to my version, I feel as if the troubadour wrote it fifteen days ago."

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Sound Drifts

The Phenomenon of Stylistic Change in the Interpretation of Fixed Texts

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Canada's craggy northeasterly coasts are frequently battered by ferocious winter snowstorms called nor'easters, and I had the opportunity to witness just such an event on a recent trip home to Halifax, Nova Scotia, last year. As a pianist-researcher interested in the late performing style of Johannes Brahms' circle and the stylistic drift that has occurred in the intervening century since his death in 1897, the frosty blanketing became a potent source of metaphorical inspiration. The way the heavy snowfall acted upon fixed, familiar objects inspired me to think about stylistic change and the many forces that act not only upon the way performers interpret scores but upon the way musical practices are encoded in the first place. In this reimagining, I began to think of the aggregate of these forces as the snow and the fixed objects upon which they act as scores.

It became clear that the elements that made up this accumulation (the snowflakes) tended to be connected to a performer's particular musical context and that it was performer context that led to multifarious and ever-changing interpretations of a seemingly fixed score over time. For example, when snow lightly dusts familiar objects—like the differences in interpretation between, say, Russian, American, French, and British pianists—the object remains familiar and one perceives it before its dusting. Once the snowfall accumulates, the essential form of the object remains clear, but its contours and profile become somewhat altered by its covering—perhaps like historically informed experimentation with ornamentation and improvisation in canonic repertoires. Snowstorms of this magnitude can also forever alter an original object, whereby the buildup proves too much for its structural integrity, leading to total collapse. Here, I imagined the implications of musicological studies that reveal a much-loved work has been falsely attributed to some great master, or perhaps cyclical distastes for particular styles and genres. Finally and perhaps most importantly, one need only imagine a snowy field littered with divergent, parallel, and intersecting trails of footprints to understand how the snow can leave

evidence of where we have been and where we are headed—all vital parameters for anyone interested in the mechanisms of stylistic change.

For pianists curious about late nineteenth-century Brahmsian performance practices, however, the issue of stylistic drift is not always as straightforward as following footprints in the snow. In fact, the topic can be at once obvious and divisive. Obvious because the availability of turn-of-the-century recordings and newly translated accounts of the playing styles of Brahms and his circle leave little doubt that *some* stylistic drift has occurred in the intervening century since the composer's death. Divisive because such evidence continues to be rationalised, synthesised, and translated along extremely divergent lines both by historically informed performers and by the burgeoning hybrid breed of historically *curious* mainstream performers.

Of course in this post-Taruskin musical climate there seems to be a growing terminological discomfort amongst musicians with many of these distinctions, and rightly so. Few pianists could be called historically *un*informed. Furthermore, not only are most of the decisions we make at our instruments based on some notion of authenticity, but the vast majority of the repertoire we perform could in fact be called "early" or "old"—in other words, from a performative and historical context not our own. In any case, be it commercially, institutionally or ethically, there is indeed an invisible divide between those pianists who self-identify as HIP, early or period, and those who call themselves modern or mainstream. One need only walk the halls of the world's leading conservatories, where pianists study many of the same musical works in separate departments labelled either "Early" or "Classical." For my own purposes, I prefer to use the term "mainstream" to refer to those musicians who play in a style firmly rooted in twenty-first-century practices and "period" pianist for those musicians who have consciously decided to perform in a style they view as primarily "informed" by a historical context other than their own. So what other elements tend to define such divisions?

Many period pianists tend to view nineteenth-century style as an exotic and distant land full of practices sullied first by the romantic excesses of turn-of-the-century pianism and later by the ascetic ideals of mid-century virtuosic modernism. To them, Brahms' late style was an extension of late classical style—in other words, arguing forwards from Harnoncourt's Beethoven rather than backwards from Furtwängler's Wagner. Indeed, because Brahms is known to have fervently edited and collected manuscripts from seventeenth-, eighteenth-, and early nineteenth-century masters, many period pianists not only take contemporary HIP approaches to these repertoires as a starting point when extrapolating forward to a Brahms school of pianism but also mistakenly identify Brahms' particular devotion to music of the past with theirs. In fact, Brahms' historical expertise "should not lead [one] to the supposition that Brahms was an editor in the modern musicological sense" (Musgrave 2000, 160). He did not share our preoccupation with historical accuracy and authenticity but rather immersed himself in old music out of pure enjoyment, intellectual and musical curiosity, and with a mind to synthesising old techniques with the new. In 1891 Brahms confessed to Clara Schumann: "I know

from experience that am not a good editor. I have tried it often enough … and must concede that others are better suited for the business" (Avins 1997, 689). We cannot assume that all composers who engaged in the study and synthesis of old music approached it in the same ways we do, as authentically-minded restorations of some original state of play.

Period Brahms is most commonly played on the pianos Brahms used in his early teens and twenties, such as 1840s-era Streicher fortepianos and even earlier Grafs, since Brahms is known to have been given Robert Schumann's old Graf after his hospitalisation. In truth, Brahms kept Robert's old piano purely for sentimental reasons and thought it thoroughly unsuitable for performance. In 1868 he called it a "precious but bulky souvenir" (Avins 1997, 364), and by 1873 he had it shipped off to Vienna's International Exposition for display alongside the pianos of Mozart and Beethoven. Some period pianists also perform on the mightier 1890s-era Steinway and Bechstein pianos, but almost always with the lighter, quicker, sparser approach consumers and players of period music enjoy and view as more historically accurate. These performances may also feature a number of expressive devices, such as rolled chords, doubled basses, tempo phrasing, dislocated melodies and even improvisation—devices many mainstream pianists are loathe (or nervous) to attempt publicly. Period pianists are also more likely than their mainstream counterparts to approach Brahms' texts with a mind to reading *between* the lines, alert to the hidden performative worlds that can lurk within a printed score and be revealed only if one becomes familiar with the particular performing contexts that gave rise to that score in the first place. Finally, period pianists tend to be acutely aware of these contexts—as well as their own—bravely seeking new ways of brushing off the accumulated snow of generations to reveal more historically accurate ways of approaching familiar repertoires.

The Brahmsian pianism one hears in the world's great piano competitions or on recordings deemed "definitive" are examples of what one might call "mainstream" Brahms. Far from viewing late nineteenth-century style as remote, mainstream pianists believe that little of any importance has changed in the intervening century since Brahms' death—that we play essentially as he did—a belief that leads us to almost absolutely literal readings of his scores. After all, Brahms himself is known to have remarked to a student while pointing to a score, "it is all there" (Musgrave 2000, 130). While such statements have been commonly interpreted as evidence supporting just such a literal approach to interpretation, I would argue that Brahms is advocating a richer reading of texts here, challenging the thinking performer to become familiar with the performative contexts that gave rise to a particular score. However, the idea that there is some lost context lurking just beyond the printed page is one that most mainstream pianists confidently assume does not apply to Brahms. This sense of assuredness is largely due to the fact that the style we now call "mainstream" has evolved or accumulated naturally from generation to generation, without the *conscious* input of outside movements or ethical principles. Nevertheless, this style has undoubtedly been shaped by many of the same tastes and themes that drive the early music

movement: authenticity; composer intent; and cleaner, quicker, more consistent and less "Romantic" performances across the board.

Mainstream pianists tend not to be as conscious of their own historical situatedness as their period counterparts, often leading us to believe in this unbroken stylistic continuum between Brahms' day and our own. We acknowledge that our instruments are somewhat different (ours are better) and that the recordings seem a bit overtly Romantic (sloppy) to our modern tastes, yet we do not apply such teleological views to Brahms' scores, since they have more or less remained constant and thus retain their status as direct links to Brahms' intent. For all of these reasons, mainstream pianists tend to view the divergent sounds and styles heard in historical recordings and described in period accounts not as more authentic but as less kitschy reminders of turn-of-the-century Romantic excess, inferior instruments, and lower technical standards—all elements that have veiled what Brahms the heroic Classicist would have wanted.

Despite today's division between mainstream and period pianism, a small yet determined group of pianists are becoming increasingly convinced that the two camps share many more commonalities than differences. The most important is that, for all our shared preoccupation with themes of authenticity and composer intent, our artistic products are more reflective of our *own* historical context than of Brahms'. Our tendency to remake the past in our own image is evidenced by just how at odds all of our Brahmsian performing practices are, be they period or mainstream, from those captured by the recordings of Brahms and his circle. We are more convinced than ever that this difference can no longer be reduced to instrumentation, to sloppy pianism or kitschy romanticisms; it results from changing tastes in the translation of score into sound. We are now committed to releasing ourselves from the bondage not only of the Brahms myth but also the tyranny of his texts. Unlike most musical traditions worldwide, we read music, not just think music. But like all cultures, how we *do* music is steeped in our historical, cultural, social, political, generational, educational, and ethical situatedness—in other words, under layers upon layers of snow. Studies of recordings, when undertaken conscientiously, are one of the most effective tools artist-researchers have at their disposal in scraping away these layers. In a sense they are like shovels, helping musicians come to terms with how the passage of historical time affects the ways we read fixed texts and hopefully resulting in artistic products more in line with our common goal of ethically responsible, historically informed, and artistically vibrant performances.

In recent years, many musicologists have turned to comparative studies of recordings to learn more about how the passage of time affects the ways performers translate scores into sound. These studies tend to compare a large number of recorded performances of the same work, looking for broad trends in stylistic drift as related to one or more performative parameters (of which timing and tempo are the most easily measured and thus most common). Most studies formulate their results based on when the recording was made (in other words, trends in performance style at the time of recording), but what influences performers more: their generations or the musical climate in which they record? In my experience, these approaches must be tackled together because

they can yield very different results. Table 1 contains overall timing information on a group of 15 artists who recorded Brahms' Intermezzo in E Flat Major, op. 117, no. 1, listed according to date of recording from earliest to most recent.

Artist	Nationality	Dates	Date of Recording	Artist Age	Total Duration
W. Backhaus	DEU	1884–1969	1936	52	4:36
A. Rubinstein	POL/USA	1887–1982	1941	54	4:46
M. Hess	GBR	1890–1965	1941	51	4:52
G. Anda	HUN	1921–1976	1947	26	5:08
A. De Lara	GBR	1872–1961	1951	79	3:56
G. Gould	CAN	1932–1982	1961	29	5:36
W. Kempff	DEU	1895–1991	1964	69	4:37
R. Lupu	ROM	1945–	1970	25	5:43
P. Rösel	DEU	1945–	1972	27	4:35
I. Biret	TUR	1941–	1989	48	5:20
I. Pogorelich	HRV	1958–	1991	33	5:36
H. Grimaud	FRA	1969–	1996	27	4:33
L. Andsnes	NOR	1970–	1997	27	5:19
M-A. Hamelin	CAN	1961–	2005	44	5:16
N. Angelich	USA	1970–	2007	37	5:30

Table 1. Artists who recorded Brahms' Intermezzo, op. 117, no. 1, by date of recording.

Tables ordered by date of recording (as table 1 is) are tantalising for musicologists looking to broadly compare pre- and post-WWII pianism, for example, or to differentiate a 1980s "way of playing" as opposed to that of today. And indeed, many telling things can be gleaned from such an approach. For one, we know that in 1929 Fanny Davies (a former pupil of Brahms) reported that his slower works were increasingly being played too slowly (Bozarth 2003, 176), and this overall trend is indeed reflected in the table. Fifty-four seconds separate Wilhelm Backhaus's 1936 recording from Nicholas Angelich's more drawn-out performance of op. 117's *Andante moderato* in 2007. Perhaps, though, it is somewhat surprising that there isn't more of a difference, given the 71-year gap between the two interpretations.

Table 1 can also tell us interesting things about more localised trends, as seen in the remarkably close dates of birth, age at time of recording and overall timing of Arthur Rubinstein and Myra Hess' 1941 performances, although in order to say something definitive about early 1940s pianism one would need to expand the number of recordings sampled with artists recording around the same time. But the benefits of such an approach begin to break down as soon as one notices the many glaring hiccups in this overall trend of increasingly longer performances over time. Figure 1 displays the data of table 1 with artists listed along the x-axis in order of recording date (from earliest to latest) and performance timings (in seconds) along the y-axis. [Fig. 1]
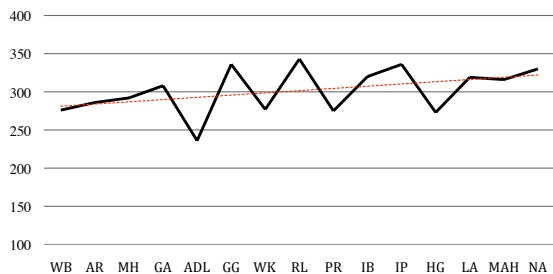
Fig. 1

While the general trend of performance durations increasing over time (indicated here with the dashed line) is apparent, I see a rather steady increase of durations over the first four performances (Wilhelm Backhaus through Geza Anda), followed by a period of remarkable diversity (Adelina De Lara to Hélène Grimaud), with again some correlation between the three last recordings (Leif Ove Andsnes to Nicholas Angelich). Despite the overall trend towards longer, slower performances over time, there are just too many hiccups here in the centre of the graph—even between performances recorded around the same time—to make responsible statements about trends in performance timings over time. For example, notice how little similarity De Lara's speedy performance bears with any of the other recordings, much less those recorded nearest to her. If one were to take away her recording, only then is some sort of steady increase in duration apparent between Wilhelm Backhaus and Glenn Gould. Clearly, something is informing De Lara's quick timing *other* than the context in which she recorded this work in 1951. In fact, if one closely examines the valleys and hills of the recording timings in the middle of the graph, it seems generational context is playing a more potent role here. Of the lowest overall timings in the centre of the figure, Adelina De Lara and Wilhelm Kempff are the only two artists born in the late nineteenth century, while Glenn Gould and Radu Lupu were born towards the middle of the twentieth.

Artist	Nationality	Dates	Date of Recording	Artist Age	Total Duration
A. De Lara	GBR	1872–1961	1951	79	3:56
W. Backhaus	DEU	1884–1969	1936	52	4:36
A. Rubinstein	POL/USA	1887–1982	1941	54	4:46
M. Hess	GBR	1890–1965	1941	51	4:52
W. Kempff	DEU	1895–1991	1964	69	4:37
G. Anda	HUN	1921–1976	1947	26	5:08
G. Gould	CAN	1932–1982	1961	29	5:36
I. Biret	TUR	1941–	1989	48	5:20
R. Lupu	ROM	1945–	1970	25	5:43
P. Rösel	DEU	1945–	1972	27	4:35
I. Pogorelich	HRV	1958–	1991	33	5:36
M-A. Hamelin	CAN	1961–	2005	44	5:16
H. Grimaud	FRA	1969–	1996	27	4:33
L. Andsnes	NOR	1970–	1997	27	5:19
N. Angelich	USA	1970–	2007	37	5:30

Table 2. Artists who recorded Brahms' Intermezzo, op. 117, no. 1, listed by date of birth.

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Figure 1. Artist's timings of op. 117, no. 1, listed according to date of recording.
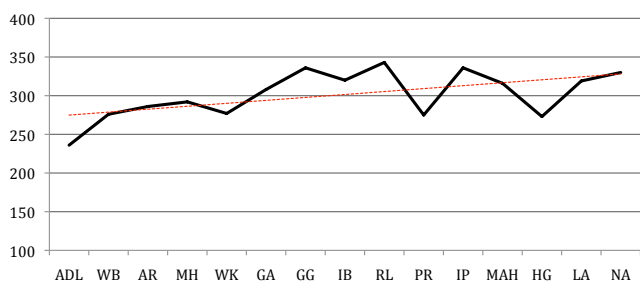
Fig.2

Now look at what happens when we re-order the list of artists in both table 1 and figure 1 according to birth date, from earliest to most recent. [Fig. 2]

Here we get a much sharper increase in performance timings; a full minute and thirty-four seconds separates Adelina De Lara's speedy time from Nicholas Angelich's. Furthermore, De Lara's outsider duration makes more sense in this arrangement. Even though she didn't record until 1951, she learned this work directly from Brahms himself—perhaps explaining, when coupled with her age at time of recording, why her timing differs so significantly from the other pianists recording around the middle of the twentieth century. Such a table can even tell us thought-provoking things about changing demands on performers and what kind of place this piece occupies in the lives of recording pianists. Each of the pianists born in the nineteenth century recorded this work quite late in life, at an average age of 61 years; while all of those born after 1921 tended to record quite young, at an average age of 32.3 years. There are many possible reasons for such results (especially the availability of recording technology in the first place), but for me this result has a lot to do with the pressures on modern pianists to carve out niches as "recording artists" ever earlier in life.

Pianists in the first half of the twentieth century were encouraged to be "personalities" on stage, and live performances were opportunities for audiences to share in a highly individual instance of music making. Pianists' live performances today are virtually interchangeable with their recordings, and they are frequently criticised for not "being as good" as the recording. What's more, Brahms' late piano miniatures, op. 117–119, tend to attract certain types of pianists at very particular times in their lives. Once viewed as "encore" music with which an artist could assert his or her more reflective side after a career (or a concert) spent proving their mettle with the more virtuosic warhorses of the piano canon, these works are increasingly being tackled by younger concert pianists eager to prove they're not "all chops" in this prodigy-saturated market. Perhaps this can explain why the only classic "virtuoso" amongst those pianists born after the Second World War, Marc-Andre Hamelin, waited so long to record Brahms' late piano works: he was too busy proving his technical prowess with volumes of Prokofiev and Scriabin sonatas.

In figure 2 we now see a fairly steady increase of durations over time, with two quite fast performances from Peter Rösel and Helene Grimaud. Adelina De Lara's time is still quite a way off from the next closest birthdate (Wilhelm Backhaus), but at least with regards to the overall trend, her fast time now makes some sense, as do Glenn Gould's and Radu Lupu's very long performances. So does this mean that when it comes to performance timings, an artist's generational context says more about their approach to pacing and tempo than the performative context in which they would later record the work? This seems almost certainly to be the case. Anyway, if we're going to try to make statements

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about how performers tended to turn score into sound along some chronolog-ical continuum, it's a good idea to keep such generational and contextual dis-tinctions in mind. And of course performance timings aren't everything, but all of the interpretive decisions that go into each of these artists' treatments of essentially the same score have implications as a function of time, so timings can be an incredibly helpful place to start.

Studying how pianists manipulate time on a *smaller* scale can say even more about their personal interpretive approach, as well how that approach may change over time—especially given that most of these minute adjustments are not notated. I thus went back to Table 2 to investigate what was really going on between performances that happened to be durationally similar—as in the case of Glenn Gould and Ivo Pogorelich's recordings, for example. Born twenty-six years apart, from very different musical worlds both culturally and geographi-cally, and having recorded this work thirty years apart, these two pianists not only produce two of the longest performances, but each plays the work in exactly 5 minutes 36 seconds, and the first four bars of the work in exactly 19 seconds. But a simple listen to the two performances makes one thing quite clear: each pianist is manipulating time over these four bars in drastically different ways and, as such, is interpreting the same line of text along very different paths. Figure 3 shows the first four bars of Brahms' Intermezzo in E-flat major, op. 117, no. 1. [Fig. 3]

Fig. 3

If you plug each performance into a program like Sonic Visualiser, you can map the minute tempo changes each artist makes from note to note, giving you a clearer idea of their interpretive stance on this line of score and, more impor-tantly, how they "read between the lines" of Brahms' text. Figure 4 is a rep-resentation, via Sonic Visualiser, of Glenn Gould's performance of the opening four bars of op. 117, no. 1. Here you see the waveform of the recording's sonic information, whereby each peak signifies a note onset. If you check back to the score in figure 3, you can match up each note onset with Brahms' nota-tion, whereby note onset 1.1 refers to the first eighth note of Bar 1, note onset 2.6 refers to the sixth eighth note of Bar 2, and so on. Keeping this in mind, it is quite easy to see the four phrase groupings in the score clearly reflected in Gould's waveform. Time (in seconds) runs horizontally, while approximate

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Figure 3. The opening four bars of Brahms' Intermezzo in E-flat major, op. 117, no. 1
(Brahms 1892).

metronomic readings run vertically. Thus, when the graphed tempo line run-
ning over the top of the waveform goes up in figure 4, Gould is rushing; when
it goes down, he's slowing—and, of course, the score indicates neither. [Fig. 4]
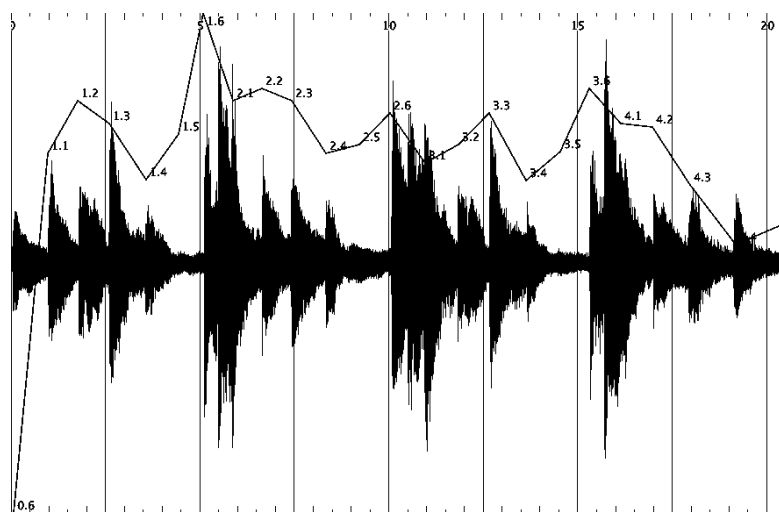
Fig. 4

It's not necessary to go into much detail here about the sorts of analyses I car-
ried out, but what's most important for studies on stylistic drift in notational
interpretation is that Gould's and Pogorelich's performances, though equal in
timing, differ dramatically with regard to how they shape phrases with tempo.
Specifically, the way each pianist approaches and leaves the downbeats of Brahms'
score (that is, the length of note onsets .6 and .1 each time) and the time they take
going into and out of the quarter notes (the space between .3 and .4, and .4 and
.6) tell us remarkable things about whether each pianist shapes and groups the
four notated phrase-units as one overall phrase, as two phrases, or as four equal
phrases. Even more interestingly, the pianists' approaches to such tempo-as-
sisted phrase grouping seem to be rooted in their generational contexts.

For example, if we look at Gould's tempo graph from figure 4, we can see that
he rushes over the middle of each of the four phrase-units and slows into the
quarter notes at .4 each time, thus shaping each unit in a similar way. But this
four-phrase conception is tempered by the facts that the second phrase unit ech-
oes the first in the amplitude (hills and valleys) of his tempo phrasing and that
the fourth phrase-unit slows from 4.1 on. This creates the impression of a two-
phrase conception, whereby the second unit echoes the first and the third sets
up the fourth. Gould also cuts Brahms' line in two by making the quarter note
at 2.4 the longest of the line's quarter notes, as well as by lengthening the down-
beats most at 1.1 and 3.1 and least at 2.1 and 4.1, further emphasising this two-
phrase conception. Thus, like many pianists of his generation, Gould is faithfully
outlining each individual phrase unit as notated, though grouping phrase units 1
and 2, and 3 and 4, to create the impression of two larger phrase groups.

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Figure 4. The opening four bars of op. 117, no. 1, as performed by Glenn Gould and
displayed by Sonic Visualiser.
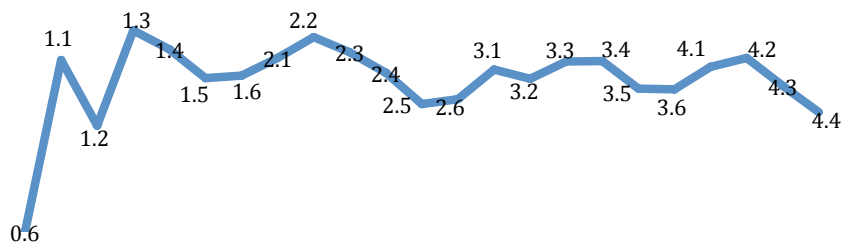
Fig. 5

Though his performance is exactly the same length as Gould's, figure 5 shows just how different Pogorelich's musical conception of this line of score is. [Fig. 5]

What immediately stands out is Pogorelich's wild lengthening of the downbeat of the first bar (1.1) and his slowing of phrase unit 4 (from 4.2 on). Taken together, this has the effect of emphasising the beginning and end of Brahms' line of score, creating the impression of one long line. This overarching effect is further underlined by the fact that Pogorelich uses tempo phrasing throughout the line to create the impression that the second half of the line (3.1 to 4.4) is an echo of the first half (1.1 to 2.6). The echo effect stems from the lesser amplitude of the hills and valleys of the latter half of Pogorelich's tempo graph. Finally, as already mentioned, only downbeat 1.1 is dramatically lengthened, while downbeats 2.1 and 4.1 are actually rushed, and downbeat 3.1 is only slightly lengthened (though almost imperceptibly to the naked ear). All of this creates forward momentum after the initial lengthening of 1.1, which, when combined with the emphasis on the beginning and ending of the phrase, only further entrenches the feeling of one long line. Here Pogorelich is hierarchically grouping these notationally equal phrases in a way that's still very much in fashion today, with a mind to creating the long "Brahmsian" line so valued by modern pianists. As I mentioned before, the ways in which pianists shape and group Brahms' phrases is indeed rooted in their historical situatedness—but perhaps not exactly in the ways I anticipated.

In carrying out similar analyses on the other thirteen artists from table 2, I was surprised to find that earlier pianists such as De Lara, Hess, and Rubinstein tended to tempo-phrase the four phrase units found in the opening bars of Brahms' Intermezzo op. 117, no. 1, much as Pogorelich does—into one long overall line. It is commonly assumed that pianists born in the nineteenth century took more care to emphasise phrases in a more localised way; but this seems untrue, at least with respect to this particular work and these particular pianists. It is only with the performances of pianists born towards the middle of the twentieth century (Gould, Lupu, Anda, Biret) that you begin to see pianists who divide this line into two. These days, despite the fact that modern pianists pride themselves on their long, expansive, Brahmsian lines, we actually still tend to tempo phrase this line in two—in other words, along stylistic precedents established for the most part in the 1960s and 1970s.

Such methods are just a few of the many tools at the disposal of artist-researchers interested in the mechanisms of stylistic drift with regards to a specific performative parameter like tempo phrasing. At the beginning of this paper I discussed how the issue of stylistic drift is at once an obvious and divisive one for many twenty-first-century pianists—modern or period. We know it's happening, but we still justify most of the decisions we make at our instruments by referencing themes such as authenticity, tradition, status of the text, and composer intent—and yet our performances sound nothing like those evidenced

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Figure 5. Ivo Pogorelich's tempo graph of the opening four bars of op. 117, no. 1, isolated from waveform.

by the historical recordings. I alluded to a metaphorical application of "snow" and how it, like stylistic drift, acts upon objects such as scores. By familiarising ourselves with the mechanics of such morphoses, pianists can start to come to terms with the real driving force behind their artistic practices: their particular performative context. Studies of recordings reveal our biases and agendas in all their glory, as well as the malleability and mystery of the musical text. How we play that which is not notated will always say more about us than it does about *them*. Whether we believe in an unchanged stylistic continuum stretching out between Brahms' day and our own, or whether we view that world as distant and foreign, mainstream and period pianists will never achieve their common stated goal of ethically responsible, historically informed, artistically vibrant musical products until they are prepared to pick up a shovel and dig.

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Chapter Seven

Pression Revised

Anatomy of Sound, Notated Energy, and Performance Practice

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Pression[1] for solo cello by Helmut Lachenmann was a ground-breaking work when it appeared in 1969. The title *Pression* (pressure) reflects the variety of pressure applied to the bow and with the left hand when executing the actions prescribed. Introducing Lachenmann's *instrumental musique-concrète*,[2] with a radical approach to instrumental sound production, the piece explores a primarily non-pitched sound world—extremely rich, beautiful, and violent. *Pression* has become a modern classic, with regular performances worldwide and several recordings.[3] The notation is highly experimental, predominantly symbolising the actions and energy prescribed to produce the sound rather than traditional parameters like pitch and rhythm. A revision of the piece appeared in 2010. Certain notational elements in the 1972 edition, which included elements of freedom for the interpreter, have been standardised in the new version, revealing certain conventional or even conservative tendencies not present in the original version. In this article, I will examine the revision and compare it with the original, reflecting upon the development of performance practice in the course of *Pression*'s forty-three years of existence. I will use data from my inter-

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1   Lachenmann's *Pression* for solo cello was composed in 1969 but first published in 1972. The work was revised in 2010 and republished twice, first in Lachenmann's manuscript hand in 2010 and then in a computer-engraved version based on this edition in 2012. The copyright date is the same for all three editions (1972). In this article I refer to the first published version as the 1972 edition and the computer-engraved version as the 2010 edition because it contains the 2010 date in the score, despite the actual publication date of 2012. When I need to distinguish it from the 2010 handwritten edition, I make that clear.

2   A term introduced by Helmut Lachenmann in his brief account of *Pression*, "Pression für einen Cellisten (1969/70)," published in 1972. See Lachenmann 1996, 381.

3   There exist to my knowledge ten commercial recordings of *Pression*: Michael Bach, CD cpo 999 102-2 and LP ABE ERZ 1003; Lucas Fels, CD Montaigne Auvidis MO 782075; Walter Grimmer, CD col legno WWE 31863; Taco Kooistra, CD Attacca Babel 9369-1; Pierre Strauch (1993), CD Accord 202082; Werner Taube, LP ABE ERZ 1003; Wolfgang Lessing, CD WER 6682 2; Michael M. Kasper, CD "rounds per minute", Ensemble Modern Medien, EMCD-006; Martin Devoto, Blue Art, De Bach al ruido; Benjamin Carat, GRAME: CB0890.

view[4] with Helmut Lachenmann as well as drawing upon my own experience as a cellist studying and performing the piece. Central questions are: What is new in the score and what is omitted, compared to the former edition? What may these more conventional tendencies in notation be said to imply, and how do these tendencies reflect general changes in performance practice during the last forty years? In this article I also want to contribute observations about the performance practice of *Pression* that may be particularly interesting for performers.

INSTRUMENTAL MUSIQUE-CONCRÈTE—NOTATED ENERGY AND DIALECTIC RELATIONSHIPS

With *Pression*, Lachenmann introduces the concept of *instrumental musique-concrète*,[5] shifting focus from the sounding result to the process of sound production itself. Lachenmann explains:

> *Instrumental musique-concrète* signifies an extensive defamiliarization of instrumental technique: the musical sound may be bowed, pressed, beaten, torn, maybe choked, rubbed, perforated and so on. At the same time the new sound must satisfy the requirements of the old familiar concert-hall sound which, in this context, loses any familiarity and becomes (once again) freshly illuminated, even unknown.
> (Ryan 1999, 21)

Pression thus explores the anatomy of sound—the specific, concrete way in which the sound is made—as well as the physical relationship between instrument and performer. Crucially, Lachenmann uses the immediate energy created in the very moment of sound production as material in composition.[6] The aesthetics introduced by *instrumental musique-concrète* challenge the archetypical sound image of a cello: no traditionally beautiful, resonating cello sounds are presented; they are completely erased, only to be replaced by a whole new repertory of sounds and gestures.[7]

The execution of the instructions in the score is the first task the performer must address in building a performance. To convey these, Lachenmann utilises a notational method close to tablature often called *action notation* or *prescriptive notation* (Seeger 1958; Kanno 2007), which predominantly shows the performer what to do. This is explicitly opposed to traditional *descriptive notation*, which describes the intended sounding result. In 2006 Lachenmann spoke of the limitations of notational techniques:

> I normally never write what you'd call "action scores". I don't want to lose control of what should happen. But nor do I have a generally describable conception of how

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4 The interview took place in Bergen on 2 November 2010 and was recorded on video. It is hereafter cited as Orning 2010.
5 The term "musique concrète" was coined in 1948 by Pierre Schaeffer, who recorded everyday (concrete) sounds and noises as material for electronic compositions. Lachenmann sought to apply this way of thinking to instrumental practice.
6 The word material is actually based on the Latin, *materialis*, "formed of matter."
7 It should be mentioned that there is one conventionally resonating tone in *Pression*; it occurs two-thirds of the way through the piece and appears, in this context, as something new and unusual.

to generate a sound system, as in 12-note music: it depends on the context, which I have to develop in a different way in each piece. (Heathcote 2010, 339)

Rather than deliberately giving up control, which in effect would have offered more interpretational freedom to the performer, the use of *action notation* is due to the lack of available notational tools. In another quote Lachenmann suggests a different reason:

If I write down one version, it [every interpretation] would all be the same thing without knowing why. But if each [performer] has a reason to make it longer so as to make it audible, it is fine. (Orning 2010)

Lachenmann here indicates that he is looking for the individual conscious interpretations brought forward by the "why," and he suggests that his use of *action notation* requires the performers to reflect on their interpretative choices and to adjust the performance to each acoustic situation.

The most central tool in Lachenmann's use of *action notation* is the so-called *bridge-clef* introduced as a symbolic equivalent to the area on the cello between tailpiece, bridge, and fingerboard. It schematically reproduces the front of the instrument between the tailpiece and the middle of the fingerboard and shows the point of contact of the bow on the instrument as well as the distance from the bridge. The *bridge-clef* does not indicate any particular pitch to be produced but rather the position on the instrument where the action is to be performed. The choice of this method of notation—a graphic outline like a map of the cello—opens the instrument up for navigation, depicting the cello as a continent to explore. It is interesting to observe that tablature elements are incorporated in Lachenmann's traditional descriptive scores in pieces written both before and after *Pression* (for instance, in *Notturno* from 1966–68 and *Gran Torso* from 1971–72), indicating that the format of a solo piece was ideal for trying out this method of notation.

Much has been written about *Pression* and *instrumental musique-concrète*, mainly from a compositional, notational, and sound perspective. I want to look at what implications this aesthetic direction, represented by the notation, may have for the performer and instrument from the point of view of performance practice. "Performance practice" has been characterised as "a term borrowed from the German 19th-century *Aufführungspraxis* to describe the mechanics of a performance that define its style" (Parrott and de Costa 2011a). Within "mechanics of a performance" I include knowledge, know-how, and aesthetical preferences on an individual level as well as in communities of practice.

First, what is the role of the instrument in *Pression*? In the 1972 preface to the score (on the back of the title page), Lachenmann writes:

If possible, this piece should be played by heart, or at least in such a way that (a) the pages do not have to be turned, and (b) the score does not block the view of the cello and the bow. (Lachenmann 1972)

This implies that the visual aspect is an important part of the performance, that the music is not only to be heard but also seen, and that the total performance constitutes the piece. The cello is always central in performances, as a mediator between the performer and the sounding music, but now it is brought forward as a "main character," illuminated and magnified through being the focus of action. The cello and the bow as physical objects become the heart of the battle between skin, wood, metal strings, and horsehair. The performer sometimes even hurts the instrument[8] with primitive actions such as hitting, rubbing, pressing, and scraping.[9] The sounds result directly from the concrete, corporeal process of executing the prescribed actions with different degrees of intensity. The physical resistance always inherent in this materiality enhances this mechanical aspect of the performance. The role of the cello as a place of action, not only in the familiar places but at the extremes, like bowing on the string holder and pizzicato in the peg box, further suggests that the cello is taking form as a mechanical device, offering a wide range of extreme sounds, from barely audible whispering to violent grinding.[10] Through these musical innovations, Lachenmann has been a pioneer in expanding the technology of the instrument, presenting not only new techniques of sound production, but also an innovative method of notation. This empirical aspect of acoustic sound production creates a new practice for instrumentalists having to "re-learn" how to play their instruments. Playing small sounds with maximum effort means amplifying the performance actions and bringing in a new awareness in executing the sounds. The new parameters—of energy and of extended "feeling the sound"—actively bring in all the senses in embodying and experiencing the music, necessitating a new approach to listening. Beyond the radical techniques and sonic outcomes, which create a new aesthetic, Lachenmann's broader agenda in confronting traditional expectations was allegedly to promote a wider perception of the way we listen: "so my problem was never 'new sounds' or new elements such as noises—my problem was to stipulate another context for a liberated way of perception" (Weeks 2006, 3). The dialectical relationships between the old instrument and the new sounds and between the old music and his new aesthetics constantly problematise our conception of *beauty* (Lachenmann 1996, 104).[11] We may see this as a way of listening to music from the inside out, not necessarily so far from the description *musica negativa* Hans Werner Henze rather polemically attributed to Lachenmann's music during a debate in the 1960s (Henze 1983, 345–346).

8 During one of my performances of *Pression*, the bridge fell off while I was playing on the lid of the cello by the bridge (feroce) in bar 45.

9 Most cellists who perform *Pression* do it on a "second cello," that is, not their best instrument, due to what Lachenmann describes as "such mistreating of this wonderful instrument" (Orning 2010).

10 There are two excellent analyses of *Pression* that classify the sound groups: Hans Peter Jahn (1988) and Ulrich Mosh (2006).

11 Lachenmann's analysis of the concept of beauty is treated in his essay "Zum Problem des musikalisch Schönen heute," in Lachenmann 1996, 104–110. The title paraphrases Hanslick's treatise "Vom Musikalisch-Schönen." The essay was published in English translation as "The 'Beautiful' in Music Today" in *Tempo*, New Series, No. 135 (December 1980), 20–24.

When considering the characteristics of the performance-orientated score of *Pression*, it is instructive to compare Lachenmann's notational practice with that of the British composer Brian Ferneyhough. Lachenmann's scores are aesthetically far from the complex scores of Ferneyhough, who lists three criteria for how a reformulated approach to notation/realisation may throw light on the contemporary closed-form "work's" capability to renew the aesthetic foundation:

1. an adequate notation must demonstrate its ability to offer a *sound-picture* for the events for which it stands. Without this direct link in terms of a specified, decodable repertoire one is forced to abandon one of the most essential tools of the analytic function to the arbitrary orchestration of external factors.
2. an adequate notation must be in a position to offer all essential (as defined by the *a priori* given sign systems in which every notational statement is embedded) instructions for a *valid reproduction* of those sounds/actions defined as constituting (as ensemble) the text of the work...
3. an adequate notation must (should) incorporate, in and through the conflation and mutual resonance of the two elements already mentioned, an *implied ideology of its own process of creation*. (Ferneyhough 1995, 4)

In my opinion, the *prescriptive notation* in *Pression* does not meet Ferneyhough's first two requirements. The "*sound-picture*" hardly exists (in the way required in score analysis); we could rather speak of a *practice-picture* or *action-picture*, as the notation depicts actions and their performance. Every interpretation of the piece differs to such a degree that it is questionable to talk about a "*valid reproduction*." The "*implied ideology of its own process of creation*" is nevertheless the essence of *Pression*, not addressing Ferneyhough's two first points, but rather reflecting Lachenmann's effort to defamiliarise techniques and sounds so that listeners must radically question their habitual listening. What does this say about Lachenmann? He can be seen as utopian in his search for what music should mean and in his view of its role in society. Where Ferneyhough idealises text and sounds, Lachenmann idealises practice. Ferneyhough legitimises his own practice through these criteria, but at the same time he includes performance as a common, inherited practice of how to interpret notation. Conversely, Lachenmann creates a new, embodied common practice where notation plays the role of mediator. To illustrate this, a drawing of a hand on the lid of the cello in the score does not imply a sound but use of the body.

Ferneyhough looks at "the social role of notation as a point of intersection of disparate fields of interest (*a common denominator*). Notation as *fuse*" (Ferneyhough 1995, 5). A "*common denominator*" could be the correlations between score and sound or the mediating function of the score, linking the text and the sound. In *Pression*, the absence of these common denominators gives the work-concept an ontological challenge. This is a clear example of a situation in which we speak of the work as text and the work as sound as two separate and complete works of art. This does not necessarily mean that the performer is given great freedom, but that the freedom exists implicit in

the "*implied ideology of its [Pression's] own process of creation*," Ferneyhough's third criterion. I will come back to the topic of freedom for the performer in the discussion of performance practice, below.

I have attempted to describe Lachenmann's aesthetic practice, with its notational and performance implications. Now I will look at the new edition of *Pression* and discuss the changes it makes to the original.

LOOKING AT THE REVISED SCORE OF *PRESSION*

As I mentioned, *Pression* was composed in 1969, published in 1972, [Fig. 1] and revised in 2010. The new edition was prepared by the composer himself, in dialogue with renowned cellist Lucas Fels, with whom he has worked for many years. A handwritten manuscript by Lachenmann was published in July 2010, [Fig. 2] and the computer-engraved version in July 2012 [Fig. 3]—both editions prepared for the cello lectures of the Darmstadt International Summer Courses for New Music. When citing the revised version, I refer to the computer-engraved version unless stated otherwise. When comparing the two newly published scores, it is interesting to note the visual difference between them. In the handwritten score, the calligraphic writing is clear and clean, quite similar to the printed letters, especially with regard to the layout and inner proportions. Still, as the human hand offers a more nuanced and subtle picture than print, Lachenmann's handwriting reflects the gestural notation and graphic signs in a more lively way than the printed letters, thus offering new information about the music. However, the great number of handwritten instructions and the fainter print in the score makes the music more difficult to read than the computer-engraved version. "Editing" has been described as "the critical investigation of a text and its readings in order to establish the likelihood of their truth within a piece's historical context" (Greer 2011). Looking at this revised text (score) of *Pression*, I will reflect upon *Pression*'s trajectory in time, showing a relationship with the living performance practice today.

The new edition presents us with detailed performance instructions in German and English, as well as an English translation of all the text found in the score. The different techniques are well explained and have now been given suggestive names like *Morse-Abschnitt* (Morse-section) and *Gepresste Aktionen* (pressed actions), offering a clear direction for interpretation. However, the name *Schweinestall* (pigsty), introduced in the handwritten 2010 version (bar 27), is omitted in the computer-engraved version. In the 1972 version, nearly all the instructions were placed in the score in the course of the piece, whereas now, the central techniques and sound ideals are explained in the performance instructions, a common notational practice today.

The most significant change in the score is the addition of dotted bar lines throughout the piece. The first edition had quite a few dotted bar lines, mainly in the more rhythmic sections, but the piece is now fully sectioned into bars. The original metric division lines are kept in an unfolding spatial notation showing the approximate length of a quarter note, but what is new is that time

Fig. 1

Fig. 2

Fig. 3

Figure 1. Lachenmann, *Pression*, opening, 1972 edition. © 1972 by Musikverlage Hans Gerig, Köln; 1980 assigned to Breitkopf & Härtel, Wiesbaden. Used with kind permission.

Figure 2. Lachenmann, *Pression*, opening, 2010, handwritten edition. © 1972 by Musikverlage Hans Gerig, Köln; 1980 assigned to Breitkopf & Härtel, Wiesbaden. Used with kind permission.

Figure 3. Lachenmann, *Pression*, opening, computer engraved 2010 edition. © 1972 by Musikverlage Hans Gerig, Köln; 1980 assigned to Breitkopf & Härtel, Wiesbaden. Used with kind permission.

signatures are added. Bar lines are distributed in a logical manner according to musical organisation; for example, gestures often start at the beginning of a bar. Dividing *Pression* into bars could appear to be merely a pragmatic issue, as the quarter-note division lines already existed and the bar lines help the structure of the visual layout. The preface to the 1972 edition reads, "a division line represents a quarter-note value if not expressly indicated otherwise" (Lachenmann 1972, ii), which, in theory, should have had the same significance as a specific bar showing the same division lines. Nevertheless, the openness of the unbarred, unmeasured notation is lost in the new version, which measures and divides the music into (closed) units. In the first edition there were few bar lines stopping the line of the imagination and the line of sound; the music just went on and on, uninterrupted. The bar lines in the new version introduce a standardisation that changes our perception of the music, even if only on a psychological level. Luciano Berio did a similar thing in 1992 when revising his flute sequenza, using standard rhythmic notation after it was first published in proportional notation in 1958. He originally wanted to give some rhythmic flexibility:

> I wanted the player to wear the music as a dress, not as a straitjacket. But as a result, even good performers were taking liberties that didn't make any sense, taking the spatial notation almost as a pretext for improvisation. (Muller and Berio 1997, 19)

So why did Lachenmann change the measureless unfolding of the music? Was he, like Berio, not satisfied with the interpretations? Changing such an important aspect of notation certainly suggests that he has concerns. His decision to add bar lines is a definite move towards notational standardisation, towards a more conventional and normative view of the function of a score, moving away from the experimental and ambiguous realm that leaves greater liberty for the performer.

LOOKING IN MORE DETAIL

I now move to look at the revisions and changes of the 2010 edition in more detail, including some of the remarks Lachenmann made to me in Bergen when I played *Pression* for him on February 11, 2010.

   At the very beginning, three beats are added to the first unpitched (*tonlos*) bow sound before the left hand starts moving (see figure 1).[12] When the left hand starts sliding, the quality of the sound changes to *quasi sul pont* [sul ponticello] and bright noise. In bar 5, an important notational invention by Lachenmann, *action dynamics*,[13] is introduced in the new edition, signified by dynamics in quotes showing the intensity of the action rather than the resulting volume, which can be soft: "I hear the incredible intensity and not the result" (Lachenmann 2008). This introduces a new parameter, energy, now

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12 I will refer to bar numbers in this article. I have numbered the bars myself.

13 This feature, *action dynamics*, was not applied in the 1972 edition, although it was used in *Notturno* for small orchestra and solo cello from 1966–68.

disconnected from the actual sounding dynamics, as discussed earlier. There are a number of subtle changes in the wording; for instance, the thumbnail now "wipes" instead of "grates" or "rubs." In bar 12 there is a change of technique; before, it was thumbnail through bow hair, now it is thumb on bow hair (*Daumennnageln durch Bogenhaar* to *Daumen auf Bogenhaar*), something that enhances the friction and produces more sound. In bar 17, a new symbol is introduced, indicating that the strings are dampened with the chin, as both hands are occupied holding the bow. This prevents the open strings from sounding and focuses the attention on the perforating dry sound from the vertical bowing. Bar 19, in which the hairs of the bow are divided into different sections while vertically pressing the bow back and forth, is now marked with a jagged symbol indicating great bow pressure and a very slow bow. This symbol has become a common notational sign symbolising various degrees of pressed strings or crush. When I played for Lachenmann in Bergen he told me:

> You should play very dry and slow so you hear every grain of the sound, like a flutter tongue. Before you begin, you must have pressed down the bow. The region around the bridge is taboo for these sounds; begin further away from the bridge. In bar 22, slow glissando on the C-string, use only a half millimetre horizontal bow. ... In bar 23, slow bow behind the bridge. Stop the bow on the string! Don't take away the bow. (Orning 2010)

This is crucial information about his performance aesthetic; for string players, every pressed or crushed sound in his music is to be performed extremely slowly and controlled with continuous resistance, so that every grain is resonating. Each sound in his non-pitched sound world has specific properties and qualities that need to be explored. He insists on beautiful phrasing and great care in every sound, and he is meticulous about the beginning and ending of each note, in the same thorough manner one aims to achieve in classical performance practice. The particular care with which each little sound is made—the placement, energy, and phrasing—are definitely an extension of this tradition. In this way, the musicianship and several parameters of the interpretation of music are very old-fashioned. This confirms Lachenmann's dialectical relationship with the past; while exploring cutting-edge instrumental practice, he also promotes the performance practice of romantic music with *rubato* phrasings and expressive sounds, an approach to performance practice that stands in great contrast to the alienation performers can feel in approaching a score like *Pression*.

Bar 22, the introduction to "Largo feroce"—"broad, fierce" (called *Pigsty* in the handwritten 2010 edition), named for the screaming quality of the sound, is changed from fingertips to nails on string, to make a more audible upbeat to the next section. This section (bar 27) has been notated in much greater detail than earlier (see figure 4), indicating the order of the strings and specifying the technique and desired result. This is at variance with Lachenmann's 2006 statement:

> If in my cello piece *Pression* I decide that within 60 seconds the bow has to move gradually from the first to the fourth string behind the bridge with fortissimo pressure, I get a wealth of sounds that would be impossible to predict, and which
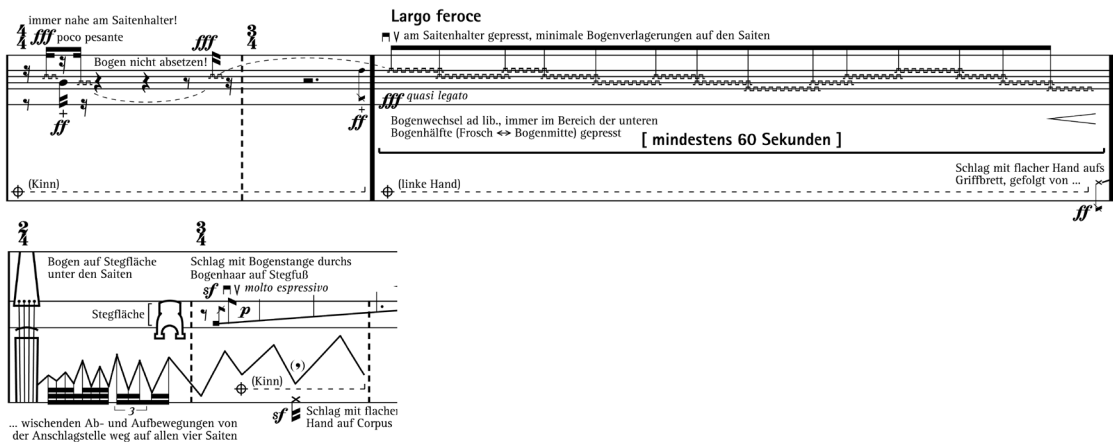
Fig. 4
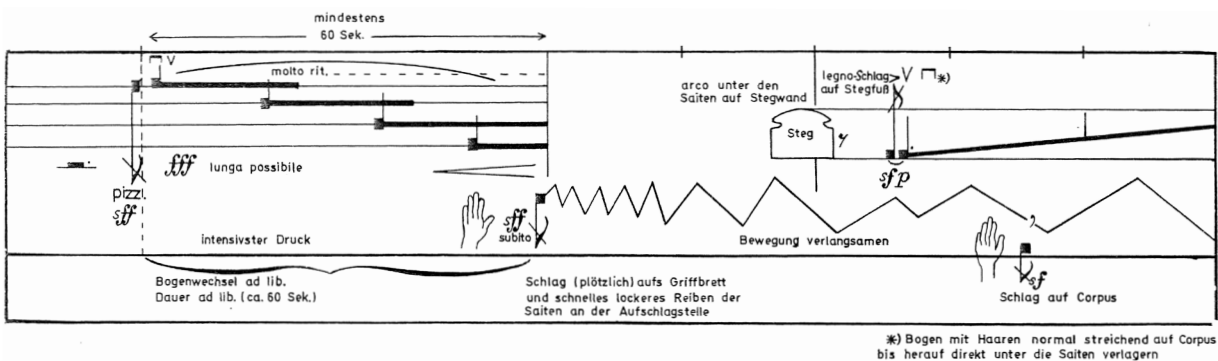
Fig. 5

could not be written down. This isn't chance, it's a clearly understandable result of what the player has to do at a certain moment in this piece. (Heathcote 2010, 339)

The "Largo feroce" in bar 27 is performed with an extremely slow and pressed bow, very close to the string holder. The emphasis is on the frozen and mechanical character of the gesture, obtained by keeping the bow on the string in the bow changes. In bar 28, when the flat hand hits the fingerboard, rubbing it frantically up and down, the gesture is now described in words, the image of the hand from the first edition is removed, and the graphic sign for rubbing fast is replaced by a written-out rhythm.[Fig. 4 & 5]

In bar 33 (*legno saltando*) the new edition adds "quasi a tempo," hinting at a more rhythmic section after having worked in a more horizontal sound world of noises and gestures. The new edition shows all *col legnos* as triangular note heads, which are easier to distinguish than in the first edition where they were filled-in diamonds. Bar 40, starting a section with rapid changing bow techniques, now says *poco rubato* to allow time for each sound to sound out. Lachenmann refers in this section to the performance practice of Schumann and Schubert, which encourages *rubato* phrasings in order to shape the music (Orning 2010).

In bar 41, the *fermata* while circling the bow is new and welcome, giving an opportunity to sustain the sound in this virtuosic section. In bar 42, one note is added to the *bow-hitting figure*. In the handwritten 2010 version, Lachenmann

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added a G clef (omitted in the final version) in quotes to indicate that he wanted pitches when performing this technique. He demonstrated his invention of producing distinctive pitches by hitting the bow on the side of the bridge, the pitches determined by the location of the bow on the bridge, the quantity of bow hair as well as the speed and weight applied, by playing the *Star Spangled Banner*! (Orning 2010).

In bar 47, bowing on the string holder, the instruction "*kein Brummton*" ("no humming sound") is new, reflecting the now common technique of playing on the string holder with considerable pressure, producing a deep humming sound. The dynamics are changed from *ppp* to *p* in bar 49; "*quasi Echo*" gives us another musical pointer, an echo of the previous rubbing on the lid. In bar 54 "*arco stop*" is new, reinforcing Lachenmann's performance aesthetic of clear beginning and ends, keeping the bow on the string. The *Morse-section* starting in bar 59 already suggests by its name the style of playing. Short and long tones are called for, abruptly stopped by dampening the open string with the thumb from underneath the string. This technique is a mirror-image of conventional playing; when one wants a tone one has to release the pressure on the string, in contrast to stopping the string. This is the section in which the new version [Fig. 6] alters the notation the most; the actions of dampening or release of the string are notated (traditionally) on one extra staff, as opposed to the old version where only the releases were notated. [Fig. 7] The earlier notation was perfectly clear and understandable, but not presented in a standard way.

Fig. 6

Fig. 7

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Figure 6. Lachenmann, *Pression*, bar 59–60, 2010 edition. © 1972 by Musikverlage Hans Gerig, Köln; 1980 assigned to Breitkopf & Härtel, Wiesbaden. Used with kind permission.

Figure 7. Lachenmann, *Pression*, page 7, system 1, 1972 edition.
© 1972 by Musikverlage Hans Gerig, Köln; 1980 assigned to Breitkopf & Härtel, Wiesbaden. Used with kind permission.

In bar 83, a fermata is added to the first "normal" note in the piece. Here, the "*am steg*" (*sul ponticello*) from the first edition is changed to "*arco ordinario*," making it easier to blend the following unison. At the open D-flat string, the words "*unmerklich hinzunehme*" ("start imperceptibly") are added.[14] This might indicate that the introduction of the second voice has been too obvious in performances. Bar 84 is marked "Largo appassionato," giving strong indications of an intense and grand playing style. This point is reached two-thirds of the way through *Pression*, and the "normal" note of the piece stands out, listened to with the "new" ears Lachenmann calls for; never was a normally produced tone on a cello so loud, substantial and fat with timbre. This is the climax of the piece, bringing the unison D-flats together in a loud dynamic and letting them divide into a micro-interval, producing beats before reuniting and then dissolving into the beginning of the coda. Bar 92 is more precisely described by notating the pitches of the harmonics that result from the sharp pull described as "*quasi Pfiff*" ("like a whistle").[15] In bar 100 the fermata after *lasciar vibrare* (let it ring) is removed; the sound from the harmonics needs time to die before going on, so in my opinion this is a strange omission.

TOWARDS A MORE NORMATIVE NOTATION

I have until now compared the two scores and made remarks about the most significant changes in the new revision. I will now discuss the implications of my findings and interpret what they might mean with regard to performance practice.

In general, there are far more words of explanation in the new score and, in particular, more detailed performance instructions with interpretational indications. In the first edition, the visual graphic realm of the clefs contained most of the information—for example, where to play on the fingerboard or the string holder. Now, words come in addition, and some drawings of hand-hitting (bars 28 and 29) are removed. I miss the hands, the direct message about action on the cello, the instinctive and immediate correlation between what you see and what you do. The drawings of the hand implied body, not sound, and omitting them is an interesting movement from a prescriptive notation, which emphasises embodied aspects, towards a more descriptive notation, which makes the sounds abstract through normative symbols. Dividing *Pression* into bars is perhaps the most drastic change in the revision, although perhaps more on a psychological than on a structural level. Introducing *action dynamics*, giving the performer valuable information about the energy input expected, is a great advantage in the new edition. This is now an established term, adopted by many composers. The added details of the order of strings in bar 27 (*Pigsty*), the written-out rhythm in bar 28, and the specification of the harmonics in

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14 Lachenmann asks for scordatura in *Pression*. The cello is tuned to F, D-flat, G and A-flat, moving further away from the cello as we know, tuned in fifths. This also prevents familiar overtones from sounding during performance of the more percussive techniques.

15 *Quasi Pfiff* is omitted in the manuscript edition but reintroduced in the subsequent printed edition.

bar 92 are examples of moments when the composer wanted something more specific than he had experienced. These are among the moments that deviate the most from the original, which is evident when listening to recordings and concerts, so this points to a wish on the part of the composer for a more "*valid reproduction*," to borrow Ferneyhough's term that I discussed earlier.

The renotation of a few central places is probably due to the development of notational techniques in the course of *Pression*'s existence. Symbols for pressed bowings (crush), *col legno*, and more, together with the now widespread performance practice of these techniques, have been largely standardised in the contemporary music community.

We can, however, trace a movement towards a more normative and conservative notational practice in the revised score. This is apparent in the added bar lines, notated rhythms, and additional systems, notated in a more traditional manner, that replace or are added to the more graphic sections. It is a movement towards a more accurate and standardised notation, towards something that is more steady and verifiable than it was. For decades, Lachenmann has been in the forefront when it comes to developing notational technique, so the changes in the score reflect the development of notational potential in his earlier works as well as a more general development and common understanding of this kind of notation. The score now meets contemporary standards for notation, and thus it has the advantage of conveying more information about the composer's intentions. This makes it more accessible for performers who do not have the advantage of close knowledge of the performance practice associated with Lachenmann's work to interpret the score. The changes can also be seen as a natural reaction to the general improvement in performance practice in contemporary music, in that performers are now able to execute complex scores and thus want more detailed instructions to enable them to penetrate more deeply into the work and the composer's intentions.

In my opinion, the first edition was somehow more crude and primitive than the new one. In the very beginning of the new edition, for instance, the instruction to hold the bow in the fist is omitted; one might ask why it was there in the first place? It did not facilitate playing; it must have been more of a visual element, emphasising the primitive aspect of the mechanics of the cello as sound production tool, grabbing the bow as one would a saw. The new edition is more mature and nuanced; some of the initial edge has worn off. In this way, the revision takes advantage of improvements in performance practice, as well as Lachenmann's maturing as a composer.

Being a pioneer in these new instrumental techniques, Lachenmann has travelled worldwide with his works for years, willingly demonstrating his *modus operandi* for orchestral musicians. He has an increasing number of dedicated and influential performers, soloists and ensembles happy to perform his works, operating as "agents" to spread the knowledge of his aesthetics. Key performances, recordings and festivals have established a strong performance practice associated with Lachenmann's music. The recognition of him as a central European post-war composer, coupled with his extensive travel-

ling when he has works performed, has brought the level of knowledge about his music and performance style to a surprisingly high level.

PERFORMANCE PRACTICE AND FREEDOM

In the following section, I want to look at performance practice in general terms as well as more specifically in terms of Lachenmann's music. I will also briefly discuss the concept of interpretational freedom for the performer in relation to this practice.

The performance practice of new music has rapidly increased in quality in recent decades, due to factors like global communication and, most importantly, the recording industry. Previously "unplayable" repertoire is slowly becoming commonplace, and the general instrumental and technical level is rising steadily. Too often regarded as a predominantly intellectual and ideological composer, Lachenmann turns out to be curiously pragmatic and knowledgeable when it comes to the execution of his music. He has developed new playing techniques and has cultivated them further, having become more specific after having experienced hundreds of performances of his own music. As an accomplished musician and pianist, he has an intimate knowledge of all the instruments for which he composes, approaching every instrument in a material, concrete, hands-on manner. When I played *Pression* for him, he demonstrated to perfection every technique in the score on the cello. It might be seen as a paradox with regard to his use of notation, but for Lachenmann there is *one* right crush, *one* right pitchless sound, *one* right *col legno*, and so on. On the one hand we can despair at the inadequacy of normative notation in this field and the underdeveloped nature of notational language in expressing subtle nuances. The score appears to be much more mechanical and rigid than the music is supposed to sound. On the other hand, the limitations imposed by the score can at the same time be liberating for the performer.

Discussions about degrees of freedom for the performer increased in frequency in the 1950s and 60s. Composers gradually left more freedom to the performer, and new notational forms emerged, such as indeterminacy and open form. The procedure itself became central, and the performer was more often seen as a co-creator of the work than as a loyal performer realising the composer's intentions. At the same time, many composers wanted to keep strict control over certain aspects of the execution of their pieces, resulting in two contradictory movements: *Werktreue* (fidelity to the work and faithfulness to the original) was opposed to the freedom of the performer.[16] Degrees of freedom in interpretation on micro- and macro-levels depend on a multitude of factors, including the composer's instructions and historical traditions, and will always be regulated by the current performance practice (explicitly and tacitly). When I speak of freedom in the interpretation of *Pression*, I refer primarily to the elements in the piece that are notated in an ambiguous fashion, preceding normative notation: the symbols for gestures, the approximately

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16 *Werktreue* is discussed further in my article "*Pression*—Performance study" (Orning 2012).

notated rhythms and sound-instructions, all of which leave space for personal interpretation. But does a new notational sign offer greater freedom? If it does, is this a legitimate freedom? Does it open new doors, and in that case, which doors does it open? I think the revision of *Pression* gives us new knowledge that partly answers some of these questions. Looking at the direction towards more standardised notation in the piece, I think the original was not meant to give performers a new freedom; the score was rather to be taken very literally. How different is this really from the performance of classical music? The insights from our study of the revision can be useful in retrospect in interpreting the experimental scores of the 1960s. The concept of freedom within interpretation is a large field and is quite unexplored. There are many unsettled elements and much remains to be done, offering great scope for future research.

PERSONAL REFLECTIONS

As a performer, despite the increased precision of the 2010 version, I greatly prefer the 1972 version. This version displays the piece for me with the implicit wildness of the gestures reflected in these naked, nuclear sounds. I would rather respond to the image by moving my hand according to a wild visual pattern than read a rhythm, having to analyze it in my head before my arm executes what I read. I believe this is due to a notation that gives more direct access to the music, less of a "detour" via abstract signs. My body recognises the symbols of movements faster than the brain processes an abstract symbol and translates it into coherent action. This visceral dimension, the response of the body rather than the intellect, connecting eye, mind and body, offers a more direct, instinctive route for the performer.

In terms of performance practice, what I consider the most radical aspect of *Pression* is how exceedingly idiomatic the piece is, in the way it grows out of the close physical relation between cello and cellist. In experimenting with, and practising, the music, performers have to go deeply into the relationship they have with their instruments. The result is the opposite of defamiliarisation; it is a serious embodied and sonic experience demanding a self-reflecting position and conscious contribution. It is a welcome and rare chance for musicians to turn their instruments inside out, having to reconceptualise their technique and sonic repertoire, fundamentally questioning the classical performance practice in the process. Deconstructing the beloved cello and rebuilding it not only changes our practice but also creates a new one.

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Chapter Eight

The In(visible) Sound

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A visual encounter with a score always proposes the possibility of imagining the result of the performed audible experience. The imagined version of the music that results depends on the nature of the symbols and signs that appear. We are trained to understand these, and the music they represent, in very specific ways. In some musical pieces extra levels of interpretation and new instructions blur the representation. In some scores it becomes very difficult to imagine a representation. In the latter case, the score functions as instructions for the performers and conductors, and the sound image proposed by the composer only appears in the actual live performance. These scores lose the possibility of an immediate visual-audible apprehension. The music represented remains hidden.

The distance between sound and its representation in a score can be affected by differences in the point of departure in the compositional process. After analysing works of others and my own compositions I concluded that there were three types of starting points for a musical creation and its score. The first takes the compositional process from *score towards sounds*. This doesn't exclude the possibility that the composer has an initial sound idea of the composition, but it implies that he will let the autopoietic characteristics of the processes and relations in the score take over. Graphic scores that intend to be an alternative to traditional notation or scores that intentionally propose interpretational problems are also scores which start from a visual image and in which sound is an event that will develop later on through diverse and personal interpretations. In the second type, the compositional process starts from *sound towards score*. This is the opposite of the first category, where the score is higher in the hierarchy. Starting from sound produces many changes in notational requirements. Scores in this category originate in a process of transcription of a sound proposal that obliges the elements of the score to be necessarily diverse and dependent on all aspects of music (time, pitch, timbre, physical movements, etc.). In applying this approach the composer might also use processes that are more related to the score than to sound itself, but the point of departure and the conditioning element is sound. The third and last type is a three-step process starting from *extra-musical elements to music score towards sound*. In this, the origin of the compositional and notational processes can be almost anything (literature, graphics, maps, drawings, smells, etc.). In this process the musical score tries to represent something non-musical and in the end will also produce a sound. This is close to the concept of "data sonorisation," which implies a transformation of data, which are neither musical nor sound

related, into sound. But this compositional approach requires the invention of a middle level between extra-musical elements and sound. This middle level is the music score with its traditional elements.

In all three types of scores there remains the problem created by the distance between visual and audible representations. This problem raises a series of questions. Which notational situations are affected in these different approaches? What elements produce this imagined audible distance? Is it important to deal with this problem by trying, as a composer, to give a clear sound representation? Is it necessary? To try to answer these questions I considered certain pieces, which were the examples that led to the definition of the three types mentioned before, with the different contexts in which a score is presented and shared. A music score might be given to a performer, conductor or committee (for a competition, festival or for an application) for different purposes—in the case of the performer and conductor to perform what the score proposes and in the case of the committee to evaluate the possible sound result and its conformity to certain expected standards. I listed some of the situations where my scores were used for performance or evaluation and speculated on how these situations relate to the compositions, processes and scores. To implement this I classified the pieces by the approaches proposed previously.

SCORE TOWARDS SOUNDS

Process

Franco Donatoni states in an interview with the Australian composer Andrew Ford, "I never imagine music before I write it down. I have no imagination. I am a man without imagination. To imagine music without immediately *realising* that music is useless" (Ford 1993, 120). He says this to describe the way he works from *l'écriture* (the craft of writing). "I need a fragment. Something that can then develop organically. And then I can go" (ibid.). In the score, Donatoni proposes a material that suggests its own possibilities of development, and the nature and relations of this material guide his decisions. While his later work shows a striking imagination in speculating on the possibilities and limits of musical material, it still develops from this original "fragment" of the score. The processes are aesthetically conditioned by traditional limits, and the score is a clear frame in Donatoni's work. His "no imagination" comment applies primarily to his "negative period." In this period (1960s) Donatoni took to an extreme the use of automatic processes in which he had no control of the musical development. His music changed later into a more playful way of dealing with music material, where form is a mix of discovery and invention. But the conditioning nature of notation and even of his calligraphy is still perceived in his style. It is difficult to say that there is no sound origin in Donatoni's playful and harmonic musical imagination, but it is possible to say that *l'écriture* conditions and forges his style.

The "negative period" of Donatoni is similar to many applications of integral serialism, where there is a systematised control of all musical parameters. In

this music a preexisting process defines the score, and the sounds are a result of this process. The score is higher in the hierarchy than sound, even if there is a musical and gestural intention inherent in the process. Sound is finally the result of the score. During the period in which integral serialism was developed, there was born a fetishistic admiration for complexity in the score. This fetishism influenced aesthetic musical judgment by elevating complexity to an aesthetic quality. The complexity is often visual as well as audible. Nowadays, in certain musical situations, this inherited characteristic—to evaluate the quality of a score by its complexity—remains influential, even if the score is not related at all to serialist or negativist approaches. But a clear, complex score somehow represents good craftsmanship; and this is certainly considered a positive quality, disregarding sound.

Graphic scores

> The score must govern the music. It must have authority, and not merely be an arbitrary jumping-off point for improvisation (Cardew 1971, p. iv, col. 2, par. 2).

> The notation is more important than the sound. Not the exactitude and success with which a notation notates a sound; but the musicalness of the notation in its notating (Cardew 1971, p. vii, col. 1, par. 3).

Graphic scores like *Treatise*, by Cornelius Cardew, offer another case in which we can see a clear focus on score before sound ([Fig. 1], which is the third page from a score of 193 pages). The two quotes above (Cardew 1971) are supposed to help musicians approach *Treatise*, and they make evident the hierarchical ranking that Cardew proposes, in which the score takes precedence over the sound. In *Treatise* the score can be freely interpreted, and the sounded results that emerge from different interpreters and versions might appear to be completely different pieces. The score is always visually the same, but the sound is an open result.
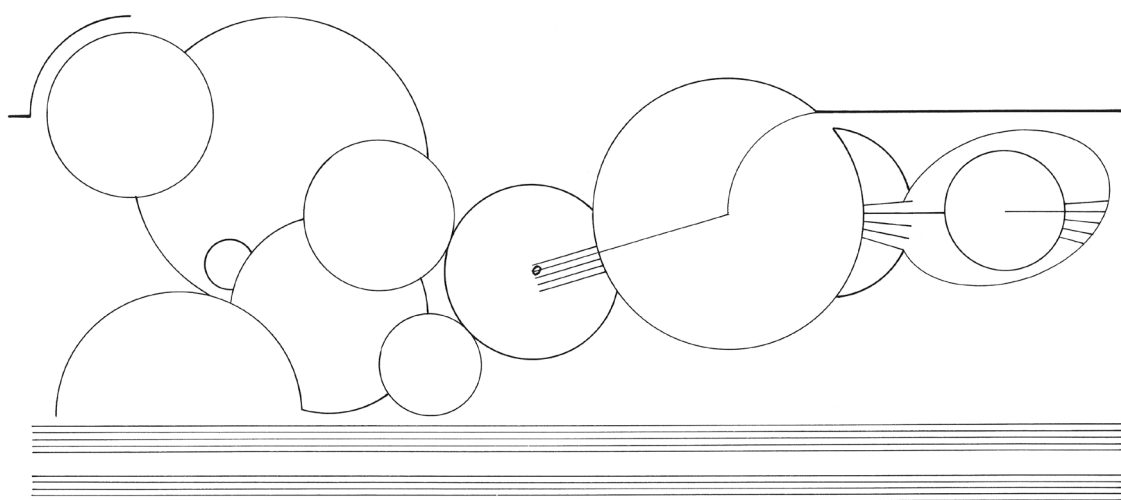
Fig. 1

But even in this score, which is a paradigm of graphic scores, there is a clear reference to traditional notation. The two empty staves that appear at the bottom of every page give an immediate, traditional sense of pitch orientation (high and low). The graphic designs are almost always placed over these staves, and a few times the designs almost connect with them. Much of the time the designs are extended or deformed versions of traditional symbols. There are almost no symbols that seem to come from fields other than music. As such the approach to imagining sound in *Treatise* is not so different from that in a classic music score. Musicians confronted with *Treatise* will tend to interpret the instructions and meanings of old symbols in new contexts, proportions, and directions. The imagined sounds will not be as clear as when presented in a Mozart score, and this uncertainty will force the performer to take decisions about how to produce sounds from this abstract proposal. *Treatise* imposes an openness that has to be constrained by an interpretative action that will ultimately produce a sound. The sound can be almost anything and can appear surprising in relation to what we might have imagined from the score.

Graphic scores cannot be clearly evaluated in such contexts as festivals or competitions. These scores depend on other media to reveal their characteristics. Sonic or visual realisations are the media most commonly used to show what the score represents. But when a piece is not performed a narrative or conceptual account of the intentions might clarify how to evaluate drawings that do not represent clear sound results.

The conditioning effect of notation and music scores often defines musical creativity and the ways we imagine sounds. In this sense Cardew's remarks above are about the history of music notation in the western world. The score gives form to what might sound, and in the frames defined by the score and its musical tradition we develop and extend our imagination. The score of *Treatise* is an extension and deformation of existing musical elements. The history of notated music shows that increasingly processes, notational limits and aesthetic choices within these limits forge a framework in which sound loses its original hierarchical primacy. In conservatory education we are trained in the art of the sounds of music and not necessarily in the art of sounds themselves. In most occidental music-education institutions we learn how aesthetic and even ethical choices in orchestration, harmony, and rhythm changed through history. Ultimately, we learn only certain values about sound, and almost all of them fit the limits of the score. Then composers develop their music starting from these limits, just as the score of *Treatise* develops and transforms older symbols.

SOUND TOWARDS SCORE

To invent music from sound is to begin from physicality, gesture, and perception. With this approach the limits of the score are not an aesthetic issue and the score turns out to be more like a tool or a means of communicating an event. Scores that originate from sound are transcriptions of the afore-mentioned physicalities, gestures, and perceived events. In some of these scores it is common to see traditional notation, perhaps with some extensions and

deformations of traditional symbols. But in this case the deformations are invented as a practical aid. I refer here to scores written when the composer knows that the recipient is a traditionally trained musician who expects to understand and clearly decipher the symbols in order to perform. The composer will try to transcribe sound in a score that looks as traditional as possible and that also is as practical as possible. There are certainly more experimental approaches towards scores, but here I refer only to scores that remain in traditional formats, without regard for the originality of the sound results.

Helmut Lachenmann's music deeply explores timbral possibilities, with many proposals for the physical production of sound effects. The clarity of the instructions given in the score implies that the exploration of sound and of the ways to perform a particular musical gesture takes place previous to the creation of the score. Analysing Lachenmann's music I discovered structural elements that reveal compositional decisions related to time perception, form, and other score-related ideas. But each gesture in his music seems to be experienced as sound before its actual notation.

Helmut Lachenmann (1969)
revidierte Fassung 1988

Fig. 2

Nevertheless, his music is notated in a very traditional way. In his piano piece *Guero* (1969) the instrument is explored by analogy with the percussion instrument guiro, which gives the title for the piece. There seems to be almost nothing traditional in the way the piano is played, but the score still keeps to traditional elements. In the beginning of the score the right-to-left position is indicated with three clefs.[Fig. 2] These clefs have no pitch implication. If I run my nail over several piano keys without pressing them down, all the sounds have a wooden percussive quality, with no clear pitch differences. This changes when the damper pedal is pressed and the strings in the harp are played; then the pitches do differ and are more related to traditional visual symbols. This occurs in only a few moments of the piece, however; in general the traditional elements serve as instructions for physical actions that do not necessarily belong to a traditional piano performance. In the score there is a clear division between right and left hands, there are clear dynamic symbols and indications, and there is a quarter-note time signature to indicate approximate tempo in seconds. The quarter-note time signature is justified by a few rhythmical figures that appear, but these contrast with most of the gestures, in which duration is indicated only in seconds.

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The traditional elements of *Guero* produce a sense of familiarity for the performer. When we encounter *Guero* it doesn't take much time to realise that this is a piano score. The piano score layout is used to represent new actions, but these are ultimately related physically to tradition, as, for instance, in indications for left and right. So the score represents a piano-related physicality, but the imagination of sounds stays suspended until the instructions are followed and performed. The sound that was the source that produced the transformations in the score remains hidden. In the compositional process the sound as starting point forced the development of new instructions that are not part of our common audible-visible symbolic memory. And some of the traditional symbols may be used as instructions for totally different results. So the visual implications of the score might be silent even if the composition starts from sound. There is always a distance between a score and the source that it is trying to represent. If we start from a sound which we represent in a score, the sound produced after the score will always differ from the origin. This happens in any compositional approach. But when the composer intends to reproduce a specific sound gesture that he or she already experienced then the score becomes more imposing and has a greater responsibility than a score that proposes sounds arising from processes developed solely in the score.

EXTRA-MUSICAL ELEMENTS TO MUSIC SCORE TOWARDS SOUND

In my scores there has always been a tendency to stick to traditional formats. I say tendency because, as time passed and my experience in collaborating with performers increased, I found that my scores and notational solutions were becoming more and more traditional. In my experience most of the performers with whom I collaborated wanted to have a traditional visual relation with the score. This doesn't mean they wanted to listen to what they saw, but they found it easier to follow instructions couched in musical notation even when the results were not sound-related. For instance, because of traditional grand-staff notation for piano, most musicians find it logical to think that in a score above is to-the-right and below is to-the-left. In piano music this right-left relation also clearly corresponds to high and low pitch. But this pitch-location correspondence doesn't always work, as most of the score of Lachenmann's *Guero* shows. Nevertheless it is generally practical to stick to traditional formats. Time constraints and the need for efficiency in productions nowadays demand fast solutions; and one result, I believe, is a tendency towards visually traditional scores. Musicians feel a familiarity with the visual elements of the tradition they know, and this familiarity gives a sense of comfort even if the instruction aims for something totally different to what it originally represented.

In some of my late pieces I confronted the problem of choreographing physical actions within music scores. Choreography and music share rhythm, basically. But how to notate movements in space?

In my piece *What about Woof?*, for five percussionists, most of the actions are choreographed. Each performer sits in front of a table, rubbing and hitting its

surface with coins. The composition is the choreography of the movements of the hands on these five tables. The movement material is quite simple. The first elements are the movements on the surface, which can be towards the back, front, right or left; I didn't use diagonal movements. Then there are movements when the hands are raised from the surface. Here I controlled how high the arm goes, whether the elbows should be raised or whether only the hands are raised from the wrists up, and the speed with which these lifts should return back to the surface. All these movements have corresponding sounds. The quality of each sound results from the physical gesture. I composed rhythm, the visual manifestation of it, and gestural intensity. Thus, in the compositional process sound wasn't something on which I focused much. However, before starting the piece, I improvised playing with coins on a table with a rough synthetic surface, and that gave me a general idea of the dynamic range I could obtain and of some timbral variations. But the timbres and pitches were very limited, so the compositional process and the development of the piece depended on other musical parameters.

One of the main parameters was visual; representing in the score the choreography of arms and hands was one of the main problems to solve. When I started notating the movement of the hands I was not thinking about the logic of music scores. I imagined my hands over a table and started drawing the movements from the bottom border of the paper (the part of the table closest to me) towards the top (the back end of the table). So my logic was that if both hands move forward, it creates an irregular but mostly parallel design of two perpendicular lines. Then if I turned this design ninety degrees to the right [Fig. 3], to use it as a score, the right hand was on the bottom and the left above. This is the opposite of piano logic. But I started notating this way and finished the piece with this inverted logic.
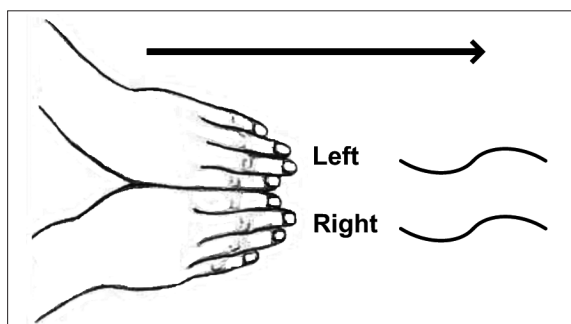
Fig. 3

Before the first rehearsal with the performers I met them and explained how the score worked. Having written the score and tried out the movements every day for a couple of months, I was very fast in reading the movements of right and left hands in the way I proposed. For me, the score had become very successful and practical. But the percussionists asked immediately why I hadn't inverted the hands in the score. So I proposed that we would try both ways, and I fixed the scores by cutting right to left and swapping the two halves. After

Figure 3. Miguelángel Clerc, *What about Woof?*, notation of hands.
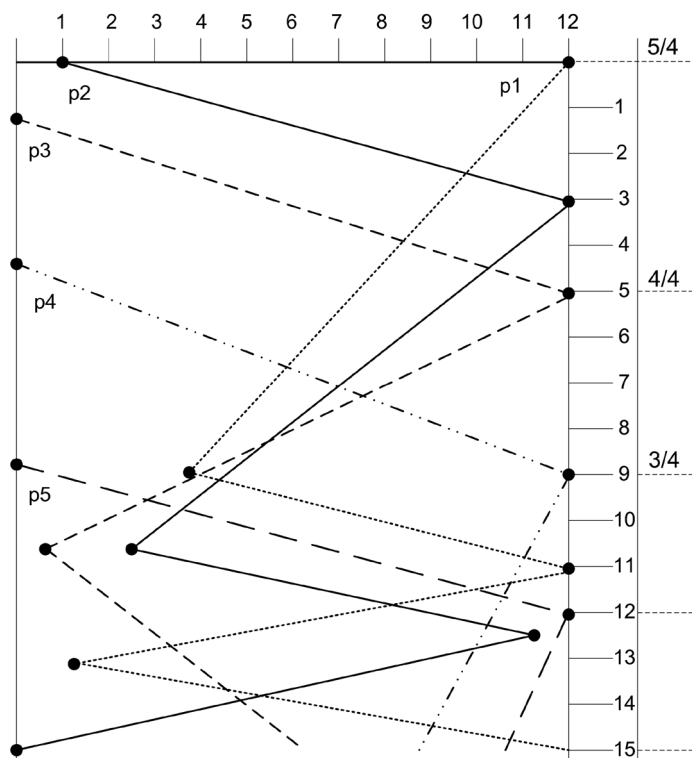
Fig.4

trying out both versions with the performers I realised that they reacted much faster if the logic followed a piano score, and we agreed that it was better for them that way. So for rehearsals and the performance I made a final score with the hands shifted around.

It was disappointing to find that I had to abandon my original notation, in which the visual and gestural quality was more connected to the intended physicality. I imagined both hands moving forward from left to right on the page to be like diving into the page, and when I changed the score to the piano format I felt that it was uncomfortable to dive in with the arms crossed. And if I put my hands parallel on the page, with the left one below, to go forward I would have to drag back my hands towards the right of the page, and I didn't like the physical sensation of moving backwards. So the score that was finally used was disconnected from its physical origins and used a symbolic logic associated with pitch to describe movements that are not at all connected to pitch. Nevertheless the performers produced the results that I expected, and they were comfortable with the score.

Another problem was to relate time with distance for movements on the table. I invented a graphic system for sideways movements [Fig. 4]. The horizontal numbers subdivide the width of the table's surface. Each unit is ten centimetres. The vertical numbers represent time in seconds, and they are grouped into bars. The graphic space is crossed by diagonal lines that show actions extending through time and distance. The different lines represent different players. So it is possible to have an image depicting a sort of counterpoint between all the lateral movements over time. But this graphic is read from top to bottom, and that is not very handy when this graphic is combined with other musical

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Figure 4. Miguelángel Clerc, *What about Woof?*, notation of sideways movements.

parameters, such as dynamics and pitch. I used this graphic as a structural aid when making the score; but the graphic on its own is a much better visual representation of what the performers are meant to do.

A final illustration [Fig. 5] is a score that gives only time and space instructions, so the overall result, visually, will only be discovered when the group rehearses and performs. The notation is conceived horizontally and is read always moving towards the right as time passes. But below the staves, the arrows pointing left indicate physical movements to the left, even though the temporal dimension of the score continues to move right. So in this case, also, a visual gesture is blurred by the logic that regulates how a music score is supposed to be read.

The final score of *What about Woof?* [Fig. 5] actually looks like a conventional music score. But, as for most percussion scores, it is important to know the instrumentation assigned to each line before trying to imagine the sound that will result from the symbols. In this case the score provides instructions for movement rather than representing sounds. The instrument is always the same—the coin on the table—with a few variations in the surface treatment and movement in the air (silence). The homogeneous sound colour was intended to create a characteristic substance within which movement can easily be recognised. I imagine the sound colour in this piece to be like drawing figures rapidly on the sand; one sees always the same texture, and though it is possible to see the trace of a gesture, this gesture cannot be sharply defined. The gesture blends with the substance. Hence this score is a bit of an illusion. It looks like a music score, but it is actually giving instructions for physical actions from which sounds result. These underlying, imagined movements and their resulting sounds are almost invisible in the final score. This makes my score like a list of instructions that

Fig. 5

Figure 5. Miguelángel Clerc, *What about Woof?*, score excerpt.

have to be performed to be understood; one can listen and see the result, but the result cannot be discovered by simply reading the score.

CONCLUSIONS

All three approaches described above and all examples cited have in common the intent to be used as music scores. That is, all of them have symbols and aesthetic qualities that we can easily recognise in music scores in the Western tradition. All of them aim to bring about a performance in a musical context even if they represent something not necessarily musical. Though from different perspectives, they all have sound and musicality as their objective. But none of them present a clear representation of sound in the music score.

In the first approach—either music based on mechanical processes or in graphic scores like Cardew's—the score tends to suggest a sort of musicality. This makes the performer responsible for the representation of sounds by symbols. That representation is more open than in other approaches because the physicality seems to arise after an abstract beginning. The sounds will depend on the performer, and the performance is not a reproduction of a sound from a memory invoked by the composer. The musicality is suggested by musical processes or graphics in which sound exists in imagination. These scores impose a requirement to take decisions.

The second approach, which starts from physical experience, tends to result in scores using many symbols and explanations to describe well-defined sound qualities and gestures. These scores work more as instructions for actions and are less musically suggestive in an immediate reading. The musicality of the piece is revealed through exploration of the musical instructions and the gestures. In this sense Lachenmann's score for *Guero* can be very musical once all the sounds have been tried out and once one knows how each gesture is shaped by its sound qualities. But the process of discovery aims to imitate a very clear experience that was tested by the composer before the score was made. So the demands of the score are very specific, even though the interpretation of the instructions may be very diverse, in part because of inaccuracies in how they are notated. In any case, the score is perceived as arising from the composer's wish to reproduce very specific gestures. These scores make a performer feel more responsible toward the composer's proposals because they seem to offer a representation of an actual memory.

The last approach has more diverse results, which were not exemplified in this paper. In *What about Woof?* the composer started with very specific movements, and the score tries to represent a physical event. But when a piece is based upon extra-musical elements like texts or drawings, the final score can result in very different approaches to interpretation. Some approaches might point more towards discovering sound, inventing sound, or imitating sound; others might use the score simply as instructions for something totally non-musical.

The preoccupation with representing sounds in a score leads to many problems. For me, when composing from processes, sound experiences or extra-musical elements, I am concerned primarily that the score serve to

reproduce certain gestures with specific characteristics and that it communicate a musical sense. Often such a score has instructions that, when physically followed, produce the intended effects; but is almost impossible to simply imagine the effect from the gestures in the score. When I have presented such a score in a situation in which it is evaluated, the unimaginability of sound turned out to be a problem: to relate the visual to the audible requires testing alternatives and developing an understanding of what the symbols represent. This is a practical problem concerning habits and convention. Even if old symbols are used, these often represent something totally different from the usual, and a jury or committee will not have time to work through the specific details, having to consider many other works. These inaudible scores require too many steps to be taken before they can be read in a musical way. Such social constraints push the creative process to remain in conventional domains. The composer is pushed towards standard notation and practicality; thus my music remains problematic in such situations: it is both difficult to imagine its sound from the score and difficult to register the total effect because of visual and spatial elements. Without other kinds of media, it is not always possible to show what the live performance is meant to be.

When I write music, the audibility and interpretability of a score do not concern me, and I don't think they should. But after reflection, I recognise that aesthetic qualities and the communication of sound in a score are often limited by commercial needs, which constrain creativity to an expected average. Many composers design scores to suit this need for audibility because it is required in many contexts; the music thus conforms to certain aspects of tradition that enable scores to be easily evaluated. Most such scores are shaped by aesthetics that are associated with success in a specific market. As such, they are socially conditioned, and the composers remain unaware of how a score can limit creativity merely by aiming to represent sound clearly. Composers should approach scores without assigning them importance as fetishistic, self-referential art objects, which conditions the aesthetic results. The score should just aim for practicality, but a practicality which clearly communicates the musical intention. All this suggests that we need a different way to evaluate musical compositions. This is already made easier with new technologies and media; by now we are accustomed to having extra media, apart from the score, to show what the performed result might be. If we can count on such media, the immediacy that we expected from scores in the past becomes less important. In the wake of these changes, my interest as a composer towards scores has shifted from scores that easily represent sound and towards scores that are simple and practical in giving instructions for performance and in which sound and the full representation of the piece is to be discovered through the rehearsal process. I believe that through this process of discovery, performers and conductors feel more responsibility toward the sounds and performance that result. But when they understand from the score just what the music will sound like, they are conditioned and limited by their previous experiences, which may dull the musicality and grace of the performance.

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Interlude II

The Score on Shifting Grounds

Kathleen Coessens

Kathleen Coessens

SURVEYING WESTERN MUSIC NOTATION

All systems of codification and symbolisation are liable to evolution in their surrounding culture. This is also true of the music score. Western music notation goes back to the notation of plainchant, the addition of dots and strokes above the text. Around the eleventh century, a four-line staff appeared, invented by Guido d'Arezzo, and notation tended towards the recognisable shape of modern notation. Still, this music was quite different from melodic and harmonic classical music, in the sense that it was rather serene and monophonic, slow-paced, but with an internal complexity, opening up another world of sound and time. Notation and creation were suited to the religiously inspired music patterns of that time.

A five-line staff appeared in the fourteenth century, followed over the next two hundred years by vertical bars to create sections, a codification for time duration (note length), opening the opportunity for what we call the enormous development of Baroque through Classical to Romantic music, from the late seventeenth to the beginnings of the twentieth century. Together with the stabilisation of the notational system, instruments became more and more standardised, and with them also playing techniques, the formats of ensembles and compositional styles. Over more than two centuries, from 1700 to 1900, changes in notation were rather marginal, adapting to the changes that were made in instrument construction and harmonic theory, which, from the Baroque through the Classical and Romantic periods, were rather important.

During the twentieth century, emerging from avant-garde movements and experimental modernism and influenced by the social, industrial and technological changes of the late nineteenth century, a radical shift took place in music creation and production; this in turn implied the need for a development and extension of music notation. Different aspects relating to the domain of music creation were in flux: artistic material (including instruments and recordings), perception of sound, the tonal system, and the role of space and time in music. These four aspects evolved throughout the last century. They are intertwined and provoke each other in very complex ways. For clarity, they will be described here in sequence.

A first aspect concerned experimentation and evolution of instrumental material, in both use and construction. This evolution was fostered by cultural exchanges and musical migration as well as by technological innovation and new scientific developments.

Due to intensive Western colonisation, coupled with anthropological curiosity and discovery, instruments of different cultures entered the Western world of music, allowing for new sounds, scales, and rhythms as well as for different playing techniques. Although they had already confronted some of these differences through the discovery of the world in the fifteenth and sixteenth centuries, Western musicians moved from a rather passive admiration of exoticism towards a real active exchange only in the two last centuries These cultural imports also had an impact on the reconsideration of the whole Western tonal system.

Together with this intercultural exchange, a deep shift occurred on a social and economic level in the form of the industrial revolution. The impact of discoveries in the engineering and industrial sciences was pervasive in all domains, including sound and music. In the midst of the industrial revolution, changing economic views in society had already reshaped the outer face of the music world. The music printing industry facilitated the diffusion of music, including innovative methods of manufacturing that led to a growing market for musical instruments. This did not affect the notational system, but rather improved its diffusion and transmission.

At the end of the industrial revolution, technological inventions and scientific discoveries entered the musical domain. Thomas Edison's invention of the phonograph in 1877, followed by Emile Berliner's gramophone ten years later, launched the end of the ephemeral status of performed music and added a radically new trace, auditory rather than visual, to notation, through the potential of recording and distribution, thereby creating permanence in musical creativity. A tentative beginning of electric instruments in the late eighteenth century, first based on electro-magnetism, like the *clavecin électrique* of Jean-Baptiste Delaborde (1759) or other electromechanical instruments like the musical telegraph (1876), burst out in an accelerating movement of electronic music instrument inventions in the twentieth century. Electronic instruments and sounds cohabited with the existing acoustic instruments. After a short period of imitating acoustic relatives or experimenting with hybrid acoustic-electronic instruments, like the ambitious creation of the first electronic synthesiser, called the *Telharmonium*, by Thaddeus Cahill in 1900, radically new instruments were invented. The *Theremin* (1920) can be considered as one of the first fundamental departures from acoustic instruments: no pedals, neither strings nor keys, but instead a sensible antenna that captures small oscillations in the air between two electric magnetic fields. Nevertheless, scores for the Theremin remain simple and traditional.

The migration of music instruments from alien cultures, the invention of new instruments and the all-pervading impact of technology and the industrial factory led to a second change, a new world of perception. With the industrial rev-

olution came the advent of new repetitive mechanical movements and sounds and noises that until then had never been experienced:

> Let us cross a great modern capital with our ears more alert than our eyes and we will get enjoyment from distinguishing the eddying of water, air and gas in metal pipes, the grumbling noises that breathe and pulse with indisputable animality, the palpitation of waves, the coming and going of pistons, the howl of mechanical saws, the jolting of the tram on its rails, the cracking of whips, the flapping of curtains and flags. …
> The variety of noises is infinite. If today, when we have perhaps a thousand different machines, we can distinguish a thousand different noises, tomorrow, as new machines multiply, we will be able to distinguish ten, twenty, or thirty thousand different noises, not merely in a simply imitative way, but to combine them according to our imagination. (Russolo [1913] 1986, 23–30)

Life and perception became different, overwhelmed by sensory intensification and novelty. Luigi Russolo, one of the futurists, remarked in *The Art of Noises* (1913 [1986]) how a history of silence became a history of noise:

> Ancient life was all silence. In the 19th century, with the invention of the machine, noise was born. Today, noise triumphs and reigns supreme over the sensibilities of men… (Russolo [1913] 1986, 13)

Besides the perceptual changes caused by the broad industrial environment, the twentieth-century modernist invention and exploration of electronic "sound tools" expanded the sonic realm with radical changes in materials and techniques of playing, affecting timbre and pitch. The industrial ideology and the modernist ideology came together in an enormous evolution of music perception and creation:

> The industrial ideology of invention … desires to summarize existent knowledge through a new technology and thereby provide a marketable representation of current reality. In contrast to this view, the modernist ideology evolved to assert an anti-representationist use of technology, which sought to expand human perception through the acquisition of new technical means. It desired to seek the unknown as new phenomenological and experiential understandings, which shattered models of the so-called "real." (Dunn 1992, [4])

The artistic adaptation and use of electricity and automatisation had an immense effect upon traditional classical music in all its domains, altering not only the construction and invention of instruments but also the existing horizon of sounds, the space and time of music performances and, finally, music notation. The effects and evolution of this material realm endure till now. With the advent of computers and the digital era in the last decades of the twentieth century, this dynamic process became enriched once more by the possibilities of virtual media and programs. As artists interact with material, they were and still are enchanted by possible artistic uses of new technologies, moving the boundaries of perception and creation.

A third change, one concerning the western tonal system, took place together with the technological and perceptual turmoil. The twelve equal steps—half tones—in the western tonal system of the octave, with major and minor keys, presented, for a long time, the most adequate code. While the twelve equal steps allowed for an immense possibility of compositions (consider the whole canon of Classical and Romantic music) this system left an immense number of possible sounds in between those fixed pitches to be explored.

Such an exploration happened in the first half of the twentieth century, when composers began to question the existing tonal system. The composer Ferruccio Busoni, in his *Entwurf einer neuen Ästhetik der Tonkunst* ([1906] 2001), urged an exploration of the world of tones beyond the traditional scale. Experimentation with micro-tonal systems led to different schemes in which intervals became smaller and the whole octave could be divided—for example into 36, 48, 72 or 96 tones. To represent these tones in a notational system, composers added new symbols representing the new pitches to the traditional ways of codification.

A fourth change concerned experimentation in and between different domains of the arts. The new expanding technological and perceptual world had an impact on the whole artistic world. Artists in all domains were eager to explore this new, changing world. Visual, auditory, and haptic experiences found expression in artistic representation and imagination. The era of experimentation in modernist ideology not only produced responses in individual visual or performance arts but also led to intense exchanges between artists in different domains. Visual artists like Paul Klee or Wassily Kandinsky were interested in the musical potential of the graphic and drawing. Others, like Allan Kaprow in the visual arts or John Cage in music, experimented with the interrelatedness of performance and scores of all kinds—verbal, graphic, traditional, numeric. They investigated how scores could embed situations of improvisation, unexpectedness, and spontaneous freedom. Verbal, graphic, and visual possibilities of notational systems were explored, and the results exceeded common instrumental possibilities. Still more broadly, musicians like Edgard Varèse, Iannis Xenakis, and Luigi Nono explored architectural and spatial interactions with music.

BREAKING OUT OF CONVENTIONS

Notation for both electronic music and inter-arts experimental performances has still not been standardised. Scores now resemble maps, with trajectories and different *ad hoc* symbols, needing an explanatory key that depends on the needs of the performance and the habits of the composer. Performers nowadays need a flexible literacy, as they need first to understand the code of the piece and the related symbols before they can engage with the expression and imagination of the musical universe. At the same time, although many compositions after the fifties were meant to liberate sound, the scores often worked to liberate performers (Adlington 2009, 174). As such, an experimental approach

towards sound is mirrored by a similar approach to graphic representation, mirrored once again in the actions and intentions of the performer.

Here this introductory text ends and offers the floor to the authors of chapters 9, 10, and 11, discussing different approaches to experimental music and scores. The authors of these chapters engage in a deeper investigation of music that breaks free from conventions and explores new horizons of experimentation in performance and composition in the second part of the twentieth century. The main question here remains how and for what purposes experimental composers (re-)invented scores in contemporary music.

In Chapter 9, "The beginning of happiness: Approaching scores in graphic and text notation," Virginia Anderson shares her fascination with the multiplicity of experimental notations in the last fifty years. She tackles three perspectives, starting from a literal analysis to a broadly aesthetic approach to the score in its social context. In the first approach Anderson lists possible scores and alternative ways of notation as described by their physical properties—graphic, symbolic, pictorial, text. In the second approach she considers the freedom of the score from the perspective of different actors—composers and performers. The score acts here as a trace of different forms of creative processes and idea transmission. The third perspective explores the score in a social context, considering the sound narrative behind the score as a mark in and of a broader aesthetic view. Engaging with Austin's speech-act theory, Anderson looks at a score as a part of communication that can allow for "possible" and "impossible" performances; but how is one to decide about the "happiness" of an interpretation?

Gregorio Karman, in Chapter 10, "Closing the Gap between Sound and Score in the Performance of Electroacoustic Music," engages with the same period and themes, but this time in the context of electroacoustic music. He analyses the acts a performer needs to fulfil in order to realise a "happy" interpretation, drawing upon both his own and others' performance experience. The complexity of electroacoustic music compositions, often implying both spatial extension of the orchestra and a thorough awareness of the performance space, urges the performer to be aware of the open range of sounds and pitches, but also of its distribution over/in space and in time. Interestingly, the work of the performer becomes itself compositional, as he or she needs to annotate the score in a detailed way, applying it to the specific circumstances and context of the performance. As such, a score upon the score emerges, adding notational layers to original compositions.

In Chapter 11, "Notational Perspective and Comprovisation," Sandeep Bhagwati analyses the score as a tool allowing for freedom and contingency in restricted ways. Bhagwati considers the way different music traditions and cultures of notation search for a balance between those devices that have a "universal" or "context-independent" value and expression and those that can be considered to be contingent and dependent on a particular performance. Bhagwati's notion of "comprovisation" offers a way to recognise oral, improvisatory traditions and eurological, sinological, and other traditions of notated compositions. Not only do cultures differ widely in how notation controls or

allows for freedom but, inside cultures, struggles happen concerning the redefinition and redistribution of both polarities—context-independent and contingent performance elements.

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Part III

Extending
the Boundaries

The Beginning of Happiness

Approaching Scores in Graphic and Text Notation

Virginia Anderson

Experimental Music Catalogue

> Knowledge of what is possible is the beginning of happiness. Dante, however, carries us much farther than that. He, too, has knowledge of what is possible and impossible. (Santayana 1910, 204)

INTRODUCTION

Experimental music is fascinating; scores in text and graphic notation are entrancing. It is as exciting to play, read, and ponder experimental notation as it is to analyse the most exquisite Romantic masterwork or the most complex Darmstadt score. Other scholars do not share my fascination, however, due either to personal taste or perhaps to the mistaken belief that these scores, often described as conceptual art, are too simple to explain in any detail. I cannot do anything about personal taste, but I feel that if these scores were so simple, they would have been explained better. Experimental scores have been displayed like art; they are often realised without imagination; in too many cases, descriptions of this music are vague, inapplicable, or wrong.

Experimental music deserves serious attention.[1] Artists who wrote and premiered scores in the extreme indeterminacy of the 1960s performed them with vibrant creativity and clever lateral thinking. Like Dante, they explored the division of the possible and impossible in notational indeterminacy. They knew graphic and text score types and their variants. They were keenly aware of the roles of the composer, performer, and listener; what each actor took in and what each one made. They explored not only the score but also the implications of its indeterminacy. To understand this music today as the practitioners

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1   There are many types of music called "experimental." "Experimental music" in this chapter refers to Cagean indeterminacy, alternative notations, early minimalism, artistic crossovers, and philosophical tenets from ca. 1951–71, as described in Nyman (1974) 1999.

understood it, we need to examine these scores in close detail by patrolling the border of possibility and impossibility that lies within them.

I cannot present a complete method for analysing text and graphic notation here, but I will present three initial analytical approaches. The first approach involves the physical properties of a score. What type of score is it? Is it written in graphic, text, or common-practice (normal) notation, or a combination? How is it read? Is it read like a language (syntactically), like visual art (pictorially), or as literature (metaphorically)? The second approach involves how the musical idea is transmitted from composer to performer and listener through the score: what is the duty of each, what does each actor make up, and what do they take in? I shall show how John Cage's *4'33"* has been defined by individual performance interpretations, rather than fixed compositional elements. Interpretation is important to understanding an indeterminate piece, but it must be considered differently, using the third approach, indeterminacy. What are the limits of realisation in a given piece? What is possible, and what is impossible? We come, quite literally, to Santayana's beginning of happiness, as I apply J. L. Austin's idea—that performative utterances are relatively "happy" or "unhappy" according to the possibility of their implementation—to experimental performances as being relatively "happy" or "unhappy" according to their relationship to the score (Austin 1975, 6ff.). I conclude with brief case studies, mostly from the Scratch Orchestra collection of Improvisation Rites, *Nature Study Notes*, showing their structure, transmission, and the implications for happy and unhappy outcomes that lie in the score.

THE FIRST APPROACH: PHYSICAL PROPERTIES

Scores in alternative notation are classified by their physical types. Graphic scores, the first type, are usually "drawn" in some manner and may be symbolic or pictorial. Symbolic graphic scores connect elements to sounds syntactically, to be read like written language or common-practice (so-called "normal") Western notation. Earle Brown's *Four Systems* (1954) is highly symbolic, consisting of the titular four systems. Each system is bounded by two continuous parallel horizontal lines running from the left to the right on the page, representing the extreme borders of the keyboard. A number of thick and thin lines appear within and parallel to these borders; these lines are the "notes" to be played. *Four Systems* is read "in any sequence, either side up, at any tempo" (Brown 1952–4). This direction promises greater performance freedom than it actually allows, as the textures of the systems are quite similar throughout. No matter which way this score is read, it is a score in proportional notation (also known as "time-space" notation), in which the height of internal marks indicates relative pitch and thickness may indicate dynamics or clusters. Proportional notation is neither barred nor metered like common-practice notation, but it is read similarly. The performer reads *Four Systems* in time from left to right, low to high, between the two border lines, in the same way as she reads common-practice notation from left to right, low to high. Similarly, listeners can follow an observant performance in

the score.[2] Line heights, lengths, and thicknesses do not fix pitch, duration, and dynamics as well as notes in common-practice notation, but they are accurate enough that *Four Systems* performances have a distinct identity.

Pictorial scores do not have a linear relationship between score symbols and sound; the performer "plays" the score the way a viewer "reads" an artwork. An untitled event score (one of a category called "Triad") from Cornelius Cardew's experimental opera, *Schooltime Compositions* (Cardew 1968, [3]), is purely pictorial, consisting of three scalene triangles, each divided into further equilateral, isosceles, and scalene triangles. These triangles are measured according to size and type; the order of play recommended follows lines in the triangles as though they were boundary lines in a map.[3] In the instructions, Cardew suggested that the top of the page may be higher in pitch than the bottom, and that the right may be more dissonant than the left, a plan that would replace time (left to right in symbolic scores) with dissonance, but this is a suggestion, not a rule. Another *Schooltime Composition* score, also untitled, depicts the mirror image of an outline of two hands, joined at the wrist. The lower of the two outlines has seven fingers, the upper outline has six (Cardew 1968, [8]; Tilbury 2008, 370). Unlike the triangle scores, this untitled "hand" score lacks performance instructions; it must be interpreted by its visual cues alone.[4] Having no direct correlation between drawing and sound, this pictorial score is the graphic equivalent to allusive text scores, which I will explain later.

Text scores are known by different names. The Fluxus group of artists, poets, dancers, typographers, and composers who flourished in New York in the early 1960s called text scores "Event" or "Action" scores. The Scratch Orchestra of London (founded in 1969 by Cardew, Howard Skempton, and Michael Parsons) called them "Verbal" scores. Like graphic scores, text scores can be divided into two types. Instruction scores resemble recipes or instructions for assembling flat-pack furniture, in that the performer (or cook or do-it-yourselfer) reads the instructions and follows them to achieve a performance (or dinner or a bookcase). The "Hokey Cokey" is, essentially, an instruction score for a dance ("put your left foot in, your left foot out"). Non-musical and musical instructions are "performed" differently, however, as they have different rationales. A DIYer will try to overcome any indeterminacy in the instructions—divine the intentions of its creator—to build the furniture successfully. The performer of an instruction text piece will exploit the indeterminacy to give an individual performance. La Monte Young's *Composition 1960 #10* (Young 1963, [111]), which reads in its entirety "Draw a straight line and follow it," demands unspecified "lines" that could be realised as lines of thought in an argument, a carefully surveyed road line, or any other feasible interpretation. Young published his own real-

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2 An archival performance of *Four Systems* by the dedicatee, David Tudor, can be found, along with a sample score of *Four Systems*, on the Earle Brown Music Foundation website <http://www.earle-brown.org/index.php> (accessed 19 January 2011).

3 An image of this score appears in Tilbury 2008, 369.

4 Tilbury refers to a reported admonition by Karlheinz Stockhausen to Cardew's first wife, Ruth, to "cultivate her sixth finger" (Tilbury 2008, 370). Stockhausen later gave his dodecaphonic "bird" Mondeva seven toes and five fingers in Act II, scene I of *Donnerstag aus Licht* (1984).

isation of *#10* as *Composition 1960 #7* (Young 1963, [111]), in common-practice notation—the notes B and F# with the instruction, "to be held for a long time" (Nyman 1974 [1999], 69, 71).

The second type of text score, "allusive" (conceptual or ambiguous) scores, does not refer to actions. Mirjana Veselinovi?-Hofman sees these "inspiring" texts as elements of "verbal" instruction scores:

> A verbal score may not only consist of more or less professionally emphasised instructions for and descriptions of a performing procedure which should be followed, but also of texts which suggest a sound interpretation indirectly inspiring it through their own literary, poetical or philosophical contents. Due to these contents, the texts can gain their own integrity, becoming independent of their possible and expected music "fulfilment". (Veselinović-Hofman 2010, 54–55)

True allusive scores, however, consist entirely of such texts, with no instructions for performance. La Monte Young's *Piano Piece for David Tudor #3* (1960, in Young 1963, [111]), which reads in its entirety, "Most of them/were very old grasshoppers," is a typical allusive score. It is set on two lines, suggesting unrhymed poetry; Keith Potter credits this association to Young's partner, the poet Diane Wakoski (Potter 2002, 51). For this reason, we might consider *Piano Piece for David Tudor #3* to be conceptual art but for its use in Fluxus and in British experimentalism. Christopher Hobbs described a performance that Cardew gave for his composition students at the Royal Academy of Music:

> "[Cardew] was asking us how we would solve that problem, and he ... had this leather jacket and we sat there in great silence while he moved very, very gently and made the jacket creak slightly, which was his idea of 'some of them were very old grasshoppers' [sic], that it might get that idea across."[5]

Cardew performed *Piano Piece for David Tudor #3* to evoke the diegetic sound of old grasshoppers. This extremely indeterminate allusive score allows room for other solutions. The score has two parts: its poetic content and the title, which can be broken down further into two parts: instrumentation and dedication. The performer is free to decide whether the title is an instruction. If the instrumentation were observed, then the performance would have to be on piano (the creaking of the grasshoppers effected, perhaps, by scratching on the strings). If the dedication is observed as an instruction, only David Tudor could perform this piece. Since Tudor died in 1996, this rule would mean that this piece is now and forever unplayable.

Finally, scores in alternative notation often combine graphic, text, and even common-practice notation. *The Balkan Sobranie Smoking Mixture* (1970; in Cardew 1971, 5) by Greg Bright, for six players (tapping and chanting), includes several notational types: first, a graphic of the performance space, then instructions for instrumental performance and conducting. There follows common-practice notation of the tapping (rhythm only) and the text to be

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5 Christopher Hobbs, interview by author, London, 3 February 1983.

chanted (laid out proportionately to the delivery). It concludes with instructions for the canonic presentation of the text, its coordination with the tapping, and provisions for ending.

THE SECOND APPROACH: THE IDEA TRANSMISSION MODEL AND ITS DISCONTENTS

As can be seen above, an alternative notation is largely defined by what the performer does with it. Among others, Jean-Jacques Nattiez and Nelson Goodman have used linguistic models to outline the transmission of a musical idea from composer through performer to listener. Nattiez delineated a series of interconnected acts of "poesis" (making) and "esthesis" (taking in) on a "trace" (the score) (1990, 12).[6] Both poesis and esthesis are active as to decision-making and critical faculties; indeed, Nattiez calls them the "poietic process" and "esthesic process" to highlight their activity. Nattiez omits the performer entirely in his first example. Somewhat later, he gives the performer a kind of ancillary, outside role in the process. [Fig. 1]

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Poietic process—>Score—>Musical result<—Esthesic process
                          ↑
                Interpretation (performance)
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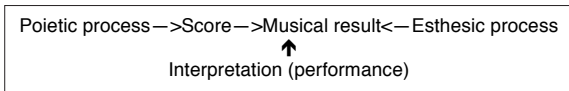
Fig. 1

This model sidelines the performer too much to describe transmission of Romantic music, let alone music in indeterminate notation. It has no sense of esthesis, of taking in, by the performer, either from the score or from the composer. Nattiez's model makes sense only in the strictest total serialism in which the performer complies literally and selflessly with the score. Performers make poietic, even "compositional," contributions to the demands of text and graphic notation, as they also do to cadenzas, jazz solos over changes, and other indeterminate music. A better model for most music would feature a chain of poietic and esthesic processes: [Fig. 2]

```
              Composing process (poietic)
                        ↓
            Score (trace of composing process)
                      ↓↑
          Performing process (esthesic and poietic)
                        ↓
         Musical result (trace of performing process)
                        ↑
Listening process (esthesic, and in the case of analysis or criticism, poietic)
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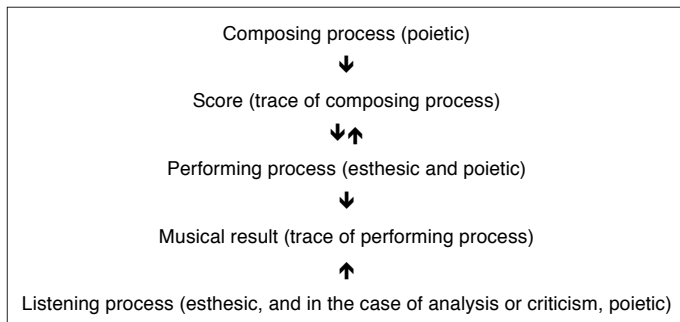
Fig. 2

6   Nattiez adapted this model from Jean Molino and from Paul Valéry (1945), "Leçon inaugurale du cours de poétique au Collège de France," *Variétés* V (Paris: Gallimard), 297–322. Roman Jakobson used the postal analogy of 'addresser', 'message', and 'addressee' (Nattiez 1990, 18).

Figure 1. Jean-Jacques Nattiez, chart of transmission of musical process (1990, 73).

Figure 2. A better model of transmission.

Even this model could be refined in specific cases. The creative process for composers is often as esthesic as poietic; recorded electronic music and composer performances may either combine composer/performer roles or bypass them (Warfield 1974, 18). However, the "chain" model applies to most graphic and text notation, and it gives the performer parity in the chain of making and taking in.

Indeterminate music not only heightens the performer link in the idea transmission chain, it also highlights the division of labour between performer and composer. One can limit, even misrepresent, an indeterminate piece by confusing what a composer has written with what a performer adds in interpretation. For instance, Cage's *4'33"* (1952), the famous so-called "silent" piece, is written in common-practice notation in two of its versions. The original "Woodstock" (1952) has blank staves in 4/4 time; the Peters publication (1960) has three movements labelled "Tacet." (The "Kremen" (1953) version has proportional (blank) symbolic notation.)[7]

As we know what *4'33"* does—the performer remains silent—it should be easy to describe, but descriptions actually vary. Nattiez describes *4'33"* as "a silent work in which the pianist places his fingers on the keys and removes them again, repeatedly, without ever sounding a note" (1990, 43). This description seems to be based on attendance at one performance; it certainly shows no acquaintance with the score. Nicholas Cook writes, "the pianist sits at a closed piano; opens the lid to begin the performance; and closes it some four and a half minutes later" (1990, 11). This statement is either deliberately vague or else it describes a single, variant performance of one, four-and-a-half-minute movement, delineated by the opening and the closing of the lid. If Cook is purposefully vague, he has chosen an odd analytical approach. As Christopher Hobbs wrote, "You might just as well say that Beethoven 9 begins when the conductor raises his baton and ends when he puts it down."[8] The description of the single movement and its initiation and conclusion is also odd: first, because Cook follows this description by quoting Cage's anecdote about performing the three movements of *4'33"* during a woodland mushroom hunt (Cage 1961, 276; Cook 1990, 11); second, because in his premiere, and now traditional, interpretation, David Tudor began each movement by *closing* the fall board (keyboard cover), not the lid, and opening it at its end. Finally, Lydia Goehr claims that Cage has not escaped what she calls the "post-1800 'work-concept,'" because, "in ironic gesture [sic], it is Cage who specifies that a pianist should sit at a piano to go through the motions of performance. The performer is applauded and the composer granted recognition for the 'work'" (Goehr 1992, 264).

All three writers either have not read the score or do not distinguish compositional actions, mandated in the score, from interpretative ones. Goehr charges Cage with perpetuating the "work-concept" by directing a *pianist* to

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7 Gann provides a brief overview and comparison of these versions in Chapter 5, "The Piece and Its Notations" (Gann 2010, 167–187). All *4'33"* versions, including variant editions of the "Kremen" and "Peters" versions are now available in a synoptic centennial edition (see bibliography).

8 Hobbs, email to author, 16 December 2008.

sit down and *go through the motions of performance*. Similarly, Nattiez and Cook insist on a pianist and an array of actions. None of these indications appear in the score; rather, they have been built up in performance practice. At the same time, *4'33"*, in its three versions, is far more diverse in its execution than these writers imply. The Peters version—the one used by most performers—states that *4'33"* can be performed on any instrument or combination of instruments, and for any time length. The Woodstock version, lost but reconstructed by David Tudor, shows no instrumentation, nor does the Kremen. I have directed a band *4'33"*, played E flat clarinet solo *4'33"*. Recently I played the *33"* first movement on piano using Tudor's gestures, which is an excerpt, but I could equally have titled it *33"* by John Cage, which is a whole piece. An audience is not required; on his mushroom hunt, Cage performed this piece alone and mentally. Moreover, these performances are not arrangements of *4'33"*, in the way that Ravel's orchestral *Pictures at an Exhibition* is an arrangement of Mussorgsky's piano piece; these are real, observant *4'33"* performances.

As Hobbs suggested, describing a normal "masterwork" such as Beethoven's Ninth Symphony only by its initiation and finish would be ludicrous. To justify treating an indeterminate score in such a cavalier manner, the analyst would either have to accept that it was categorically different (i.e., *not* a notation or a score), or that it was qualitatively different (i.e., occasional or conceptual). According to Nelson Goodman, indeterminate text and graphic scores are not notations. Goodman took a section of Cage's *Concert for Piano and Orchestra* (1958) that has the "line and dot" notation that Cage used in the late 1950s and early 1960s. Performers measure dots (events) by their orientation in lines indicating dynamics, duration, frequency, and so on. Goodman thought that this system "is not notational; for without some stipulation of minimal significant units of angle and distance, syntactic differentiation is wanting" (1976, 188). If so, few, if any, graphic and text scores are notational, as there is no fixed syntactic differentiation.[9] This, however, means that indeterminate music exists in a kind of limbo—neither notational nor purely contemplative—a state that is not borne out in practice. As text and graphic pieces are created by people and passed on paper for others to play, they work too much like scores to be solely improvisational; their idea transmission is too much like notation to be purely conceptual. Nattiez's and Cook's generalisations may imply that music in text and graphic notation is too ephemeral and unimportant to be examined closely, which constitutes a personal, aesthetic judgement. If what Goehr calls the post-1800 work-concept is the standard for quality, then indeterminate pieces are inferior when judged against it. However, Goehr specifically rejects this kind of judgement as "conceptual imperialism" (Goehr 1992, 270). She states that the post-1800 work-concept dominates our understanding and blinds us to the appreciation of music outside it. Instead, I prefer a pragmatic, cultural definition: a score (or notation or composition) is a score (or notation

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9 I have shown elsewhere (Anderson 2006, 312–313) that Carl Dahlhaus's definition of a "composition" as being fixed for performance and transferable as an aesthetic object to the listener (in Lewis 1996, 96) shows inconsistent results when applied to text and graphic pieces.

or composition) if the culture uses it as a score (or notation or composition). If we are to enjoy and value these scores, we should find a way of explaining them on their own terms, just as we have ways of explaining *Pictures at an Exhibition* or Beethoven's Ninth Symphony. This leads us to the performer and the question of a happy performance.

THE THIRD APPROACH: THE PURSUIT OF HAPPINESS

So far I have shown the general physical features that we find in the fixed score, its typology. Is the piece written in text or graphic notation, or is it a mixture of the two? What does the piece specify that the performer must do, and what does it suggest that the performer do? I will look at other elements later in the case studies. We have looked at the (linguistic) transmission of the musical idea from composer to performer and to the listener, as well as the division between them. What does the composer supply, what does the performer take in, and what does she add to the score? Now we shall examine musical possibilities from the point of the performer, again using linguistics.[10]

J. L. Austin famously distinguished between constative utterances (statements of fact) and performative utterances (statements of intent) (Austin 1975, 6ff.).[11] Austin characterised constative statements as "true" (I live in Leicester, England) or "false" (I was born on Mars), and performative statements as "happy" (achievable: I will eat dinner tonight) and "unhappy" (possible or likely failure: I will lose five kilos by next week) (Austin 1975, 3, 13–15).[12] The score itself is constative (everything on it *exists*), but most of its content is performative (stating what the performer should do, such as "play a crotchet A440"), as is its indeterminacy (implying what the performer may do, such as "rubato"). Austin's original formulation was seen to be limited when applied to language,[13] but music is a different form of communication than language. A score does not engage in debate or ask questions, so there is little need for Austin's subclasses of locutionary, illocutionary, and perlocutionary utterances. I will therefore only examine performative utterances in the score and their performances as relatively happy or unhappy outcomes.

Indeterminate music is ideal for the application of "happiness." Different performances of a piece may show a familial identity in audition; despite the different environmental sounds in each performance, *4'33"* remains the "silent piece." Other pieces may sound completely different in each performance. Some scores (especially symbolic scores such as *Four Systems*) allow a small

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10 *Word Events: Perspectives on Verbal Notation* (2012), ed. John Lely and James Saunders, appeared too late for detailed consideration here, but its first chapter (the most relevant to the discussion here) presents a static grammar of the compositions, with features of scores related to parts of speech. This compositional approach (adapted in part from a grammar guide for lawyers) ignores the role that performance plays in the musical idea and identity of a text piece.

11 Lawrence Kramer referred to these utterances as a division between "modern" and "postmodern" musicology, and to "meaning" in common-practice music, but he did little else with them (Kramer 1995, 11; 2011, 83).

12 Kramer used "successful or unsuccessful" (Kramer 1990, 7).

13 Keith Graham called it "stultifying" (1977, 1–2).

amount of performer creativity; others (especially allusive scores such as *Piano Piece for David Tudor #3*) allow a large amount. The performance possibilities of a piece in alternative notation thus include both what is stated and what is not stated in the score. Unstated elements in a score are performed according to the performers' cultural contexts. In late experimentalism, especially in Britain, performers were encouraged not to follow the composer's intention, if it did not appear in the score; fanciful, even illogical, interpretations were valued. Similarly, Austin saw a cultural context in word use: "the particular persons and circumstances in a given case must be appropriate for the invocation of the particular procedure invoked" (1975, 34). His examples—the inappropriate "incapacity" of baptising a baby Alfred instead of Albert, and the "wrong type or kind" of procedure of naming him (or her) "2704" (1975, 35)—could, in an experimental baptismal piece, be two types of *appropriate* invocations. The baptism in either case could be unhappy only if the composer (the experimental "bishop") specifically ruled (in the score) that numbers (or, indeed, other names beginning with "A") could not be used. Christopher Hobbs specified, for instance, that any text could be used to create a performance of *Voicepiece* (1967) except for the score instructions themselves, to prevent performers from taking the lazy option of using what was in front of them, and so opening performances to other texts. Cornelius Cardew specified that performers could use the text of Paragraph 6 (1969) of *The Great Learning* (Cardew 1968–71, 23), because it contained not only instructions but also a setting of the Confucian text. Hobbs and Cardew thus made their rules appropriate to their materials and procedures.

The search for loopholes in the rules of the score can exploit indeterminacy in both syntax and semantics. At a recent meeting of my experimental notation class at the University of Nottingham, one student, Peter Allott, performed George Brecht's *Tea Event* (1961), from Brecht's event score collection *Water Yam* (1963). The score in its entirety reads: "preparing/empty vessel." Allott performed this piece using a real tea bag and mimed activity of pouring water in and out of a mug. The class, however, was divided as to whether "empty" in this text was an imperative verb (asking the performer to, for instance, empty a kettle into the mug, or to empty the mug by drinking the tea), or whether it was adjectival (the vessel was, itself, "empty" of contents). In the imperative state, the description as a whole was instructive and performative; in the adjectival state, the description of the vessel was concrete and constative. In the latter case, only the first line, "preparing," is perlocutionary, demanding that the empty vessel be filled with tea, water, or any other action that would be "happy" in the circumstance of a piece entitled *Tea Event*. Allott pointed out that in some areas of Britain (the Northeast, for instance), "tea" refers not only to the drink, but also to supper, so that a "happy" performance of *Tea Event* might see the preparation of a meal (a soup or stew, perhaps) to fill an empty vessel.[14]

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14 The 2011 Experimental Notation class included Allott, Patrick Burnett, Alice Billau, Laura Clements, Michael Roberts and Yichen Wu; the previous class, Sonja Ashbury, Lindsey Billinger, Jonathan Herrick, Alex Jenkins, Jonathan Pether, and Greeta Sagris, were also vital to formulating the present project.

In the compositional phase, the construction of the score can be judged "right" or "wrong" (for instance, complying with the relevant theory by either avoiding parallel fifths or using them); this roughly approximates Austin's "true" and "false." The performer may also be "right" or "wrong," depending upon the compliance with (or defiance of) the score directions. "Right" and "wrong" judgements, however, can be confused with the aesthetic range from "good" to "bad." The distinction between "happy" and "unhappy," for all its emotional connotations, does not refer to an innate quality, like "right" and "wrong." It refers instead to whether a performance is appropriate to the score—a much more malleable and contextual judgement. Since the bulk of the information in text and graphic notation is performative, we will use this distinction to explain the limits of some sample pieces.

EXEMPLIFYING THE POSSIBLE AND IMPOSSIBLE

Along with physical notation types, ideas, their transmission, and division of labour, and range of performance happiness, music in text and graphic notation is affected by the social context of the piece. Approaches could change in time, or in response to conflicting directions. Bright's *Balkan Sobranie* instrumentation originally used tobacco tins that were tapped and shaken, reflecting its title and subject (a proprietary brand of loose tobacco), but this did not appear in the score. The instruction on the *Four Systems* score indicates that it can be read "either side up," presumably meaning either as published (with the title at the top of the page) or upside down (title at the bottom). Some of my experimental notation students laid the score on its side when performing. Was the sidelong performance unhappy? The students read from top to bottom, or from bottom to top, so the order of events was unchanged in the sidelong view. Further, the instruction on the score is inconsistent with the prefatory note for *Four Systems* in Brown's collection *Folio*. The prefatory note refers the performer to his earlier graphic score, *December 1952* (Brown website, 2), which allows performance readings from all four sides. Being older, I never would have performed the score on its side, although it is perfectly readable and recalls the punched holes in a pianola roll. The students, however, found this aspect natural, as they were accustomed to the "note highway" vertical presentation of rhythm-action video games such as *Guitar Hero*.

Sometimes, like *4'33"*, different editions change the range of possibilities. Christopher Hobbs's Improvisation Rite CH27 reads:

> … watch what you are doing. Do nothing./Occasionally, raise your head and watch someone./If they raise their head and watch you,/play for a short time,/watching what you are doing. If while you are/watching what you are doing, doing nothing,/you feel that someone is watching you,/play for a short time,/watching what you are doing or/raise your head and watch the person who is/watching you. If someone is watching you,/play for a short time./If no-one is watching you. …(Cardew, ed. 1969, 4)

This instruction text was published in the 1969 Scratch Orchestra collection *Nature Study Notes*. CH27 is a classification number (analogous to an opus

number), indicating an untitled Improvisation Rite by Christopher Hobbs. It was also published as the second of *Two Compositions, 21 May 1969*, as part of his *Word Pieces* collection (Hobbs 1972, 47). The text of CH27 is divided by strokes (as when verse is set within prose) in *Nature Study Notes*, but it is set as separate lines (as poetry) in *Word Pieces* with the indication "Back to the beginning" at the end. In the poster for the first Scratch Orchestra concert, at Hampstead Town Hall on 1 November 1969 (which Hobbs, as the youngest member, presented), the lines of the text (named here as "Second Piece") were set as spokes radiating from a central axis, accentuating its cyclical form.

Under Scratch Orchestra genre types, *Two Compositions* (2) is a composition ("performable by the orchestra") (Cardew 1969, 619). Its happy performances would tend to be interactive ones, its alternative responses observed by all. Other provisions in Scratch Orchestra compositions include preventing harm to instruments, the performance space or performers; directions for physical placement (like *Balkan Sobranie*); performer hierarchy or equality (is there a leader to be followed, or is there a provision to ensure each player equal solo time?); various types of game play; manipulation of perceived time; and so on. *Two Compositions* (2) is nearly identical to CH27. CH27 is another genre type, an Improvisation Rite ("not a musical composition") (Cardew 1969, 619). Ideally, an Improvisation Rite describes a situation to facilitate improvisation, not an instruction for sound. The differences between Improvisation Rites and Compositions can be almost imperceptible. The placement of *Two Compositions* (2) and CH27 (in a collection of compositions and a collection of Improvisation Rites) alone determines their function. As an Improvisation Rite, CH27 does not specify instrumentation or pitch structure. Hobbs never determines the action "play," so the performer might play games; he does not specify sound, only vision, so a happy performance could be silent; the "someone" who may return the gaze may be unaware that CH27 is being performed by the subject player, so a happy performance could be solo and covert.

Just as a single piece can have two contextual and generic uses, pieces within a single genre may look completely different. Although *Nature Study Notes* was intended as a collection of Improvisation Rites, there are a number of entries in this collection that can only be described as compositional. Tim Mitchell's *Tube Train Rite* (TMTTR38; in Cardew, ed. 1969, 6) presents a set of parallel linear graphics and reads, "mark out a journey (inwardly/ outwardly/spatially). Make it." Like Young's grasshoppers, there is nothing regarding sound, so *Tube Train Rite* is a true Improvisation Rite. The title refers to the London Underground. References, or "ancestry," can appear in the score or in supplementary authorial notes that appear at the end of *Nature Study Notes* (Cardew, ed. 1969, 12–15). In his notes (p. 15), Mitchell asserted *Tube Train Rite*'s ancestry to be Cardew's graphic score *Treatise*, most likely due to its linear pattern and graphics. He also mentions William Caxton, an early English printer, and two steam engine pioneers (James Watt, George Stephenson [spelled "Stevenson" in the notes]). *Nature Study Notes* references included literature, games, laws, other rites and pieces by other experimentalists (Mitchell's reference to *Treatise*), pop music or (rather sarcastically) the

Western canon, or other arts. The "inwardly, outwardly, spatially" instructions could refer to tube trains running below and above ground; but it could also be interpreted metaphorically.

Howard Skempton's *Drum No. 1*, HSDNO1 (Cardew, ed. 1969, 3), also appears in the *Scratch Anthology of Compositions* (Cardew 1971, 13) and reads, "Any number of drums. Introduction of the pulse. Continuation of the pulse. Deviation through emphasis, decoration, contradiction." Unlike CH27, however, *Drum No. 1* is a composition, not a Rite, as the score describes orchestration, the progress of the music in time, and what will be heard. There are compositional limits, however: *Drum No. 1* does not specify drum types, and their number is indeterminate, as is the tempo. Performers usually set a moderate pulse, anticipating the decoration in the third part. Most happy performances will exhibit some sort of familial resemblance, no matter what the instrumentation, length of play, or type of decoration. There are no supplementary notes for this piece. Forms in Improvisation Rites can be cyclic—as CH27—but also closed, endless, contingent on the actions of other players, *formes trouvée*, and so on. *Drum No. 1* is tripartite: a pulse that is extended and then varied.

CONCLUSIONS

This chapter provides only an introduction to this approach to experimental graphic and text notation. By necessity, I have focused on types and genres of scores, presenting only a taste of the possibilities for happy performances in only a small selection of pieces. Since performance is so "hands-on," the experience of playing these scores is personal, even intimate. I have mentioned the semantic and syntactic joy that my students found in Brecht's very minimal *Tea Event* and their variant performances of *Four Systems* for the video-game generation. Performance is not necessarily musical; it can be taken into "real" life. At the Orpheus Institute Sound and Score conference, I performed *Tube Train Rite*, marked and made inward, outward, and spatially, simultaneously in a number of ways. First, I mapped and made my journey from my home in Leicester, England, to the Orpheus Institute. Second, my journey was programmed into my satellite navigation device—a realisation that Mitchell could never imagine in 1969. This chapter is a stage in a metaphorical journey that I have been making on the subject of notation. In one sense my journey on this chapter started with the call for papers for the conference and concludes with this chapter. In another sense, my journey began with my first essay on the aesthetics of notation in 1974. I can imagine that this journey will only end when I do.

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Chapter Ten

Closing the Gap between Sound and Score in the Performance of Electroacoustic Music

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> Fundamentally, notation is a serviceable device for coping with imponderables. Precision is never the essence in creative work. Subliminal man (the real creative boss) gets along famously with material of such low definition, that any self-respecting computer would have to reject it as unprogrammable. Creative work defines itself. Therefore confront the work.[1] (Roberto Gerhard [quoted in Cage 1969, 240].)

This article discusses the problem of the score in the context of electroacoustic music performance. The question of notation and transmission of performance practices and the role of documentation in the maintenance of this repertoire (Bernardini and Vidolin 2005, IRCAM 2007, Penycook 2008), the dependence on ephemeral electronic devices and software (Burns 2001, Puckette 2001, Wetzel 2007), the representation and the performance of space (Bayle 1992, Wyatt 1999, Tutschku 2001, Vande Gorne 2002), or the high demands posed to the editor (Richard 1993, Brech 2007) are some important considerations in which the emergent field of electroacoustic music performance should be inscribed. Here I want to bring forward the role of the performer, addressing the "imperfect" nature of the electroacoustic music score as a salient feature in the context of historical and contemporary musical practices. Through a number of examples based on my experiences with the performance of works for tape, mixed, and live electronics, I will examine those important considerations by discussing different aspects of the score in electroacoustic music performance: lutherie as a score-reading practice, the performer's scores in the context of new compositions and historical works, the relation between performance and score edition, the score as mediator, the score and the

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1 Cage 1969, [240]. The first three sentences are Roberto Gerhard's response to Cage's request for a text about notation; the last two sentences were probably added by Cage himself or by his co-editor, Alison Knowles.

performance of space, and the connections between score, analysis and listening. The interpretation of electroacoustic music will be presented as a skilled, creative, and decision-demanding activity, perhaps akin to the improvisational mannerisms of the Renaissance and Baroque (Kientzy 2003 [2009]). At the same time, wanting to meaningfully engage the dialogue initiated by the score, the performer will seek to read between the lines and to question the coherence of his interpretation.

I.

Playing the tape recorder in the dissociated time
In the 1950s, the direct manipulation of electronically generated sounds appeared to be a compelling answer to the conflict created by Webern's expanded twelve-tone-technique; the limits of the playable had been reached as a consequence of the rationalisation of all musical parameters (Eimert 1954, 43). Composers celebrated the opportunity to aspire to the "objective contemplation of proportions and balance," (Goeyvaerts 1955, 15) free of the "living parasitic sound" (Eimert 1955, 13) inherent in human performance. Instead of writing down the music as a score that had to be translated into sound by instrumental or vocal interpreters, a sound composition could be fashioned exactly in the form that it would reach the listener. However, the resistance posed by the electronic medium suggested a parallelism between the work in the studio and instrumental performance. For instance, the correspondence between Stockhausen and Goeyvaerts (Sabbe 1981, 49–50) reveals that in 1953, while the latter still believed in the exactitude of electronic generators as a means to achieve a pure translation of his compositional ideas, Stockhausen argued that the new medium was at least as conditioned by the instrumental and human circumstances of the electronic realisation as was a traditional performance with conventional instruments. The live act took place in the studio instead of the concert hall, a novelty that accentuated the role of the performing author.[2] (Eimert described "playing the tape recorder in the dissociated time" as "one of the most wonderful acts of musical production."[3]) In the scores of the sine-wave compositions produced at the WDR, conventional notation was replaced by sets of lines and polygons determining the acoustic properties of each of the constituent partials.[4] But in the end, it remained controversial whether the "instructions for the electro-acoustical realisation"[5] had the symbolic value of real musical writing and whether musicians could read those scores.

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2   "In the same way the pianist plays the piano, so must the composer play the tape recorder" (Eimert 1955, 8). Author's translation.

3   "Magnetophonspielen in der dissoziierten Zeit ist einer der wunderbarsten musikalischen Produktionsakte" (Eimert 1955, 9). Author's translation.

4   The reader will remember this form of writing with reference to Karheinz Stockhausen's *Studie II* (1954), perhaps one of the most popular examples of a score for electronic music.

5   "Unlike the usual methods of notation, there is no score, but merely working instructions for the electro-acoustical realisation of the composition" (Eimert, Enkel, and Stockhausen 1954, 52).

Aural tradition

A new form of performance—the practice of sound diffusion[6]—emerged with the advent of *musique concrète*. One forward-looking example of notation conceived for the spatial projection of a composition fixed on tape is Pierre Henry's score for the *decoupage spatial* (spatial decoration) of Olivier Messiaen's *Timbres—Dureés* from 1952.[7] The pioneer practitioners of *musique concrète* referred to two techniques for the presentation of spatial music already recognisable in Henry's score: (a) *relief statique* (static relief), the distribution of sounds over different loudspeaker channels,[8] resembling the spatial extension of the orchestra; or (b) *relief cinématique* (kinematic relief), the instantaneous movements of sound around the audience, shaped by the *chef d'orchestre spatial* waving his arms at the *pupitre d'espace* (Moles 1960, 127–129). The word "acousmatic"—used by Pierre Schaeffer to refer to a deliberate choice of pure listening—was later adopted by François Bayle to designate a genre that is first composed in the studio and later diffused in a public performance with an orchestra of loudspeakers.[9] Worthy of attention—in terms of the correspondence between sound and score—is that in acousmatic music the act of listening is at the foreground of all musical activity. The listening experience guides the composer in the creative processes in the studio[10] and also mediates between the fixed work and the sound projection,[11] where the resources[12] and musical interpretation come into play. The "technique of making an awareness that is established simply and solely from facts of both an intuitive and creative perception,"[13] (Bayle 2008, 242) is the point of departure for a practice in which the score is not a necessary condition at any of its stages of production.

II.

The dilemma of obsolescence

Live-electronic music became a major sphere of activity during the 1960s.[14] Composers incorporated into their scores parts for new electronic devices such as filters and ring modulators (two of the most popular early means of sound processing). In *Musik und Graphik* (1959 [1963]), reviewing the different

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6   The words "diffusion," "projection," and "spatialisation" are considered equivalent in this text. See Wyatt (1999) for a discussion of the use of these terms.

7   See Messiaen (2004). The first page of this score is reproduced on p. 15 of the INA/GRM CD-booklet.

8   The sounds were separated by means of filtering specified registers or using a multi-track tape (Moles 1960, 126).

9   See, e.g., Emmerson (2007, Chap. 6), for an introduction to different approaches to multi-loudspeaker sound diffusion.

10 "What he makes and his gestures are induced by the effect of aural perception, the spontaneous understanding of his workings by trial-and-error" (Bayle 2008, 242).

11 For Bayle, the idea of projection also plays a critical role in a wider sense. Acousmatic music is a "music that can only be understood in the form of sound images and that can only be experienced arising out their projection" (Bayle 2007, 181).

12 According to Bayle, the performer's resources are: the arrangement of the sound projectors, the pecularities of the concert location (width, depth, height, resonance, colour), characteristics of the projection instrument (sources, channels, controls), the external conditions (atmosphere of the hall, style of performance), etc. (Bayle 1992, 17).

13 This is the meaning of the term *akousma* (Bayle 2008, 242).

14 See Manning (1993, Chapter 8), for a standard introduction to this genre.
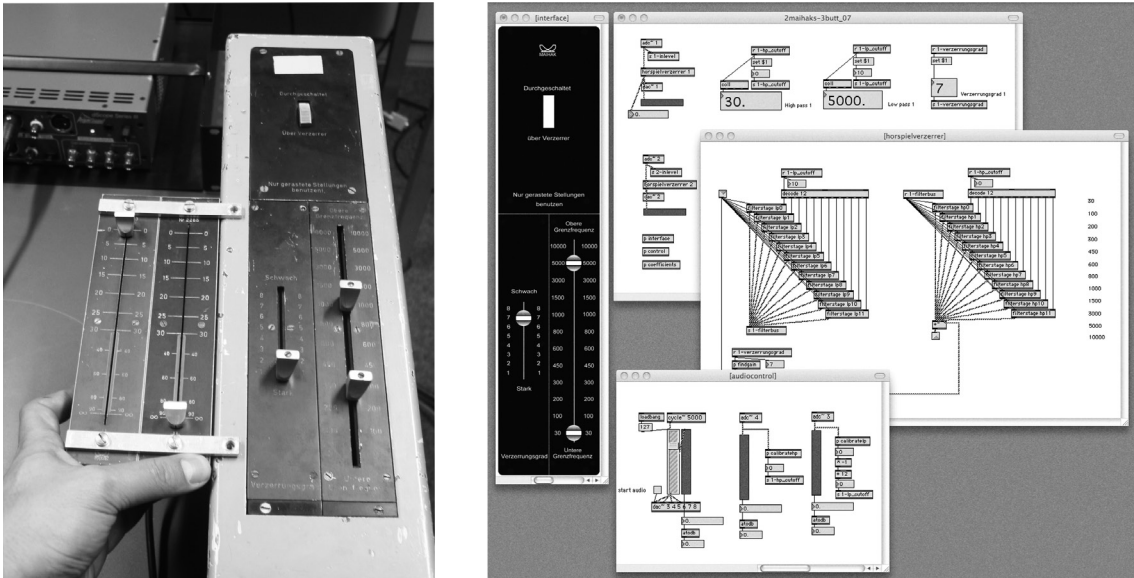
Fig. 1

categories of musical writing,[15] Stockhausen refers to the changes introduced in the notation of electronic music during this period. He writes:

> In the notation of electronic music a connection ultimately appears between numerical data and action notation, i. e., the way the electronic devices should be operated. Not only measurable quantities but also qualitative concepts are conveyed. While in the beginning it was believed that the acoustical properties of every sound could (and should) be exactly described, now we have switched over to characterize the instrument, prescribe the range of actions, and design a schematic illustration according to which the actions should be performed. (Stockhausen 1959 [1963], 181)[16]

Scores like *Mikrophonie I, No. 15* (1964), for six players with tam-tam, two microphones, and two filters with potentiometers, or *Mixtur, No. 16* (1964), for orchestra, four sine-wave generators, and four ring modulators, are examples of this trend. Those scores provide an extended foreword describing the instruments and electronic devices being used and their playing techniques. They also establish an equality between traditional instruments and electronic devices by adding staves that guide the operators' actions during the performance. However, embracing technology also contributed to a subtle reconfiguration of contemporary score-related practices. Analyzing the role of the editor in the maintenance of this repertoire, Marta Brech (2007, 484–5) emphasises that the tendency of composers and engineers to use the latest machinery and develop prototypes and, more recently, the dependence of software on computer architectures and operative systems are problems that often surpass available skills and resources. In practice, the limited accessibility and ephemeral life of the original instruments have encouraged interpreters engaged in the present-day performance of such works to address this question as an integral part of the score-reading process.

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15 Schematic and formulaic writing, ideographic notation, action notation, listening scores, scores for imagining, scores for performing, etc. (Stockhausen 1959 [1963]).
16 Translation by the author.

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Figure 1. Maihak W49 "Hörspielverzerrer" (left), computer simulation in Max/MSP (*right*).

In connection with the musical examples cited above, I relate two hands-on experiences that explore the dynamics of this interaction:

a.   The W49 "Hörspielverzerrer", [Fig. 1] [17] a filter designed by the Maihak company for the Nordwestdeutsche Rundfunk, was first used by Stockhausen in *Mikrophonie I*. Since only a few hundred units were produced in the 1950s, these sought-after filters are hard to get hold of nowadays. However, with the indications provided by the score, a computer-literate musician approaching the performance of this work would today consider devising a "patch" to produce an equivalent effect in a DSP-programming environment[18] such as Pure Data[19] or Max/MSP.[20] Sensitive to historically informed performances, the enterprising performer might even study the possibility of devising an interface that recreates the haptic impression of the original "stepped" faders.[21] But how faithful does the simulation of the original filter need to be? What about the clarification in the score, reading "example of the division in Hz of the 'W49' filter used *so far*" (Stockhausen 1974a, 14; author's italics)—does this not suggest the possibility or even an invitation to experiment with a different set of cut-off frequencies? Many would nowadays consider the use of W49 Maihak filters to be the genuine approach. However, might the implementation of a "click-free filter" (Stockhausen 1974a, 10) have been an improvement to the ears of the composer? Or, rather, are the audible artefacts that occur when sweeping through the frequency grid of a W49 an inherent part of the music? I invite the reader to consider his/her own answers before continuing to the next paragraph.

b.   My second example deals with the live-electronic apparatus of *Mixtur 2003, No. 16 2/3* (2003), for five instrumental groups, four sine-wave generator players, four sound mixers with four ring modulators, and sound projectionist. In the score of this composition, the four parts for the sine-wave-generator players are notated as frequency envelopes supplemented with values in Hz as well as pitches approximated to a chromatic scale (Stockhausen 2007a, VII), spanning over a range of thirteen (!) octaves, from C-5 to C8, or 0.5 and 4186 Hz, respectively. For the performances which I am discussing,[22] access to the historical instruments would have been entirely feasible,[23] but the experience gained during the preparatory stages led to questions about the suitability of the original setup. During testing by the author, the tuning possibilities of the available sine-wave generators did not seem to accord with the scale of detail and tuning range asked for in the score. After discussing this with

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17   All illustrations are by the author unless otherwise stated.
18   Perhaps using convolution or approximating the coefficients of the digital filter equivalent to the analogue circuit.
19   http://www.puredata.org.
20   http://www.cycling74.com.
21   Those who have had the opportunity to handle a Maihak W49 will have no reservations about the influence that the mechanics of this device have on the form by which the filter gestures can be articulated.
22   Performances with the setup described here took place in Salzburg and Munich: Salzburger Festspiele, 30 August 2006, Lehrbauhof Salzburg (Wolfgang Lischke / Deutsches Symphonie Orchester / André Richard / Experimentalstudio of the SWR); Musica-Viva-Festival, 25 January 2008, Herkulessaal Munich (Lucas Vis / Symphonieorchester des Bayerischen Rundfunks / André Richard / Experimentalstudio of the SWR).
23   The project was under the auspices of the Experimentalstudio of the SWR, an institution that would certainly have been able to provide a set of analogue sine-wave generators and ring-modulators.
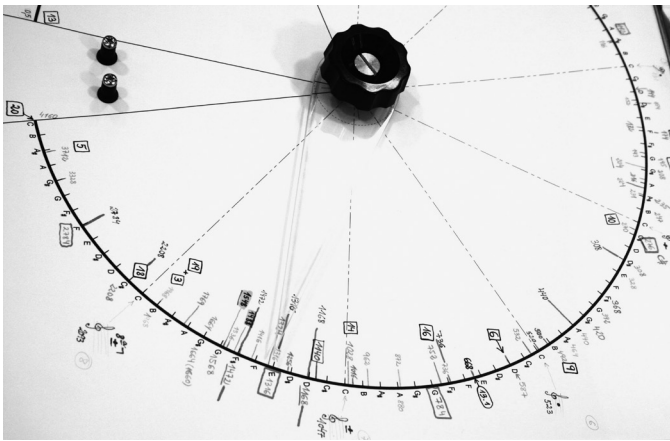
Fig. 2

Stockhausen, a new controller was developed[24] that was optimised for the performance of the intonation curves and that would overcome the imprecision and gestural limitations of the original setup while preserving the expressiveness of the analogue implementation.[25] [Fig. 2]

In proposing two contrasting case studies and formulating such questions I wanted to convey the notion that there may be a range of alternatives deserving consideration. Finding solutions through trying to imagine the sound realisation of the aforementioned scores is also taking musical decisions.

The performer's score
In studying performance itself, the significance of performers' annotations has probably been underestimated. In particular, performances of the music discussed here commonly result in large assortments of notes, sketches, and schematic diagrams that end up incorporated into the performers' scores or into other forms of supplementary documentation. To consider the issue of the performer's writing is to bring to light the details of a musical practice. It is convenient to examine two different poles of this practice: the first staging of a new composition, and the contemporary performance of a classical work.

A new composition is being readied for its premiere—the scenario in which the intention first meets the real. Instrumental sources and electronic transformations, coupled to an array of loudspeakers and microphones, converge for the first time in an acoustic space—an unstable environment sensitive to the smallest changes in the aggregate system. A number of variables in the interaction of instruments and electronics—e. g., playing techniques, the positions of the transducers, or the technological parameters—will need to be adjusted during the rehearsals. As a result of this process, the sound director (*Klangregissseur*)[26]

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24 In addition to the author, Joachim Haas, Stefan Huber, and Thomas Hummel were contributors to this project.

25 See also the foreword to *Mixtur 2003, No.16 2/3* (Stockhausen 2007a).

26 *Klangregie* (sound direction) is the usual way to characterise the activity of performing a work with electronics in the German language. Other terms, like "sound projectionist" or *sonista* (Kientzy 2003 [2009]), describe similar roles in other languages. In addition, diverse names are given to the musicianship exercised in the production facilities of the institutional studios, like *Musikinformatiker* (Experimentalstudio of the SWR), and *realisateur en informatique musicale* or "computer music designer" (IRCAM). Depending on the practice at a given studio both functions may be either the responsibility of a single person or undertaken by specialists in each domain.

Figure 2. Detail of the "Zeigerrad," a novel controller developed for the performance of Karlheinz Stockhausen's *Mixtur 2003, No. 16 2/3* (2003). Diameter = 36 cm.

Fig.3

empirically acquires the set of actions that will require attention in the course of the performance. After the concert, his/her score will contain the annotations taken down during the rehearsals, as well as those corresponding to a previous step, the preparation of the score; and together these connect the preexisting notation with the set of actions necessary when playing the piece.[27]

I will take an excerpt from Jimmy Lopez's *Íncubus III* (2009), for clarinet, percussion, and live electronics, as an example.[Fig. 3] In the printed score, the live-electronic part ("L.E.") is indicated by the composer using descriptive keywords (in the illustration we see "VCl: Fragm. + Pitch Shift" and "Vperc: Synchronized Crowd"). Below this part, up to four prerecorded layers are written out on dedicated staves using traditional notation (only layers "A" and "D" are active in this excerpt). The handwritten notes in figure 3, taken down by the sound director, complete the information and provide further understanding of the real-time processes carried out by the computers as well as the spatial behaviour of these processes. In this example, we can see that the voice part of the clarinet player ("VCL") is subject to granular processing ("G3") and the resulting sound particles are subsequently assigned a movement in space ("H3"); simultaneously the voice part of the percussionist is multiplied using a

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27   On occasions the composer may decide to ask the sound director to include those annotations in the score, but this is frequently hindered by time constraints if the score is edited before the first performance.

149
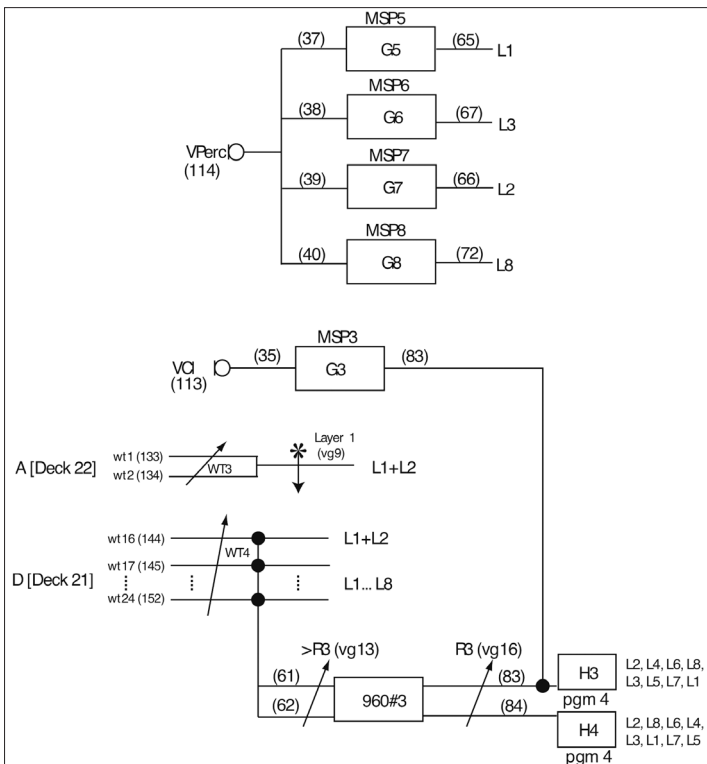
Fig. 4
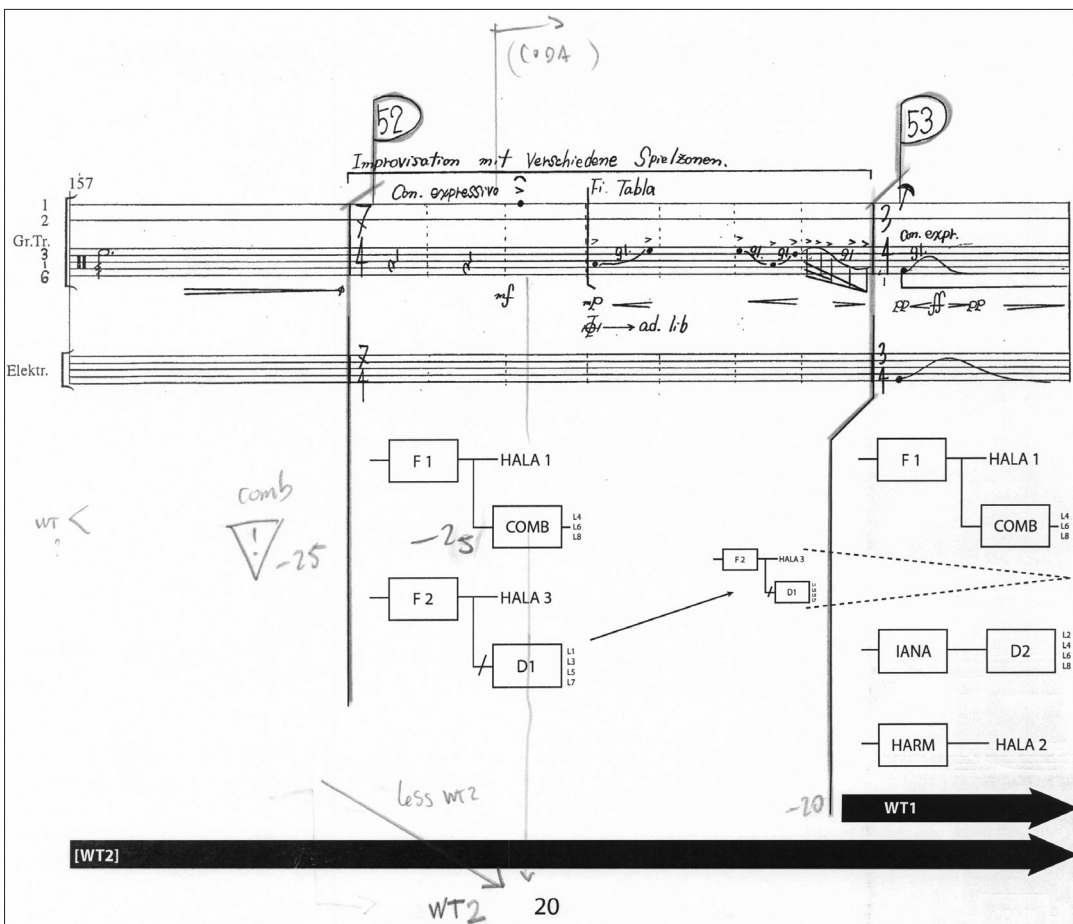
Fig. 5

Figure 4. *Íncubus III*. Sound processing circuit corresponding to cue 19.

Figure 5. Malika Kishino's *Lebensfunke II* (2007/09). Edizioni Suvini Zerboni. A detail of the performer's score assembly (p. 20).

four-voice shuffling algorithm ("G5 – 8") statically assigned to four loudspeakers ("L1, 2, 3, 8"). The sine wave *chorale* ("D")—an eight-channel recording whose dynamic profile is to be shaped live (*f, p, cresc., ff, dim., p, ppp*)—is additionally routed to a stereo reverberation ("HALL"), the outputs from which are sent to two independent spatialisation processes ("H3" and "H4"). All the abbreviations cited are simply part of a convention that I established to refer to the faders and knobs that constitute the tactile interface for sound production during the performance. Cues "17", "18" and "19" designate three different sound processing circuits stored in the memory of the computer, of which I kept a detailed record in a separate booklet. [Fig. 4]

In Malika Kishino's *Lebensfunke II* (2007/09), for bass drum and live electronics, we have a variant of the solution presented in the previous example. Initially, the score provided by the composer—based on *Lebensfunke* (2007), a previous version of the work, for bass drum and tape—had two handwritten staves: one notating the part for the bass drum ("Gr[oße] Tr[ommel]"), and a second representing the electronics ("Elektr[onik]"). In realising the new version of the work, which contains a complex live-electronic part,[28] I fabricated a collage combining Kishino's score with a schematic representation of the sound transformation circuits [Fig. 5] to be able to keep track of the thirty-four faders[29] that needed to be controlled during the performance. Unlike *Incubus III*, where the signal-flow diagrams [Fig. 4] consist of a separate booklet, in *Lebensfunke II* [Fig. 5] I incorporated those diagrams directly on the composer's score in a simplified form that would facilitate more immediate recognition of the mixing structures that are active in each cue.

Moving away from the performance of new works, at the other extreme we have the contemporary performance of a classical work. In order to gain insights into the stylistic and technical aspects of the composition, the interpreter wishing to produce a historically informed performance would seek to compare the edited score with manuscripts and vintage recordings. As suggested by the previous examples, scores that contain annotations by the operator of the antique instruments (as well as connection diagrams, installation plans, and other peripheral documentation corresponding to previous concerts) can be invaluable references. But different sources might also supply competing sets of instructions. For instance, the available materials of Cristóbal Halffter's *Planto por las víctimas de la violencia* (1971), for ensemble and live electronics, reveal that the electronic part has been subject to a number of adjustments in subsequent presentations of the work.[30] The same situation happens with *Variaciones sobre la resonancia de un grito* (1976–77), for eleven instrumentalists,

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28 A refined fabric of rapidly changing sound processing modules combined with pre-recorded multichannel files that are projected through eleven loudspeakers installed in two different heights surrounding the audience.

29 The faders correspond to the inputs and outputs of the sound transformation circuits. Not included in this total are the loudspeaker master faders and the three additional faders that are used for the amplification of the bass drum, all of which also need to be adjusted during the performance.

30 For instance, technical documentation corresponding to an undated performance with six loudspeakers—instead of the eight asked for in the score—depicts a quite different organisation of the spatial movements, and the filter bank is omitted (García-Karman 2006, 24).

tape, and live electronics [Fig. 6], a further composition by Halffter in which the published score and the historical realisations of the work diverge in some fundamental aspects, specifically regarding the spatialisation of the instruments.[31] In my experience, such discrepancies—whether following from musical criteria or ascribed to the flexibility or limitations of technology—are common in a broad range of works with live electronics.

Fig.6

The perfomer as editor

Intricate too is the situation regarding the scores of Luigi Nono. Nono himself treated the tape as an instrument, stressing that his actions at the console "depend on the performance space, depend on the instant" (Riede 1986, 18), and his live-electronic executions have been described as driven by "a certain freedom in altering the planned effects at each performance" (Rizzardi 1999, 52).[32] Moreover, Nono is said to have elaborated the details of

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31   In Halffter (1976–77) the amplification of the instruments is extensively subjected to spatial treatment, but the documentation available suggests that this was omitted in the historical performances.

32   Such is the intention reflected in Nono's words, chosen as the foreword to the score of *Post-prae-ludium*, one his last creations. There he says, "the provided notation, the new execution technique as well as the live-electronic part, they all together embody the effect of one of my interpretations" (Nono 1987 [1992], Foreword; author's translation).

his compositions in cooperation with performers chosen for their ability to "become independent of a strict notation and perform the *process* that carried the compositional intention" (Rizzardi 1999, 47), requiring them to get actively involved in the musical decisions. Perhaps we could posit the notion of "oral scores" (55) in which two processes—the composer's proposals and the performer's reactions to these—converge. More precisely, the incomplete formulation of Nono's scores has to be understood as the result of long phases of acoustic research in the studio and of exploration of extended performance techniques with the interpreters. André Richard explains that only after such preparatory work, "Nono—usually in a short time—drafted the score. In this phase he elucidated, only as a reminder, the performance techniques for the interpreters. The new compositions were then rehearsed directly in the place where the premiere took place" (Richard 1993, 100; author's translation). Nono's own manuscripts provide only sparing information regarding the sound processing, but the electronic transformations—programmed during the work at the studio and carefully adjusted during the rehearsals at the performance space—were "a clearly defined situation" (101). Today, it is easy to understand the importance of the work done jointly by Nono's collaborators and the editor in the publication of those scores. Such a venture has to confront the problem of making the transmission of the work possible whilst not providing a formulation that may seem too definitive, contradicting the original intention. Referring to this dilemma, André Richard appeals for good sense in finding the right balance between a precise definition of the text and the necessary allowance of freedom (103).

III.

The score as mediator

I propose now to consider the following five observations, taking the previously discussed instances as points of reference:

i.   With the arrival of the recording medium, the traditional differentiation between the conception of the musical work and the act of interpretation was obscured. Sound recording offered a way of fixing and manipulating musical ideas and also a means for listening directly to the result of these manipulations. The score lost its significance as the mediator between composition and performance, two activities that no longer take place in different spaces and times. However, the act of writing, whether enacted on paper, as was traditional, or whether manifested on magnetic tape or computers, continued to take place in the studio. So also did performance and improvisation (regardless of who was sitting at the controls of the electronic devices, be it the composer himself or another person). The German musicologist Volker Straebel suggests that overlooking the realisation and performance of electroacoustic music may have been strengthened by the idealistic attitude of the German tradition, in contrast with other schools like American experimental music where craftsmanship remained central (Straebel 2009).

ii.   The common view that electroacoustic notation is something imperfect can be interpreted as the formulation of an implicit answer to a primordial question: whether the score is to be considered as a "text" or as "mere instructions" (Dalhaus 1965). Looking at the score as a set of instructions implies the recognition of ambiguity in the potential variability of its realisations. Inherent in this interpretation is the idea that such ambiguity is a defect. A text, on the other hand, can be incomplete if that which is not notated is self-evident. Like other forms of writing, a score for electroacoustic music is not a neutral means of representation but the expression of a system of relations; you have to understand the language to be able to read the text. But the notation of electroacoustic music is not based on a widely accepted system of signs; there are a number of dialects. Moreover, as we have seen with Nono's scores, the idea that the notated is essential and persistent—and the non-notated, variable and peripheral—is sometimes misleading.

iii.   In all musical traditions, a given musical practice—which extends beyond the score—is necessary for the "correct" performance of a work. Acousmatic music is a good example of a tradition where listening and orality have taken the place of musical writing. In a certain sense, when Bayle talked about the three moments of the listening experience he was writing a "score" for the performance of acousmatic music: (1) perception—which is related to the sensual experience, the position of the sources in the binaural space and the exploration of musical strategies; (2) identification—concerned with the appearance of causal forms and designs, the consciousness of the objects' contours and limits, the comparison of experiences, the acquisition of perspective; and (3) interpretation—a return to the first intuition in which the space of figures is projected onto a system of correspondences that connect the act of listening with meaning and emotion, activating the setting to music (Bayle 1992). Scores themselves are constructs of traditions.

iv.   With the so-called "emancipation of notation"—which opened the door to a variety of graphical representations of sound—it becomes interesting to consider to whom the score is being directed. We have the composer's writing for the performer (e. g., symbolic or action notation), the composer's and the performer's private writing (e. g., sketches), and writing addressed to the listener (e. g., listening scores). The multiplicity of writings found in the scores of electroacoustic music, ruled by personal criteria "to the point of making scores appear indecipherable" (Eco 1964 [1982], 305), needs to be put in the context of such lines of communication. The electronic studio not only offered the composer new instruments and musical materials but also provided a space where new communication processes between composers and performers could take place.

v.   We may think of composition and performance as musical activities that improvise on an existing practice (Benson 2003). From a phenomenological perspective, musical works of all periods are subject to two parallel processes: (1) the tendency toward the crystallisation of a work, and (2) the work in flow. It is in the nature of technology to resist the first behaviour. (The increasing pace of development and the lack of perspective

possibly make this phenomenon more obvious). Performance traditions are themselves changing. Tradition also entails the possibility that contact with the original intention will be lost. Musical writing is the intention of sound; sound is the expression of musical intentions.

IV.

On playing space

Since we also think of space in terms of imponderables and not only as a parametrical construct, finding symbolic notation for the spatial experience is an elusive problem. Referring to the role of scores in the practice of sound diffusion Scott Wyatt writes: "we feel that the existence of a projection score assists the performer and reduces the amount of large scale improvisation. While the performer does not have to follow each notated moment within the score, it does serve as a basic road map reflecting salient aspects of the projectionist's performance design" (Wyatt 1999). François Bayle's articles are occasionally accompanied with sketches (1992, 15–16, 19; 2007, 10–11, 44–46) that show different sorts of cue sheets and notes for the sound projection and the layout of the loudspeaker orchestra, but at the same time the composer considers it premature to discuss a "projection score that continues to be in its early stages" (Bayle 1992, 20). We could ask if intuition-driven, site-specific scores, in which the projectionist notates the actions to be taken during the performance, are not destined, by their very essence, to be always in a permanent state of rudimentary being. This might also be the reason behind the tendency to codify space in the form of performance practices (better transmitted by listening attentively in the proximity of the mixing console).

Different schools of sound projectionists have considered the question of the "collision" of a composition realised in the studio with the reality of the space where it is presented. Bayle speaks of the "internal space," formed within the work itself, and the "external space," where the work is heard (Bayle 2008, 243). Denis Smalley uses the concept of "spatial consonance" and "spatial dissonance" to refer to the tensions between the composed space and the listening space (Smalley 1991, 121). Hans Peter Haller and Luigi Nono perceived this imbalance as an incentive to new creative possibilities (Haller 1991, 37). For them, space was a formal aspect of composition, but the space designed was an illusion and the sound processes needed to be adjusted for each performance, opening an on-going dialogue regarding the interpretation of the "sound-space" (*Klangraum*).[33]

Spatial fidelity and the synthesis of sound fields are among the interests of the "new spatial objectivity" (Emmerson 2007, 163). Here discussion focuses on techniques such as Higher Order Ambisonics (HOA) or Wave Field Synthesis (WFS), which benefit from environments with carefully controlled conditions in terms of loudspeaker geometries and architectural acoustics. Some time ago, I attended two concerts, under the motto "Von Mono zum Wellenfeld," which

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33 For instance, Haller—discussing the spatial conception in *Prometeo* (1981/84)—explained that the soundspace "was newly developed, tried out, listened" for each performance (1991, 43).

offered a unique opportunity to listen to a number of musical compositions with different spatialisation techniques through a variety of diffusion systems. For me the most successful spatial experience (in terms of musicality) was John Chowning's four-channel composition *Turenas* (1972).[34] Perhaps the different approaches to the multi-channel presentation of electroacoustic music spark controversy among practitioners and theorists of spatial music (Harrison and Wilson 2010), but I am not taking sides when I examine the weak links of both the realistic and idealistic traditions of spatialisation. On the contrary, I believe that it is beyond doubt that the quest to control spatiality—a fertile subject for prospective exploration and speculative thinking represented by techniques like HOA and WFS—will contribute to a new level of perceptual awareness and bring unforeseen possibilities for music yet to come, even if composition and performance of spatiality remains a problem in the artistic domain.

This digression on space finishes with two arguments that support the potential benefit of bringing together live electronics and the performance of space:

1. There is first the flexibility of the sound structures. In live-electronic music, because synthesis and processing take place at the time of sound production, it is possible to interfere with and alter the parameters of a real-time process in order to obtain a certain quality. One such example is the trivial operation of adjusting a spatial movement to which an instrumental source (e. g., a violin playing on stage) is subjected in a certain section of a musical work. It suffices to have an efficient method for changing and memorising the new variables in the computer.[35] This may put us in mind of Eimert's performance in dissociated time, except that here the dissociated performance takes place "inside the associated space" of the concert hall in the course of simulations or rehearsals. All of the parameters of the real-time processes have potential significance as a means of expression, conspiring with the room in which the work develops.

2. The electroacoustic installation for a performance with live electronics is a resonating network of electroacoustic transducers, computer programs, and spatial architecture. By the very definition of "live electronics," assuming the most common situation, in which microphones and loudspeakers share the same space, the output of the electroacoustic chain finds a way back to its input.[36] Using appropriate equations, the acoustician is able to predict the behaviour of this recursive coupling, based on the geometry and technical data of loudspeakers and microphones and the properties of the enclosing room. The sound technician obtains the same knowledge by exploring the thresholds of an installation during a sound-check (eventually smoothing out the resonances

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34 "Von Mono zum Wellenfeld II." Concert performance, TU Berlin WFS-Hörsaal H 0104, August 2, 2008 (20:30).

35 The reader will sense the importance that the experienced performer of live-electronic music gives to designing algorithms that yield the required flexibility during the preparation stages.

36 The conditions that make the acoustic circuit unstable are given by the so-called Barkhausen stability criterion, causing acoustic feedback. For a summary, see Wikipedia. "Barkhausen satbility criterion." http://en.wikipedia.org/wiki/Barkhausen_stability_criterion (accessed March 1, 2011).

with a parametric filter). The musician will learn to find these resonances through acoustic experimentation and attentive listening,[37] and can take advantage of them musically.[38] It is also possible to "tune" the performance system by adjusting the position of the microphones and loudspeakers, or changing the parameters of the transformations. Inhabiting this resonating suprastructure with musical intuition and creative perception is playing an expressive instrument.

V.

Analysing and listening
Those concerned with the analysis of electroacoustic music have to confront the fact that most compositions for tape do not provide a score.[39] Analysts usually resort to the available tools for the representation of sound or develop new ones,[40] seeking to establish models that may help to understand the details and the large-scale form of the composition. Methods that rely on listening have also been proposed, like Nattiez's *Analyse du Niveau Neutre* (Roy 2003, chapter 6) that aims—based on the perception of musical gesture—to segment a work in morphological units with the goal of making a transcription.

"Hörverstehen heißt: Laute erkennen, Wissen aktivieren, Bekanntes mit Unbekanntem verknüpfen, das Gehörte interpretieren"[41] (Solmecke 1992, 9). In a sense, listening comprehension (in which a student of languages engages) is analogous to the experience of musical listening, which, in close agreement with the previous quote, is described by music cognition in terms of selection, interpretation and storage. Listening scores like György Ligeti's *Artikulation* (1958) or Luciano Berio's *Thema—Omaggio a Joyce* (1958) aim to provide the listener with a bridge to other areas of cognition. Similarly, musicians have exercised the ability of relating what they listen to with their own musical experience. Listening is a way to create "inwardness": interiorising a musical composition is a process in which listening and memory play an important role.[42] Performers also rely on listening as a means to compare their expectation (internal listening) to the sound produced, adjusting the playing technique accordingly and continuously. Furthermore, like the analyst, the performer is interested in the internal level of the music, understanding the score (perhaps using tools provided by the theoretician) and mediating this understanding to the listener through performance. Performers can also benefit from observing the analysts' use of writing in order to bridge the gap left by the score in electroacoustic music. Analysing

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37   Hence the importance of having rehearsals in the concert venue.
38   Not necessarily bringing the system into oscillation! But many artists, from The Who to Alvin Lucier, have resorted to this principle.
39   "Most compositions for tape do not come with a score. The lack of a written document creates great difficulties for the musicologist" (Risset 2002, XV).
40   E.g., Bayle's *acousmographe*, or the Musical Analysis and Representation System (MARS), http://dbis. rwth-aachen.de/cms/projects/MARS (accesed March 1, 2011).
41   Listening comprehension means: recognising sounds, activating knowledge, linking what is familiar with the unkown, interpreting what has been heard. Author's translation.
42   For instance, Hans Tutschku has underlined the necessity of learning compositions by heart for the sound projection of acousmatic music (Tutschku 2001).

and listening are means of reflecting and developing interpretative criteria. Devising performance scores is a way to keep track of those ideas and organise their implementation during the performance.

A final attempt on two performance scores
For the performance of Luigi Nono's *La fabbrica illuminata* (1964)[43] for soprano and four-channel tape[44] I have put together a score-assembly combining screenshots of the amplitude against time representation of the four channels of the tape, side by side with the part for the soprano. [Fig. 7]

The waveform view is especially convenient in *La fabbrica illuminata* because each of the four channels of the tape—based on recordings of three different sound sources (environmental recordings made at the Italsider ironworks in Genova, the voice of soprano Carla Henius, and the choir of the RAI)—consists of a sequence of tape cut-ups, rather than a mixture of different layers of sound.[45] In my score, these three sources are respectively identified using the following conventions: environmental noises are framed in coloured boxes, the utterances and words of the soprano are transcribed as text, and the choir parts are filled out with cut-outs of the composer's sketches[46] used for the recordings of the choral parts (the latter not seen in figure 7). I regard putting together this "waveform-score" as part of the exercise of memorising the tape and understanding the way sound materials are deployed,[47] leading to the definition of criteria and development of performance strategies. Foreground guidelines for the performance could be the consideration of the relationship between the tape and the voice, the overall fader strategies in accordance with the temperaments of each section, or the working out of the textual relations—both within the different channels of the tape and between tape and singer (e.g., recorded voices that may act as echoes of the live part in the soprano).

Figure 8 is an example that reveals my particular interest in the elaboration of the very soft *canti intimi* of the tape solo in "Giro del letto", circumscribed by timer indications that help to guide the fader movements through the narrow signal-to-noise ratio of this part. The numerals in pencil [Fig. 8] correspond to dynamic values for the calibration of the faders. In general, those numbers represent tendencies around which fader activity should gravitate in a certain passage, but they may also serve as an aid in shaping more detailed dynamic contours. Such annotations are subject to continuous revision during rehearsals, and although they provide a relative indication of level, etc., they have to be reconsidered for each performance.

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43 For the circumstances surrounding the conception of this work see Henius 1999, 9–24, and Nono 1967 [1975], 105–106.
44 The tape was created in the "Studio di Fonologia di Milano della RAI" under the supervision of Marino Zuccheri (Henius 1999, 21).
45 Carla Henius provides interesting details of the production of the tape in her notes (Henius 1999).
46 Borrowed from different sources like Spangemacher (1981, 31, 33, and 37).
47 Connecting the score-assembly with some of the existing analysis of this work (Riede 1986, 30–47; Spangemacher 1981, 27–44) provides a valuable support for understanding Nono's use of the three sound sources as structural and metaphorical devices (e.g., the protesting crowds in the beginning giving way in the second chorale to factory noises that progressively develop until completely dominating the human voices at the end of the first part).

Fig.7

Fig.8

Figure 7. A detail of the performer's score-assembly for the sound projection of Luigi Nono's *La fabbrica illuminata* (1964). Ricordi.

Figure 8. *La fabbrica illuminata*. A detail of the performer's score with annotations.
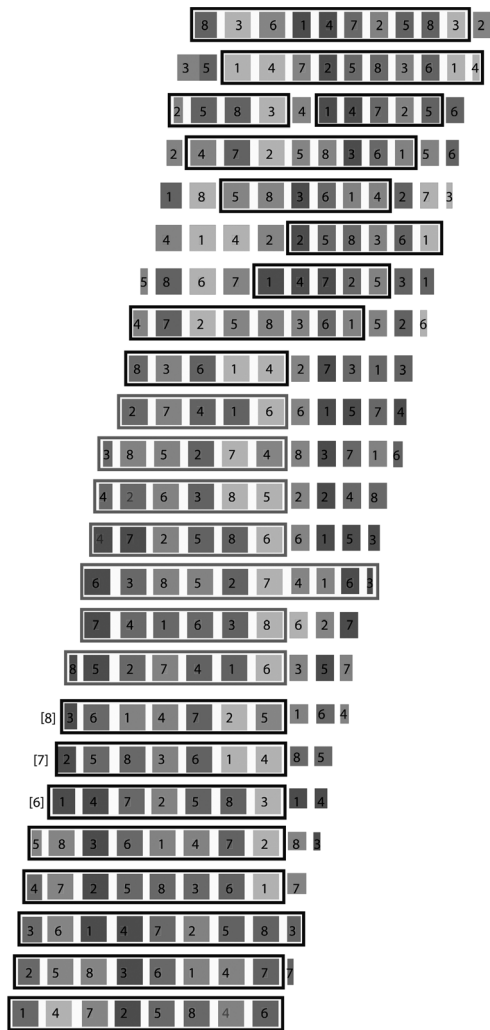
Fig.9

Fig.11
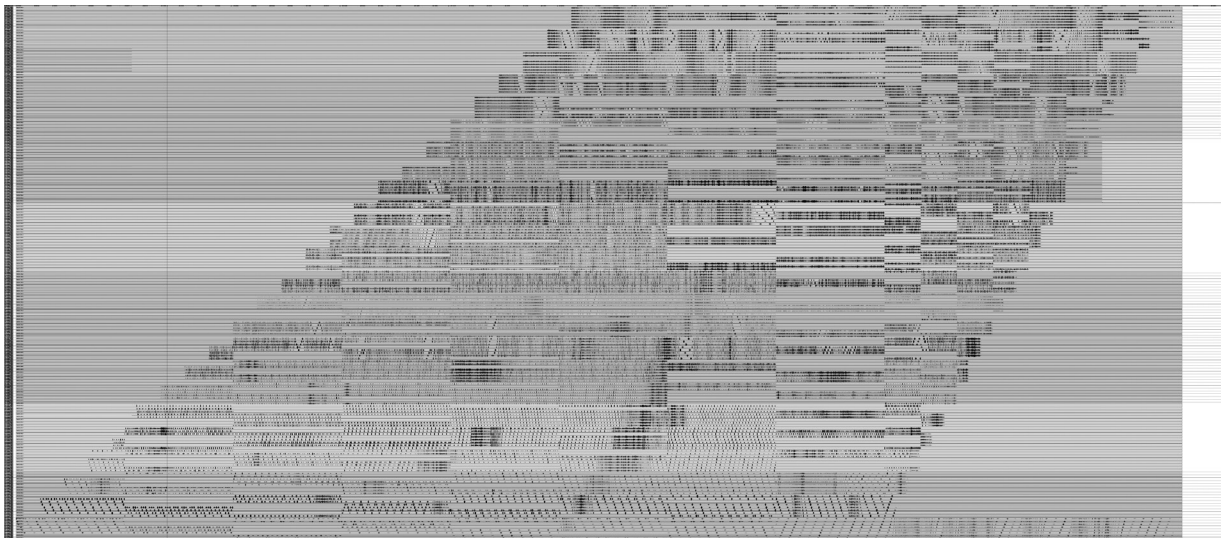
Fig.10

Figure 9. Schematic diagram of the spatial movements in Karlheinz Stockhausen's *Cosmic Pulses* (2007), from an unpublished analysis by the author.

Figure 10. The performer's worksheet with the melodic layers expanded as 24*8 = 192 tracks.

Figure 11. The performer, during an open rehearsal of *Cosmic Pulses*. (Photograph courtesy of Rita Torres.)

In the case of Stockhausen's electronic work *Cosmic Pulses* (2007), for eight-channel tape, a comparable approach is out of question due to the phenomenally dense superposition of melodic layers.[48] In this work I refer to the composer's form scheme[49] and my own analyses of the spatial movements [Fig. 9] for planning the performance. Without going into detail, I find it practical to organise the work into three major blocks: the opening section, with the presentation and successive layering of the 24 loops (until 00:15:20); the middle section (from 00:15:20 to 00:24:00), prioritising the interaction with the projection space and balancing the three groups of eight layers; and finally, the simplification of this texture (from 00:24:00 to the end), concentrating in the resolution of tension and indulging in the spatial *accelerandi* that finish up each of the melodic loops. The score devised for this purpose is a large format print-out of the 24 melodic layers. [Fig. 10] This template then serves as a worksheet for highlighting salient features, time code cues and other markings taken down during the rehearsals. [Fig. 11]

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48   Twenty-four melodic loops are successively layered on top of each other, rotating according to 241 trajectories at different tempi (Stockhausen 2007b).

49   See pp. 7–8 of the CD-booklet (Stockhausen 2007b).

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Notational Perspective and Comprovisation

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CONTEXT-INDEPENDENCE AND CONTINGENCY

Every performance can be said to consist of two types of elements: those that stay more or less the same between different performances,[1] and those that are unique to the context of this particular performance.[2]

The first—let us call them "context-independent" or "repeatable"—are what people usually refer to when they speak of an "artistic work" or a "composition." The second type of elements—called "contingent" here—also has a wide range of names, such as "chance procedure," "playing it by ear," "inspiration," "arrangement," "improvisation" or "interpretation," and many more.

Although in every performance performers and listeners are, at least in principle, called upon to define a very specific equilibrium between these types of elements, from almost no contingency in the diffusion of fixed-media works to only a small number of context-independent elements in free improvisation, the music traditions we know[3] have tended to focus on rather circumscribed sets of allowable equilibra. Hence, improvising a rhythm in a work by Xenakis can be as unwelcome as playing a traditional tango rhythm in a jam of free improvisers. One could thus say that each tradition of musicking[4] can be fingerprinted not only by its sonic surface or its explicit theoretical superstructure but also by creating a complex parametric profile that would indicate which kinds of equilibrium between contingency and context-independence it allows. The parametrisation of contingency in musicking could be a powerful analytic and creative tool.

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1 E.g., scores, rules, settings, the members of the performing group, the performers' technique, the ritual of a concert, a regulated location, design, etc.

2 E.g., an ad hoc location, the dramaturgy of sounds, the sound envelopes, the audience, the order of events, the way musicians interact with each other, the members of the performing group, etc.

3 It should be made clear that, for purposes of my argument here, the eurological (see footnote 6, below) avantgarde/ new/ contemporary art music scene is also considered to be a "tradition" (or, rather, a bundle of closely related traditions).

4 A gerund coined by Christopher Small to remind us that music is a human activity, not a platonic object. "Musicking" thus also encompasses social, political, economic, spatial, and performative aspects *within* "music" that the conventional musicological focus on masterworks and/or exemplary performances usually tends to marginalise or disregard entirely, presumably because the noun "music" seems to suggest that "it" has an objectified existence beyond the activities of performing, preserving, listening, communicating, etc.

Notations and scores are among the most important conceptual devices used to distinguish between some of the contingent and context-independent elements of a performance.[5] For example, whereas eurological[6] art-music traditions considered it important to notate pitches and their associated durations, Chinese (or sinological) art-music[7] traditions considered pitches and their associated playing technique (i.e., the resulting articulated sound) to be the ideal pair of notated parameters, leaving the aesthetic significance and practice of duration largely to oral transmission and to the individual musician's "touch"—similar to the view that eurological art music took towards articulation until the mid-20th century.

NOTATIONAL OBJECTS

As can be seen from the examples above, those few music traditions that did at all develop notation tended to couple certain performance parameters into tight notational relationships: a Western note defines pitch and duration at the same time, but requires additional signs (or an oral tradition) to tell us something about the actual sound envelope; a Japanese score object, however, entwines pitch and articulation, making it possible to "read" the sound envelope, albeit at the expense of not being able to "read" the rhythm. Such complex notational symbols compress all those elements deemed indispensable for creating valid instances of musicking in a particular tradition into efficiently readable "objects."[8]

The traditional Indian tabla-bol notation is one such object-oriented notation. It is also one of the rare examples of an oral notation: players use syllables ("bols") to compose, preserve and learn compositions ("bandish"). These bols indicate the specific sound produced by a clearly defined playing technique (e.g. "two flat fingers strike hard on the rim of the smaller drum") and thus provide a strong clue to the resonance of each strike. This limited range of durations for each strike is made even more explicit and unequivocal by the precise position of that bol within the dominant rhythmic cycle ("taal"). Thus, performers will find it easy, using bol-notation, to isolate and remember a new musical idea coming from within the confines of the tradition: but just imagine the hoops (additions to the bol-repertoire, verbal legends, etc.)

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5 Other such devices could be rule-systems, stock phrases, cadential formulae, ways of staging/framing a concert, standardised ensembles, standardised melodies, etc.

6 I employ this term, coined by George E. Lewis in reference to certain forms of jazz practised in Europe, to designate music practised around the world that is based on the European heritage of musicking and discourse. I find it more adequate within a global perspective on musicking than the terms more conventionally used for this kind of music, such as "Western Classical Music" and "Western Art Music," or than the falsely universalist term used for this musical tradition by most musicologists in Europe and North America, namely: "music."

7 All generalizing terms such as "Chinese" or "eurocentric" or "Western" in this text are used here in a starkly simplified manner, as representing exemplary instances within a continuum. All notational traditions, of course, have rich and varied, sometimes convergent histories which cannot remotely be dealt with in this text.

8 "Object" here is used in a sense derived from computer scientists' usage in their term "object-oriented languages"—a bundle of transaction rules that remain inseparably coordinated when they interact with an input.

they would have to go through to simply notate the use of drumsticks, or—even worse—changing metres.

Or consider the rampant diversity of approaches (and thus the ongoing difficulty) in notating non-traditional instrumental techniques within eurological common notation. To many performers, these extended and non-standardised notations still seem "outlandish" and "mannered," especially in comparison to the "clear" and "simple-to-read" keyboard-ready scores they know so well. The lack of a standardised notation for these techniques will thus tend, paradoxically, to make them appear *more* contingent to performers than a simple melody in standard notation—however painstakingly they may be notated.

NOTATIONAL PERSPECTIVE

Each notation thus embodies a traditional bias that makes it easier for certain elements of a performance to become context-independent, while the attempt to notate other elements will always occasion complicated contortions, in writing and/or in reading, and thus will seem to be alien, or complex, or forbidding, and this far beyond their actual performability.[9] This kind of notational bias has been named the "perspective" of a notation (Gottschewski 2005, 253).

Notational perspective may prompt music creators in any tradition not to use elements/parameters that are difficult to notate for them, and it may heighten their readiness to consider such elements/parameters as contingent. This could mean, for example, that they leave the precise deployment and execution of these elements to the discretion of the performer within the context of the performance. Over time, any living tradition may occasionally re-define its own set of contingent and repeatable parameters. In expanding or contracting the domain of the notatable, a tradition's practitioners thus also articulate what elements of their music are necessary to its praxis—and thus should be held on to independent of performance context—and which elements can be opened to the moment.

The common notation used for eurological art music, for example, over the past hundred years has significantly expanded the array of notatable parameters, as well as the range of values possible for some of them.[10] This process was furthered by a goal held to be desirable by many mid-20th-century composers, namely: to leave no room for interpretation by performers (which was at the time and in composers' circles seen as an unfortunate necessity that invariably must deform—and thus, diminish—the creator's intentions[11]). This sometimes led to musical scores that are dense with detailed parametrisation to a

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9   This corresponds well with what a prominent new music virtuoso once said to me, speaking about the scores written by some of the "New Complexity" composers: "Most of these [scores] are easier to play than they look!" Notational idiosyncrasies apart, this observation also seems to hold true in a very obvious way for, e.g., microtonal music based on natural harmonics but forced to conform to (or to subvert) the well-tempered notation bias of western common notation.

10 Cf. Gould (2011).

11 An attitude since maintained and expanded in large parts of the fixed electroacoustic music community where total control by the composer over all aspects of sound production is seen as one of the principal assets of this methodical tradition.

point where even expert performers can be overwhelmed by either cognitive or physical (i.e., manual dexterity) overload.[12] Some composers, such as John Cage,[13] also used overdefined or physically impossible parametrisation to propel musicians towards precisely such overload situations in order to force them make their own choices—thus using notation to address ironically the unavoidable contingencies of performance.

SECONDARY AURALITY/ORALITY

On the other hand, we can observe a counter-movement: scores that restrict the range of parameters they want to control, scores that intentionally open up select parameters to the contingency of performance. In parallel to Walter Ong's terms "primary orality" (orality before written language) and "secondary orality" (orality occasioned by technical media such as telephone, TV, podcasts etc.), one could call these scores phenomena of "secondary aurality/orality".[14]

Just as the written word creates the conditions for the secondary orality of audiovisual media, of academic conferences, of the modern parliament, etc., the notation of music—and the recording and computer technologies that followed it—can engender a new kind of musical aurality/orality. While all the examples cited above use notational conventions derived from nineteenth-century European notation and stretched (or constrained) to the limit of their possibilities in different ways, the history of twentieth-century eurological art music also is replete with attempts to create a diversity of new notational "perspectives,"[15] even if not all of them were able to achieve wide acceptance.

Taking up early twentieth-century experiments, such as Luigi Russolo's futuristic *Risveglio di una città*, the "Free Music" scores of Percy Grainger, the use of actual bird sounds in Respighi's *Pini di Roma*, the visual music of Oskar Fischinger, and the early verbal scores of John Cage, as well as the notation practices of jazz ensemble music that typically leave ample space for improvisation, composers and musicians since the 1950s have engaged in a variety of attempts to re-introduce the unwritten and the unforeseen into eurological music-making, thereby creating a new type of hybrid music ecology: a dispersed, heterogeneous practice situated somewhere between the poles of

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12 Often-cited examples include, e.g., Stockhausen's "Klavierstück X" (1961), Xenakis's "Evryali" (1973), Ferneyhough's "Time and Motion Study III" (1973–76), and many more works by lesser–known composers.

13 Examples are Cage's "Concert for Piano and Orchestra" (1957) and "Freeman Etudes I–XVII" (1980–1990).

14 In his famous 1982 study on "Orality and Literacy," Walter Ong differentiates between primary and secondary orality. He calls "primary orality" the situation in an oral culture before writing has been invented or encountered. "Secondary orality," then, is orality after literacy, a "new" orality he perceived in the way we use technical supports such as the telephone, the radio, the TV. Today we would add: demo videos, skype, livecasting and telematics, etc. This secondary orality cannot exist without the literacy that makes its technical and civilizational support possible; it is, in a sense, a para-literary form of communication.

15 This was done most prolifically by Boguslaw Schäffer, who seems to have invented a new notational perspective for almost every work he wrote; see his magisterial collection in Schäffer (1976). Also cf. Karkoschka (1965).

improvisation and composition—or, better, orality/aurality on one side and musical literacy on the other.

This "secondary aurality/orality" has received a new impetus by live-interactive music systems that, since the 1990s, have transformed electroacoustic music-making from a studio art into a performing art. Composers and musicians interacting with software patches written in MAX/MSP, PureData or Supercollider[16] quickly came to realise that a fully notated score or, more importantly, a score with a traditional linear timeline was not the ideal way to conceptualise and plan for this kind of interaction. The fact that an important part of the score resides invisibly in a computer program (a "ghost score," as Morton Subotnick once so aptly named his then-not-yet-interactive programs) forced even the most control-oriented composers to relinquish control over some parameters. After all, it would not make much sense to use an interactive software if one did not want it to react to the moment of performance.

LIVE-INTERACTIVE SCORES

While early scores calling for instrumental/electroacoustic combinations often tried to notate graphically—even if only sketchily—the electroacoustic part, the advent of non-linear interactive software made this kind of iconic notation obsolete; later scores resort to notating the desired nature of the interaction, sometimes only telling the musician when to press down a MIDI-pedal. The recent emergence of interactive on-screen scores (most prominently by Winkler, Alcorn, Freeman, and Bhagwati), has again expanded the domain of the notatable: when the notation itself can change over time, when the score can react to the music played, when it can offer feedback as well as instructions, aspects of the score that previously had to be fixed (i.e., context-independent) can now become fleeting (e.g., a pitch sequence or a rhythm can change "live"), while previously non-notatable aspects of music making (e.g., the spectral make-up of a sound) can now be visualised and, thus, notated.

One could thus imagine, for example, a live-interactive score by means of which a musician is continually shown the overtone spectrum that currently makes up his sound, with these real harmonic partials being constantly compared to a "composed" trajectory of ideal partials that s/he is asked to realise, using the instruments, playing techniques, pitches etc. that will do the job. Suddenly, the concept of "ad-hoc" instrumentation would gain a new reality: it is the spectra that become context-independent (i.e., are composed), while the actual instruments, pitches, and multiphonic techniques realising them become a matter of "interpretation," of performance context, thus creating the potential for a notational perspective that hitherto had been impossible to realise in any existing tradition.

The examples and definitions above make abundantly clear what every

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16   These are only the most widely used object-oriented music programming languages.

experienced musical practitioner has learned by doing: there is, between notation and improvisation, a slippery terrain, an infinite book of sand;[17] just as no improvisation ever completely relinquishes repeatable structures, no composition (notated music) can be said to be completely contingency-free. What musicians playing Beethoven or Boulez (or a pipa virtuoso playing "Shi Mian Mai Fu" or a tabalji playing a certain *chakradar tihai*, for that matter) consider to be "interpretation" is an improvisation on the non-notated (i.e., contingent) aspects of the music tradition they perform. What musicians playing free improv do when they choose their improvisation partners is to look for shared assumptions, compatible styles of improvisation, familiarity with the other's "approach," the appropriate social setting—in other words, they look for context-independent reliability that allows them to concentrate on the music they want to improvise.

COMPOSITION & IMPROVISATION = COMPROVISATION

All actual musicking practices are thus situated in a continuum of "notational perspectives" between the extremes of "[fixed] composition" and "[free] improvisation," with the understanding that these two terms must be considered as merely hypothetical figures of speech that were useful once upon a time in "the West": when notated music had, over the course of several centuries, become more and more dominant; when scores were finally seen as the prime material admitted for euromusicological[18] and theoretical analysis; and when the improvisatory oral/aural forms and practices that until the early 1800s had been central to all music making worldwide had successfully been relegated to the social and aesthetical margins of music making and thinking. Using "notational perspective" as a globally useful stylistic concept to describe the diverse aspects of musicking that people find variously either easy or difficult to notate may thus perhaps serve to help defuse the familiar musicological and categorical pseudo-feud between "composition" and "improvisation."

This recognition that, in reality, most music creation is situated on a continuum between these two hypothetical poles necessitates a new term to denote the complex ways in which they are intertwined. Consciously adopted in-between practices such as the ones described above have been variously called "structured improvisation" (Malcolm Goldstein and many others), "conduction" (Butch Morris), "game pieces" (John Zorn) or "indeterminacy" (John Cage), "intuitive music" (Karlheinz Stockhausen) or "limited aleatorism" (Witold Lutosławski). Yet all these names were coined to describe a specific creative practice and have stayed largely confined to it; sometimes they were even used as a means of demarcation from the dominant eurological composer/score-centered discourse.

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17 This metaphor comes from an eponymous short story by Jorge Luis Borges: a book of sand has so many pages that there are infinitely many between any given two of them, and if one turns a page, one loses it forever and cannot return to it.

18 A term coined in parallel to the better known "ethnomusicological." It denotes most of what up to now has been called simply "musicological."

Choosing the word "comprovisation" to encompass the manifold creative practices operating in contemporary "secondary aurality/orality" is an attempt to approach the issue in an inclusive manner, acknowledging both oral, improvisatory traditions and the rich heritage of eurological, sinological and other traditions of written composition. While keeping in mind the distinction introduced at the very beginning of this text, "comprovisation" can here be defined as "musical creation predicated on an aesthetically relevant interlocking of context-independent and contingent performance elements."[19] A key phrase in this definition is "aesthetically relevant"; it points to the necessity of a conscious engagement, by participants in a given musicking context, with the repeatable/contingent dichotomy that pervades contemporary creative music practices.

Thus, "comprovisation" is an inclusive description of a field of musical creative activity, while "notational perspective" is meant as an analytical and descriptive tool that could help identify individual practices of comprovisation. A cross-traditional study of creative approaches based on notational perspective (and, perforce, its transgressions) could offer important insights.[20] But before we look at the parameters and descriptors that could be used to establish any specific notational perspective, we need to look more closely at the different types of notational technique that have been used to generate a notational perspective.

FOUR (TIMES TWO) TYPES OF NOTATION

The description above could lead one to assume that the intrinsically infinite range of possible notational perspectives would open up a similarly infinite field of notational techniques. But, to this day, it appears that all written music notation can be interpreted as a combination of four broad types: neumic, symbolic, graphic and verbal.[21]

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19 A quick Google search will reveal that this term, presumably because of its Joycean "portmanteau word" appeal, has been variously used in isolated contexts to describe in-between practices but that it has not yet acquired a conventional or dominant meaning. I have used "comprovisation" since 2004 to designate one stream of my composition practice since 1996, where I write complex, often cross-traditional scores for medium-to-large ensembles of improvising professional and mostly conservatory-trained musicians (between 6 and 40), where the necessity of providing context-independent "communication standards" is more urgent than for solo musicians or even for small groups of improvisers familiar with each other's approach. My argument above is an attempt to provide a workable definition based in part on my practice, which circumstances require be discussed in detail in another paper yet to be published and which will be the focus of an upcoming book project.

20 First outlines for such a research programme can be found in the texts by Scaldaferri, Tokumaru, Molino, and others, in Nattiez (2007).

21 Most developed oral notations are, of course, of the symbolic or verbal variety. The 20th century has also added the soundfile as a veritable notation tool. It is limited, however, by its very exactness in reproduction, which leaves too little headroom for any adaptation of the compositorial idea to the contingencies of performance. I sometimes use it as a "seed" or "gestural model" to convey subtle interpretational points, as a fast breeder for the kind of stylistic detail transmitted by an intergenerational oral tradition that, of course, cannot exist yet for my own work.

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                    4 (*2) types of written music notation

        ┌─────────────────────┐            ┌─────────────────────┐
        │       neumic        │            │      symbolic       │
        └─────────────────────┘            └─────────────────────┘


        ┌─────────────────────┐            ┌─────────────────────┐
        │ notates resulting sound │         │ notates actions to produce sound │
        └─────────────────────┘            └─────────────────────┘


        ┌─────────────────────┐            ┌─────────────────────┐
        │       graphic       │            │       verbal        │
        └─────────────────────┘            └─────────────────────┘
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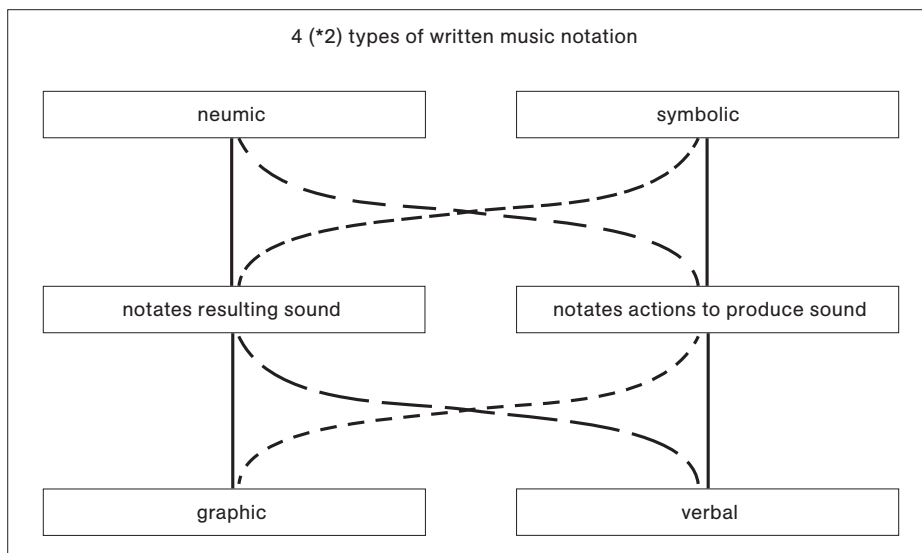
Fig. 1

Neumes were the first steps towards notation: mnemonic signs attached to individual written words as aids to pronunciation, intonation or singing. This forms a partly symbolic, partly iconic notation.

Symbolic notation developed (in Europe, at least[22]) from neumes by inscribing them into the musical stave, a two-dimensional Cartesian space of pitch (·) and time (Π). Symbolic notation, however, is not really Cartesian, as the symbols used often are informational "objects" that may come with their own temporal dimension (e.g., in the West) or may just denote a sequence without specific durations (e.g., in East Asia).

Graphic notation, then, is a fully notated Cartesian representation of the sonic space. It is particularly suited to represent non-discrete, continuous parameter changes (slides instead of scales) and is mostly used as an iconic notation.

Finally, *verbal* scores either are extensions of a symbolic score (usually for unique actions that require no "portable" symbol), are literary descriptions of moods or musical gaits, or are used to describe complex interactions between musicians. They can be indexical or symbolic.

In addition to these four types, notations can be characterised by whether they intend to convey a resulting sound or the action required to arrive at a sound [Fig. 1].

Although all four types can in principle convey both, symbolic and verbal notations are more suited to indicating the action required to activate a sound, while neumes and graphic notations are more apt to be used as "icons" (likenesses) for a sound. Of course, any combination of these four types of notation may be used in parallel, even within one notation system; in many situations in Western standard notation, symbolic and graphic elements intermingle (thus the pro-

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22 European, as well as Chinese and Japanese, neumes are a kind of proto-graphic notation, as they, too, employ the essentially contingent concept of up/down-tracings for melodic movement. Gottschewski (2005) suggests that the vertical orientation of old Chinese/Japanese scripts may have prevented the development of a continuous melodic notation that "naturally" arose from horizontally concatenating up/down-neumes in European scripts.

Figure 1. Notation of sound or action.

portional rhythmic "look" of a measure, although irrelevant to the notation itself, can greatly aid musicians in reading, especially in polyphonic situations). While sound notations at first seem more intuitive, their very iconicity decisively limits the complexity and, more importantly, the possibilities for context-independence of the notated event. Action notations are far more efficient in transferring precise musical ideas from one sound source to another, thus creating new sonorities from the same musical thought, and they have consequently been highly successful in polyphonic, multi-instrumental and multi-traditional music.

Of course, most contemporary scores employ a constantly shifting pragmatic mix between several of the eight basic varieties isolated above. Notation—the choices composers make when they creatively use or invent a notational perspective—thus seems to be a question of imaginative craft and, as such, deeply linked to the creative process. Still, notation seems to be a unique aspect of the composer's craft in some respects. When compared to other factors within the creative process (pitch, rhythm, sound sources, sonic architecture, etc.) notation has remained remarkably untouched by ideological imbroglios; the few publications summarising different notations, from Karkoschka (1965) and Schaeffer (1976) to Cage (1969) and Sauer (2009), adopt a prevailingly admirative stance, celebrating the diversity of approaches without any decisive attempts at evaluative analysis.[23]

ANALYTIC CATEGORIES

"Notational perspective" thus comprises and bundles several analytic categories apparent in any given score: the specific mix of notation styles employed by the composer, whether in relation to a dominant tradition or in an attempt to create a new perspective; notation objects employed; the internal relations of these different styles and objects; their function within the organism of the musical product; the degree of freedom with which musicians can "read" the score; their individual or combined impact on the resulting aesthetic experience. A helpful but not necessary qualifier could be to list musical events that are almost impossible to notate within a particular notational perspective. Finally, how does the notation itself define what kinds of context it welcomes or even relies on to provide the contingency necessary for a successful performance?

For example, looking at the score of a piano work by Schubert, to refer to an example probably well known to most readers of this text, these parameters could be discussed as follows:

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23 Indeed, I am not aware of any violent aesthetical debates that may have gravitated around notational questions, perhaps because the exposure to and thinking about notation must by necessity remain confined to the musical literati (composers, performers, theoreticians) and thus excites only professional and technical controversies, whereas the great ideological debates around musical aesthetics have often been most vigorously fought by musically only partly literate critics, and therefore, as in many other primarily oral social contexts, were constrained to focus more on performative phenomena.

- *Notation styles*: conventional eurological symbolic action notation, as well as trace elements of verbal notation (Adagio, accelerando etc.).

- *Notation objects*: stemmed notes combining absolute pitch (on staves with clefs) and fuzzy absolute duration (in verbally described tempi), augmented by further, clustered action markings denoting departures from their default values in note intensity (accents) and note duration (staccato, portato, slurs etc.). These action markings are usually valid only for one note object at the time.

- *Internal relations*: symbolic action notation is precise within narrow tolerances, as well as unchangeable, dominant and context-independent. It can be merely augmented, superficially modified and enhanced by relatively few intentionally ambiguous, context-independent verbal instructions. Nonetheless, each individual verbal notation controls longer periods of time than each individual action notation, suggesting a hierarchical one-to-many relation where one verbal notation influences many individual note objects.

- *Functions*: the symbolic action notation is the piece's context-independent core material; its function is to precisely regulate time and pitch flow. Verbal instructions, on the other hand, are dependent both on the context in which they appear in the score and on the performance situation; they function mainly as modifiers that enable the player to connect time and pitch flow to the performance context. Again, their comparative rarity nevertheless suggests higher-level functions such as the conveyance of artistic intent.

- *Degree of freedom*: musicians can adapt tempo, absolute loudness, tempo and loudness variations, playing technique (i.e. durations of individual sounds), but always in a continuum within a limited range.

NB: The precise sounds of the instrument are not specified; it is therefore possible (and has become usual) to use a range of sounds that differs from that used by the composer. While it is not clear whether the specification was omitted intentionally (perhaps because the composer wanted this score to be played on a range of different available sound sources, such as fortepiano, organ, cembalo, or orchestra) or is not specified because the composer simply assumed a default fortepiano sound,[24] based on a cultural usage that has since changed, the notation itself allows a considerable degree of freedom with regard to the sonic basic material. The complete lack of sonic instructions in the notation nevertheless seems to imply a certain family of sound objects [e.g., one dominant pitch spectrum, short attack, quick decay], which would

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24 This kind of question is exactly the reason why in this kind of analysis we must think "musicking" rather than "music": it makes a difference whether a music creator just never thought of other possible instruments that would play this score; or whether s/he was indifferent to the actual sound; or whether s/he assumed a practical, commercial attitude, in that not being specific meant wider performance possibilities. Such questions cannot be answered from the score alone, yet they play a decisive role in determining the notational perspective—which, therefore, must rely on a more socially inclusive understanding of how music comes about, in order to determine whether incomplete specifications are intentional (i.e. artistically relevant) or unintentional. The concept of musicking makes sure we do not forget this imperative to be socially inclusive in our analysis.

*allow the listener to focus on the development of pitch and duration—the two
dominant features of this notation.*

- *Impact on aesthetic experience*: it is clear from their relative dominance in the
notation (as well as the lack of specificity as to the range of sonic material
to be used) that the composer expects the main impact on aesthetic experi-
ence to result from the combination of pitches and durations. Neverthe-
less, the information provided by them does not in itself seem to offer him
the degree of contextual flexibility that would correspond to his artistic
intent, so that it needs to be modified, enhanced by verbal notation. The
kinds of freedom ("context-dependence," "interpretation") allotted to the
player mostly concern small changes in duration, the basic loudness level,
and again small changes in the relative intensity of individual sounds; pitch
sequence and duration sequence must remain context-independent at all
times. The listener, therefore, if s/he wants to be in tune with the artistic
intent, should focus on pitch/duration relationships primarily and then
judge the modifiers introduced by context and performance by how well
they enhance, intensify, clarify and structure the pitch/duration stream.
This is in fact what usually happens in a concert where Schubert is played.

- *Impossibilities*: in the notational perspective Schubert establishes, it is, e.g.,
impossible to notate microtonal pitch variations and different ways of
playing the strings of the fortepiano, or to notate continuous modifica-
tions of certain sonic characteristics of individual sounds such as micro-
tonal vibrato, noisiness or shifting formants, etc.

This last aspect (continuous modification of sonic characteristics) is not com-
pletely alien to the praxis of the composer: it is, in fact, of vital musical impor-
tance to all singers, wind instruments and strings. The fact that Schubert's
notational perspective leaves those aspects to the contingency of performance
reinforces its character as a pitch/duration-biased perspective.

Schubert relies on context to provide a framework to singers, wind and
string players for how to modify the sonic characteristics of certain notes. This
brings us to a necessary definition of performance context that opens up the
last parameter necessary for any useful delineation of notational perspective.
For in each performance, contingency operates within at least a double layer
of context; and one of them is not hugely contingent, being comprised of the
cultural assumptions Schubert relies on to complete his score. He does not
notate, say, a microtonal vibrato in his score, because he knows that it will or
will not be performed if he writes the phrase in a certain way.[25] He may also
"forget" to notate things, either because he himself intends to play and uses
the notation only as a mnemonic device or because he knows how a certain

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25 On the other hand it is precisely this implicit reliance on cultural assumptions—and the vast oppor-
tunities for intentional contingency that open up once these cultural assumptions are questioned or
obsolete—that has fueled all the interpretation debates of the twentieth and twenty-first century. →
These keep the classical music industry going, and they have made interpretation a bona-fide artistic
activity that now attracts more critical attention within the context of eurological art music than com-
position and improvisation together.

musician from his tradition or community will approach this score. These cultural assumptions also may (or may not) regulate many other aspects that are not explicitly written into the score, such as performance conditions, social hierarchies between and within different forms of artistic expression, etc. In all of these, a music notator can rely on a common base of knowledge and assumptions with the recipients of the notated music—in other words, on a shared notational perspective.

Such a reliance on known contexts could be called a "calculated risk" in that they, in essence, extend the validation of notational perspective far into the tradition or the community and can safely be considered part of the artistic intent.[26] But, in each actual performance, the composer must also expect and allow for "incalculable risks"—true contingencies, such as performers deciding to play faster because they feel bored, or introducing other elements not specified in the score, such as a non-specified instrument, multiple players for one instrument, other pitch/duration sequences, etc.

CONCLUSION

As we can readily infer from the argument presented up to now, these are precisely the situations where notational perspective becomes an important and decisive aesthetic category: as every music performance always contains both context-independent (i.e., notational) elements and contingent elements, it can be very hard to say whether the comprovisational mix that we perceive as listeners embodies and presents any artistic intent. Only a careful analysis of the notational perspective used by the authors (whether individual, group or community) and a subsequent assessment of how they implemented it in performance can reveal whether what we encounter relies solely on us as the listeners to make sense of the result—so that any aesthetical value assessment must therefore be pointless or arbitrary—or whether we are encouraged by the artists to interact with their comprovisation in a critical, and thus aesthetically inherently dialogical, attitude towards musicking that inscribes itself into a fertile process of cultural and musical evolution. At a time when a global cultural awareness and manifold *aporiae* within the eurological tradition of continual musical innovation have made us aware of how culturally contingent all our values are, notational perspective could offer one powerful analytic tool to navigate the interstellar space of contemporary musicking.

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26   Needless to say, they also offer ample opportunities for an artistic intent that is interested in their subversion.

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The Score beyond Music

Kathleen Coessens

THE SCORE AS A CODED TOOL IN THE ARTS

In Western society, a score has become a cultural marker, a codified tool. This means it is loaded with culturally acknowledged meaning, embedded in a specific domain of action, interpretation, and understanding. For the score, this domain is traditionally the realm of music. A score is a finalised graphic realisation of a sound imagined and created by a composer, without the presence of the sounding material itself. Its purpose is to make possible the transmission of music and the performance of the sound narrative notated by the composer. It is a two-dimensional visual and coded artifact that allows for multiple performances or "re-sounding processes" by musicians. As such, it seems difficult to create or even conceive of scores other than musical ones.

However, a score merges the visual and the musical, the fixed and the dynamic, space and time. As the authors of this last part of the book will argue, artists of diverse domains—whether from the performative, like actors or dancers, or from the visual, like movie makers or visual artists, or from the intermedial, including visual and sound artists—have been fascinated by the notion of "score." As an instance, the Fluxus movement of the sixties created new interactions between visual arts and performance, using freely conceived scores as devices to realise their intention to bring "life to art" in socially engaged ways.

"Score," then, draws new significations and connotations, while still being attached to some of its musical meanings, whether the notion that performance is connected to instruction, or the idea of diagram and overview. Where the idea of score as instruction embeds the idea of performance and expression in time, the score as diagram refers to the visual aspect of music, and vice versa to the musical aspect of the visual: *"See deeply enough, and you see musically"* (Thomas Carlyle, in Palmer 1951, 27).

THE SCORE IS (NOT) AN INSTRUCTION

The score organises action, while revealing underlying ideas in a coded format. Originating out of music, the score implies a dynamic move, a "trajectory" or a "map" from here to there. While being a visually fixed overview, a score's decoding and realisation implies a narrative in time, an unfolding of actions.

At one extreme the score can be considered as a kind of command, a series of directions—how to perform, which material, what comes first and next in time, how long or loud it should be. At the other extreme it leaves open the

interpretation of artistic expression. The score as such has characteristics pertaining to both freedom and constraint.

An instruction or guide invites action to realise a fixed goal. It is target-oriented, relying upon a succession of specific actions to build an expected outcome. The trajectory is one of copying, repeating, following the arrows and numbers—think of the realisation of an IKEA cupboard. The action horizon and freedom of an instruction is rather closed. If you mix the different components or try out different means, you can get lost and will not obtain the expected result. Moreover, the result, the created object or completed process is the purpose of the guide; the action is but a means to obtain the finalised product.

Artistic expression, on the other hand, while more or less limited by culture and skill, allows, in the interpretation of a specific score and its realisation, for creative outcomes—even if these are very small. Artistic expression therefore allows for improvisation and variation on different levels. It is only partly target-oriented, as the actions and the expression in the moment are of an importance that exceeds the final product most of the time. The expectation is not to achieve a final product that afterwards can be used, but to find value in the process of the musical narrative itself. It is true that once the music is performed, a recording can come to represent the output; but the score is still the material for performative action, rather than for a pre-defined object. A score offers more than a manual for choosing the right nails and hitting them in the right place and at the right time, more than a method for generating a useful product.

Both polarities—instruction and expression—refer to action, and further to performance: how to make a cupboard, how to play the *Ondine* of Ravel. However, the difference in the verbs required reveals the difference in meaning. We cannot say that we will play a cupboard or make the *Ondine* of Ravel. The "playground" of the musical score implies a certain openness and expressivity of action itself, while refraining at the same time from asserting that "anything goes":

> We talk about the play of waves or a play on words, referring to aspects of experience that operate outside the utilitarian confines of ends and means. But play always starts in the midst of the constraints of its initial conditions; it cannot escape these conditions, or divert these with an 'as if.' These conditions are dependent on the 'players,' on what they play and on the attributes that the play necessitates. (Coessens, Douglas and Crispin. 2009, 33)

Artists of different domains are interested in translating and borrowing the musical score because of its double attraction: a play with freedom and constraint, a script for action that both describes a trajectory and allows for artistic expression.

THE SCORE IS (NOT) A DIAGRAM

A second inherent element of the score that is attractive to artists outside music is its diagrammatic representational mode. The word diagram comes from the Greek *dia*, "through," and *graphein*, "to write, to mark." Diagrams are

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models, patterns of thought, map-like overviews of processes of understanding of the sensuous, empirical or imaginative world. A diagram allows us to "see" a process of thought, to "see" a narrative of actions, to "see" a world of dreams, to understand connections and interactions between materials and/or ideas and to engage with imaginative and creative thinking by interpreting it. A diagram offers a way to deal with an aspect of the world in a very condensed way. It offers a perspective that can represent connections between different worlds that are not possible to perceive together in real time or space. It is a kind of com-position, a bringing together of different dimensions, notions, thoughts, images, perceptions, objects, on a two-dimensional sheet of paper.

The score as a diagram exports the idea of a composition to a single visual overview, blurring the boundaries between written, visual and musical vocabularies. However, in holding to its performative and creative power, a score can resemble a diagram and yet still exceed the diagram in its inherent dynamics of creation and execution.

As Part III, "Extending the Boundaries," revealed, musicians and artists explored these boundaries in modernism, intensifying experimental interactions after the Second World War. In the next three chapters, the score and its imaginative "musicality" will be considered from three different artistic perspectives—dance, sonic art and visual art. These perspectives expand artistic disciplinary boundaries and propose that we should look at differences between the domains of arts as a matter of degree, not of kind (Shaw-Miller 2002, 4).

In Chapter 12, "A physical interpretation of a score in a listening attitude," the score appears as a tool in dance choreography. Starting from a listening approach towards the musical elements, Jaresand and Calissendorf search for structures where choreographic and musical compositions are made visible in relation to each other. A double score appears, the musical and the choreographic, mirroring each other. What happens when a choreographer composes a choreography on the basis of music and then brings this choreography, without the music, as a new score, to the dancers? Will they engage with an inherent "transposed" or "translated" musicality? Can they listen through the choreographic score of dance movements to its preceding music composition? And how will musicians then respond again, listening to the music "transformed in dance"?

Yolande Harris, in Chapter 13, "Scorescapes: the Score as a Bridge between Sound, Self and Environment," re-thinks the musical score as a relational tool for cross-media issues encountered in sound art, electronic music and audiovisual practices. More map-like than diagrammatic, the "scorescapes" of Harris are useful in her artistic exploration of relationships, navigating between technology, sound and environment.

The last chapter, Chapter 14, "Drawing and the Score," by Anne Douglas, explores the visual in the music and the music in the visual. When, why and how do artists transpose actions of drawing and notation across the borders of art-forms? Engaging in a dialogue with both the viewpoints of contemporary musicians and the "score-like" work of John Latham, Douglas reframes the idea of score as structure and movement, vision and music, exploring in different ways the possible connotations of diagram and instruction or map and performance.

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Part IV
Choreographies of Sound

A Physical Interpretation of a Score in a Listening Attitude

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INTRODUCTION

Sight—the visual—has always been central in the mind of Western philosophy and also a basis for knowledge in general. However, in the philosophies developed by Heraclitus (500 BC) (1997) and later Heidegger (1927), we encounter a listening-thinking that encompasses not only listening to music but also listening as a basic phenomenon in human relations (Wallrup 2002). Listening opens up the world, in contrast to the visual, which establishes boundaries and is critical and analytical. In most cases listening allows for a different kind of meaning, so that when visual comprehension fails, the listening becomes both a physical experience and an embodiment of understanding. This duality has an equivalence in the difference between artistic and scientific research; in the latter, the visual appears in as fixed conditions and concrete evidence, while auditory perception is ephemeral, in-process and transformative. We want to highlight the complexity of listening in an artistic process, taking into account both dance and music, and to suggest how the music is influenced by, as well as being, the method, through participation, accountability and co-creation.

The relationship between dance and music went through many approaches during the twentieth century, and dance has consistently been related to music in a conscious or unconscious way. During the birth of modern dance in the early twentieth century choreographers wanted to deepen the dance as an art form by finding the values intrinsic in individuality, in the quality of movement, and in different composition techniques, all independent from the sounding music. This evolved later, around the sixties and seventies, into the choreography of dance to take place in silence. For these choreographers the dance in itself was an expression; they were reacting to early modern dance and ballet that practised "music visualisation," as evidenced in the choreography of, for example, Isadora Duncan and Ruth St. Denis, who used symphonic music. The choreographer Mary Wigman started to use percussion instruments for accompaniment in, for example, "Hextanz" from 1929 and eventually to use music (or non-music) with strong emotional content in her "Ausdrückstanz." The choreographer Merce Cunningham and composer

John Cage developed a form in which the music was a vivid landscape of sound and the dance came forward as an abstract musical form. In general, choreomusical influences in the twentieth century led choreography to visualise the music in dance, using music to create a mood or to strengthen, lead or comment on the emotions in an epic piece of dance. This is still the general historical view of the relationship between dance and music.

To many of us music and dance have a strong link to each other, but in research the nature of this link often is not obvious. It is therefore important that new and useful studies in dance and music research be conducted in a way that is rewarding and enriching for both fields. The interplay between dance and music has been going on for a very long time, though the interaction has varied depending on expression, time, or the current social climate. However, more systematic and reflective study that could build a base for knowledge in this area is almost completely missing.

AIM

During the autumn of 2009, a dance and music project started which culminated in a performance named *Echange*, with nine dancers and full orchestra at The NorrlandsOperan in Umeå, Sweden (Jaresand 2009). The research involved collaboration between experts with complementary skills. The artistic director and choreographer, Susanne Jaresand, and the researcher, Maria Calissendorff, documented the events and analysed the project by means of observations, interviews, reflective seminars and focus and reference groups. Their observations were followed up by "stimulated recall" with both choreographer and actors included in the study. The dance was choreographed in relation to the violin concerto by Unsuk Chin, performed by soloist Anna Lindal and the NorrlandsOperan Symphony Orchestra under conductor Staffan Larson. The project concentrated on the continuous interactions and reflections of a choreographer, conductor, dancer and orchestra (including the soloist) throughout the artistic process.

The study thus encompasses both dance and music and is focussed on how these arts are shaped through a creative process and in a professional performance. It follows that the study explores how a score is translated into dance and whether this physical interpretation of a score can deepen the listening experience of the sounding music. What is the difference between dance and music? The analysis of the score became the artistic context for creating a counterpoint in dance, to get a deeper insight into music through the conjunction of the two.

Another goal of the investigation was to explore the choreographer's role as a contributor to a process in which the dancer is a partner who participates in shaping content and its development and shares the decision-making about such issues as perspectives, intent and structure. In such a process, the choreographer has a responsibility to share research results and decision-making regarding concepts, intent and style. Choreographer and dancer then together create and possess a volume of knowledge (Butterworth, 2004).

From the overall purposes there were derived the following specific objectives:

–   to create an artistic expression in dance and music through extended listening, not necessarily connected to the ear;

–   to clarify the different roles in the artistic process in order to achieve a deeper insight into the interactions between dancer and musician, within their respective artistic expressions;

–   from an artistic perspective, to illuminate systematically the methods and processes utilised in the artistic work, within the genre of contemporary dance and based on the musical language in dance;

–   to focus on and reflect upon the idea of participation and co-creation in the artistic work.

When music and dance are incorporated in this two-voice harmony, the actors take a listening perspective that points toward a resolution in a collective consciousness and therefore links to thoughts and theories about the ego and about consciousness. These form part of a long philosophical and psychological tradition which today is strongly influenced by neurologists and philosophers such as Damasio (1994, 1999, 2003) and Metzinger (2003).

BACKGROUND

What kinds of choreomusical relationships exist and how do we talk about them? What do choreographers look for in music and composers in choreography? How do dancers embody sound and musicians reflect movement in their performances? How similar or different are physical and acoustic gestures? Does the equivalence implied in these questions apply in the world of Western music, where composers and conductors have been conspicuous in their exercise of expertise and authority throughout centuries and where musicians have been instrumental, in both meanings of the word?

Historically, many modern dance pioneers received their rhythmic and musical training directly from Émile Jaques-Dalcroze. Marie Rambert, who studied with him for nearly four years, helped Vaslav Nijinsky in the creation of *The Rite of Spring*. Rambert says that "the interpenetration between movement and music is so that you hear with your eyes and see with your ears" (Sawyer 1986, 40).

Marie Rambert also started the British Ballet, in which Frederick Ashton and Anthony Tudor were active. Other dance pioneers who were pupils of Jaques-Dalcroze were Mary Wigman, Hanya Holm, Ruth St. Denis and Ted Shawn. The latter two founded the Denishawn School, where Martha Graham and Doris Humphrey studied. The interest in "Music Visualisation" at the Denishawn-school shows what a great influence Jaques-Dalcroze had.

Cooperation between music and dance is one of the most established and most discussed interdisciplinary topics. As early as the 1920s Fedor Lopukhov pointed out the importance of the development of non-narrative dance and its relation to music (Sawyer 1986). Even so, the subject is one of the least thoroughly investigated. However, there are now signs that researchers and practitioners in both dance and music seek to create new ideas and to encourage

an exchange of language from the two disciplines. Roehampton's Centre for Dance Research is an internationally recognised centre for choreomusical studies. Working together with Princeton University's Music Department, which engages in interdisciplinary research, the Centre has built a basis for cooperation with the British Society for Dance Research. One of the persons behind this initiative is Professor Stephanie Jordan (2000).

LISTENING

Listening can be understood as a meaning-making action that includes musicians, dancers, choreographers, conductors and visual artists, all involved in the artistic process. This leads us away from conventional principles of cause and effect, instead turning the artistic approach towards listening to allow for further understanding and new interpretive dimensions in artistic expressions. What is important about listening, and what methods can lead to a more profound experience of it? What is listening? Can a movement be perceived as music? How does listening-thinking come forward? How can listening be made more important, with a greater presence in artistic, philosophical and scientific discussions? What is the function of rhythm in relation to these questions?

Sound associations can create meaning and context for patterns in other than conventional ways, and being in between two states creates transparency through movement to something else—something new, or past. We hear music not just through our ears but also through our hands, arms, cheekbones, skull, tummy, chest, legs, opening our body to the vibration of the music. Music and dance can create a sense of solidarity, develop self-confidence and nurture in ethical and aesthetic values, awaken a sensibility to the outside world. Music contains human expressions; and dance, as counterpoint, becomes a mirror in order to deepen the experience of music.

METHOD

When dance and music interact, a complex human agreement occurs, in which listening infuses the artistic process with an expanded awareness. Conventionally the choreographer chooses a piece of music to frame the choreography, as an artistic limitation. The method used in this project, however, was to create the dance in silence but out of the choreographer's profound knowledge of the sounding music. The dance creates its own music, own pulse, rhythm, melody—a counterpoint to the sounding music. The dancers will find a "dance-sounding" music in the dance. They listen, through dancing this "danced" music, to the sounding music. Polyphonic and polyrhythmic elements equivalent to the sounding music will occur.

The focus is on the role of music in relation to the dance, not on music as something the dance has to break away from. More important is to be able to experience the greatness of music in both the sounding and the danced music. One of the roles of the dance in this project is to enhance the experience of the sounding music through the danced musical counterpoint, a counterpoint

that neither visualises the sounding music nor simply contrasts with it (as, for example, strongly rhythmic music with a legato dance, or a sounded crescendo with a solo dance in a movement sequence that is pianissimo). Instead, the focus is on seeing dance and music as equally transformable partners—transformable in the sense that both art expressions are using musical elements in a structured form in which the artistic choices are based on research, knowledge, experience, tradition, style and communication—that is, listening. The method also requires implementing its converse: a composer listens to and analyses a choreographed "danced music" and creates a counterpoint in sounding music. Then the dance takes on the role of demarcation, setting the frame of the artwork.

In this case, the dance is choreographed in advance, with musical elements and structures as the inspiration/starting-point for the form and the qualities and content of movement. The sounding music must open up to the music of the dance; the composer must "hear" the dance score and have this score as a frame for the sounding composition. The choreography should be open for interpretation in the same way as an orchestral score is interpretable to the conductor and the musicians.

The project also highlights the place of gender and how gender roles are manifested in the artistic process (Hermele 2007). The artistic collaboration between the area of dance and music is traditionally characterised by very pronounced and rigid gender roles: the dance is seen as female, filling in an empty space, while the music is seen as male, making the frame and governing this space. This gendered perspective is not manifested in actual male and female sexes, of course; it should be understood as a broader concept.

PROCESS

The choreographer first determines what music should be the starting point and source of inspiration for the dance and music performance. This decision can also be made in consultation with the dancers and with all the artists involved in the process. Then the choreographer and conductor agree on an interpretation of the music. The choreographer repeatedly listens to the music, recorded in the current interpretation of the conductor, so that all parts of the music (the musical elements) become anchored in the choreographer. Then the choreographer conducts extensive score studies to determine how each part of the music creates a base for the dance: How many dancers should be included in the different parts? Is the dance supposed to visualise the music or to provide a counterpoint? Can a solo dancer meet a compact tutti crescendo? And so forth. These are some of the artistic choices of the choreographer, who then creates a sketch-like dance score from the music score, a kind of two-voice harmony. In this process the score that was the starting point for the project is interpreted and expressed. The challenge now is to find a flow, a give-and-take, in the interpretation of the sounding score with reference to instrumental groups, solo parts, volume, timbre, time, rhythm, pauses, melody, counterpoint, harmony, phrasing, structuring, orchestration...; and to find

how the dance will be structured: number of dancers, quality of movement, muscle dynamics/tonus, diversity in corporeal forms, duration, rhythm, phrasing, continuous succession of isolated movements, distribution of movements in space and time, varied movements in opposition and combination, succession of associated movements...

The choreography is then further developed in silence, to find its own "music" within the dance, a process in which the dancers are co-creating alongside the choreographer in their individualities, experiences, imaginations and knowledge. This is indispensable for the artistic expression of the performance. The dance sequence is based on a listening interplay to the natural rhythm that occurs in the improvisation of the dancer and the shaping of the movements of the choreographer. There are also relationships between the rhythms of the dance and the rhythms of the music, between the sound volume and the size of choreographic gestures, between musical textures such as polyphony or homophony (which describe the organisation of instrumental voices) and the analogous choreographic organisation of the dancers, between the timbre of the instruments or sounds and the characters of the individual dancers, etc.

It is important that the choreographer has a profound knowledge of the sounding music. The dancers only listen to the music through dancing the sequence created in silence; thus an artistic encounter occurs with listening as a mutual language. This cooperative process should be carried out accurately and with great care, especially with regard to the quality of the non-psychological movement that arises in the work when the musical elements are transformed into dance. The process also requires accurate timing with regard to the appropriate movements. How can a dancer be exactly placed in a timeline with his or her whole being? Must the dancer physically be seconds prior in order to be exact at a predetermined time?

There are different ways to achieve this conscious listening; one of them is the method of Dalcroze Eurhythmics, which is the English term for the music method developed at the beginning of the twentieth century by the Swiss composer and music teacher Émile Jaques-Dalcroze. The name "Eurhythmics" is a variation on the word "eurhythmia," a term used in art and architecture to refer to special and harmonised proportions. Eurhythmia is derived from the Greek word "eu," which means good, and "rhythmos," meaning "flow." It is a method to train and deepen listening, which is experienced as a physical experience of the whole human being when reading and interpreting a score. Dalcroze claimed that musical expressiveness could be taught and does not depend solely on natural talent and also that prominent musicians often had an instinctive physical connection to music. Dalcroze trained students in each of the musical elements so that they could represent these physically, resulting in a virtual lexicon of musical translated movements as depicted in the following table (Jaques-Dalcroze 1920, 150):

MUSIC	DANCE
Pitch	Position and direction of gestures in space
Intensity of sound	Muscular dynamic
Timbre	Diversity in corporal forms
Time	Time
Rhythm	Rhythm
Rests	Pauses
Melody	Continuous succession of isolated movements
Counterpoint	Opposition of movements
Chords	Constellation of associated gestures/movements
Harmonic successions	Succession of associated movements
Phrasing	Phrasing
Construction/form	Distribution of movements in space and time
Orchestration	Opposition and combination of diverse corporeal forms

Every physical action or movement can be related to a musical term and used to physically reproduce the music in dance/movement. Muscle dynamics highlight the rhythms of the music, while the music's dynamics make the movement musical, with its plastic ability and rhythms. Gesture clarifies the musical experience. The exercises can be seen as dancing to the untrained listener/viewer. The method can be further developed into an art of movement/dance in which listening is the artistic point of departure and inspiration. So there are two goals of the Eurhythmic method: to deepen your musicality as a musician and to create a contemporary dance form based on musical elements.

DANCE GENRES

Contemporary music has a history in which different styles are not necessarily linked directly to specific composers or individuals. In contemporary dance, style often emerges from the technique of a particular choreographer. By grouping modern contemporary dance styles into three genres, we can

strengthen the differences in artistic identities within a broader cultural history. The genres have different starting points:

1. from a narrative, an epic, a history.
2. from an image, a mood, a feeling.
3. from the music/rhythm, the sounding.

Music has different functions within these three genres:

1. In the epic the music accompanies the story, enriching its contents with different emotional states that often precede what will happen.
2. When there are visual beginnings the music creates an atmosphere in the room, a kind of musical carpet to dance on.
3. When the music takes the leading role the sounding music makes a voice and the dance is an independent musical counterpart.

When working in the third genre, the roles of the artists in the process can be described as follows:

–   *The Musician* needs to listen to the interpretation realised through the interaction between co-musicians and conductor. The musician must value the importance of the interpretation to the way in which the sounded music meets the music of the dance, in order to find stability and, in that, a deeper listening to the dance. If the music is composed with "intervals" for the dance, musicians can, in these spaces, open up their listening even more to the dance and increase their knowledge about the expressions of dance that are equivalent to those in the score. This experience can add new dimensions of inner and outer listening to their playing. The music becomes physical and spatial and thus provides opportunities for finding new dimensions of musical expressions. If the music is based on improvisational models, musicians can interact with the music of the dance to an even greater extent, through mutual listening.

–   *The Conductor* should form in advance an understanding of the orchestral music as part of a performance and should therefore have a communicative relationship and take a listening attitude towards the form and content of the performance. The conductor interprets the music, in collaboration with the choreographer, and records it for use during the rehearsals. This interpretation offers a solid artistic frame, and should be repeatable when it meets the dance, since the dancers will have established coordinating points in the music that follow that interpretation. Nonetheless, variations should occur when the orchestral body meets with the body of the dance, allowing for a living artistic meeting—which includes the listening contributed by the audience. In an improvising orchestral body the conductor takes on the role of artistic supervisor, distributing various improvisational models in a give-and-take relationship to the dance, which can be choreographed or improvised.

–   *The Dancer* improvises movement material shaped by the choreographer and based on the musical elements. The dancer's knowledge, experience, imagination and individuality shines through the material, which is

"straightened up" by the choreographer to be consistent with the genre in which the choreographer is working. The dance sequence is based on an interplay between listening to the natural rhythm that occurs in the dancer's improvisation and the forming of movements by the choreographer to purposes that follow from a musical listening. The metric structure of the sounding music is neither controlling nor limiting.

Then the dance sequence confronts the sounding music to find "meeting places" which occur by intuition, coincidence, knowledge and experience. It is important to cultivate in the dance a scale of musical expression, to give the body full control of all available dynamic and agogic elements, to create an opportunity to experience every nuance of the music through the muscles. This requires knowledge and recognition of differences in articulation, muscle contraction, decontraction, balance, flexibility and elasticity. This learning must be complemented with knowledge about agogic and spatial practices, so that variations in time are anchored through listening.

A dancer's musicality differs in character from that of a musician; it is a mixture made from different—but related—content. The dancer's interpretation must combine muscular impulses and extremely subtle shifts in timing with the music's framework of phrasing, rhythm, and other qualities, as decided by the choreographer. Most of the crucial preparatory and connecting movements are beyond and even in contradiction to the meter and pulse of the sounding music. The culmination of a movement is highly depending on the preparation of and relationships in the movement, and those culminations are the most important moments for the audience. The audience should be unaware of the preparation or link, as these have no intrinsic value. The preparation for and departure from a movement—"coming in and reaching out"—is what gives the very essence and quality of the dance, the musicality of the dance. Consonance in the dance can be achieved by such transitions if they are performed with musical consciousness. However, if the dance sequence is choreographed in advance, an inverse relationship can also be found, in which the musician creates a consonant counterpart to the music of the dance. Either way, in a broad sense listening permeates every part of the process to create the dance.

–   *The Choreographer* designs movements of musical value in relation to the artistic vision. This is an activity as specific and thorough as the design of an orchestral work, both musically and in terms of space. He or she should have knowledge of counterpoint, phrasing, cooperative polyrhythmic movements and harmonisation in the dance, as well as knowledge about the relationships between movements, body positions and the space that surrounds them. The choreographer must train the dancer's listening to be inside the music, facing it—and the musical integrity—within the dance without being controlled by it or following impulses directly from the sounding music.

The choreographer is part of a large network not only of dancers but also of musicians and composers. This requires close cooperation in a spirit of curiosity that allows composers to appreciate that their work is being interpreted as a counterpart in dance and musicians to open their listening

towards dance. This spirit must also embrace the visual scenic expressions (light design, set design and costume), so that they enhance the musical values and avoid a storytelling that possibly alienates from the music.

DISCUSSION

Are there any practises that can govern choreographic creations by considering the qualitative characteristics of movement in relation to the movements' inherent musicality? How can we subjectively separate movement that is musically meaningless from movement that is musically meaningful in relation to the artistic intention?

Are there methods for compositional creation that relate the qualitative characteristics of sounds to the inherent motions of gestures? How can meaningless gestures or sounds be separated from meaningful ones?

Can the positive incomprehensibility, the abstraction, of music be found in dance, or does dance have to be comprehensible through its corporeality? As an instance, consider the status of sound *vis á vis* music. Sound is generally immediately comprehensible, while music has greater structural abstraction and hence greater ambivalence.

What synergies can emerge from this research, this listening, both physically and instrumentally? Is this practice transferable to human communication outside the artistic world? Does a synergy emerge from this process, one in which dance and music are mutually convertible? Can this method strengthen, deepen and make visible what the languages of music and dance clarify in relation to an artistic intent? In what other non-artistic fields might this method apply, if we substitute for dancer, musician, choreographer other professions—artistic, educational and non-artistic?

With these overall thoughts about listening in artistic research as a new paradigm in the academic, philosophical and scientific world, it is important to visualise ("audialise") listening in a broader sense. We use artistic expressions—dance and music—for the purpose of emphasising their common denominator: listening.

The performance *Echange* was a practice-based research project; it could only take the form it did because it was an artistic project. Artistic research can create remarkable connections between different disciplines, and through this it also develops the artist's individuality. Artistic research is invaluable in our complex information society, in which scientific and artistic skills are increasingly balanced on a more equal basis.

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Chapter Thirteen

Score as Relationship

from Scores to Score Spaces
to Scorescapes

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How useful is the concept of the score in today's multidisciplinary art practices? Is it possible to rethink the musical score? Beyond theorizing the score in terms of notation, much can be learned from reconceptualizing the score as *relationship*. This essay charts the trajectory of my artistic practice from early experiments with musical scores to *Score Spaces* in the 2000s and *Scorescapes* since 2008. Recent theories that emphasise the relational and contextual nature of sound provide a framework for reconsidering my past practice and serve as a springboard for my current research, in which the idea of score as relationship is explicitly examined. I provide concrete examples in support of this idea, describing my own artistic practice using navigation, mapping and sonification, and offering an interpretation of work by composers Alvin Lucier and Pauline Oliveros. These examples illustrate a transformation from the score to a *scorescape*, from notation to relationship, with an emphasis on sound and the environment.

SCORES RE-IMAGINED THROUGH SOUND

Since the mid-twentieth century, musical practices have expanded the limits of conventional Western notation in a variety of ways, often embracing other disciplines such as visual arts, theatre, performance and writing. For example, non-tempered tuning systems used different divisions of the octave that often require a notation system beyond the five-line staff. Notations for exploring extended instrumental techniques were invented that graphically and descriptively explained with footnotes or a key. Explorations into graphic scores, in which visual imagery and spatial layout take the place of conventional notation, lay greater emphasis on the audio-visual interpretation. Event scores, often presented as written instructions in words, shifted the relationship between composer and performer, whereby the composer offered suggestions for possible interpretations and the performer entered into the music more as a collaborator. Improvisation, sound art and electronic

music made traditional scores all but superfluous, in that no communication was necessary between composer and performer. In these diverse contexts, any traditional conception of the score is one specialised approach within a larger array of concerns. The structures and processes of these various genres suggest a very different idea, a score that contains memories, communications and interpretations; that emphasises spatial practices and technical processes; that joins sound and image and combines live and recorded sound; and that explores other concepts and artifacts.

In order to understand the relevance of the score to today's multi-disciplinary art practices and technological environment, a complete rethinking is required. There is a tendency to think of scores only in terms of notational systems, as fixed entities or as instructional devices for communication between composer and performer. However, "like any other language, music notation is not a fixed thing; it evolves, adapts new expressions to keep pace with the emergence of new things to be described, new activities to be communicated" (Collins 2011, 6). I consider the score to be more like sound itself—contextual and communicative. Rather than conveying precise instructions through notation, I think of scores more in terms of facilitating and articulating *relationship*; relationship between time and space, the visual and the sonic, one person and another.

In his theory of sonic materialism, Christoph Cox argues "we might begin to treat artistic productions not as complexes of signs or representations but [as] complexes of forces materially inflected by other forces and force-complexes" (Cox 2011, 157). Douglas Kahn recently claimed that "sound is not a medium, sound is energy" (Kahn 2012). The expansive, if not paradoxical nature of sound, is made manifest in LaBelle's claim that

> sound is intrinsically and unignorably relational: it emanates, propagates, communicates, vibrates, and agitates; it leaves a body and enters others; it binds and unhinges, harmonizes and traumatizes; it sends the body moving, the mind dreaming, the air oscillating. It seemingly eludes definition, while having profound effect. (LaBelle 2007, ix)

Such notions of sound, relationality, complexes of forces, and energy imply new ways of conceptualising the multitude of practices that are neither purely musical nor build on the hierarchy and unidirectional structure of composer–performer–audience to which the traditional score subscribes.

Further, the contextual and relational nature of sound opens up alternative, non-conventional ways of listening, understanding and experiencing situations and environments. In my practical work I attempt not so much to *describe* sound but to create *situations* in which sound can affect and activate people's experiences in a personal way. Recognising the interaction between sound and space demands not simply describing works in terms of activating acoustic properties on a technical level, but creatively understanding the implications for the audience experiencing it. I understand the relational qualities of sound to be tied fundamentally to the relationship between listeners and sounds and to the particular environment they occupy and

construct through the process of making sound and listening. It is therefore a personal and embodied experience within sound and space.

Reflecting such a spatial notion of the score, I developed a series of works, *Score Spaces*, that joined sound and performance with architectural, visual and technological aspects. In *Scorescapes* I extended this further to include the broader environment and an ecological situatedness through my work. The notion of a "scorescape" takes these ideas into sound-art practices that include mapping and navigation, data translation and sonification, in an attempt to explore and articulate the relationship between environment, sound, and score in more detail. Building partly on the visual discourse of Land Art and the sonic discourse of Acoustic Ecology, the scorescape presents not the material itself (sound or land) but the underlying relationships between interacting systems.

I begin by outlining my early experiments with scores, technology and the environment, using my own work as an example of a multi-disciplinary practice that transforms notions of the score into *Score Spaces*. Following this, more detailed examples of sound and navigation in my works *Taking Soundings* and *Sun Run Sun* focus attention on the relational quality of sound and score. After briefly contextualising the score with reference to ideas about sound and place, I illustrate possible scorescapes by analysing two examples from composers Pauline Oliveros and Alvin Lucier. These ideas lead to a conclusion that emphasises the role of composition as a form of research, forming the basis of my most recent *Scorescapes* project.

HOW I ARRIVED AT THE NOTION OF *SCORE SPACES* THROUGH MY PRACTICE.

My artistic practice investigates resonances between image and sound, the visual and the audible, the listener and the environment. In the mid-1990s my work took the form of graphic notations, experimenting with visualisation techniques and differing interpretations by musicians who turn these images into sonic phenomena. I realised that the score, more than transmitting specific musical information, allowed communication and interpretation between people, encouraging improvisational skills and challenging musicians to create imaginative sonic interpretations of visual notations (Cardew 1971). In *Walking the Line* (1997), working through the implications suggested by the graphic images was a process of negotiation, the score acting as a springboard for musical generation and conversation. In *Tidal Nomad Mad* (2002), written for the Banda Municipal de Barcelona, the graphic notation encouraged an intensely concentrated dynamic between the orchestra members that was audible in the performance.

Walking and navigating through environments also plays a key role in my artistic investigations. These include *Walk for an Absent Public* (1996), a four-day walk in South Devon that left a trail of sound sculptures made with found material, and *Sargasso Sail across the Bermuda Triangle* (1997), a seven-day-and-night sail in a fifteen-meter sailing yacht, notating sounds and navigation techniques in the Bermuda Triangle, an infamous area of absence and loss. These projects investigated relationship of scores to environments in the absence,

or absent presence, of an audience or public. In contrast to traditional music notation, which precedes performance and is manifested as written notation on a page, here the scores were discovered, imagined and enacted in environmental space. In these works I was considering the score as an act of relationship through environment, rather than merely a notational device, a concept that forms the basis of the notion of scorescapes.

Noting the basic discrepancy between the static image of the score and the temporal nature of the music produced, in the early 2000s I created dynamic visual scores using video and animation. This led me to research the interaction between sound, image, and movement in architectural space, culminating in my theory of "dynamic placing," in which sound and image are placed in space to interact with it and the audience and, in doing so, to extend that space beyond its architectural limits. These ideas were incorporated in live interactive audio-visual performances using custom-made electronic instruments such as *The Video-Organ* (2001–03) and its mobile version the *Video-Walker* (2003–04), a portable projection and sound instrument designed to be carried through various environments, extending the practice of walking in art (Harris and Bongers 2002).

My practice-based research project *Score Spaces* (2003–06) joined my exploration of sound, space, time, movement, and architecture into an expanded spatial notion of the score. For example, in the audio-visual performance *Light Phase* (2006) and the sound installation *A Collection of Circles (or Pharology)* (2005), I used lighthouses as dynamic symbols of light and sound within the environment. In the installation, the circular movement of sound in space based on sonifications of lighthouses, and a bodily interaction with the sound by the use of laser beams and light sensors, generated a perceptual awareness of a physical spatial score within the gallery. Although this "score" was not visible, one was conscious of it as a map filling the space through sound. *Spin* (2006) re-introduced a performing musician into this sound space. The sounds were based on Louis Andriessen's composition *Rage, Rage, Against the Dying of the Light* (1966), which was originally conceived for four trombonists circling the room, reading a paper score displayed around the edge of the performance space. In *Spin* the pre-recorded parts were played back around the space in a constant circular motion, while the trombonist Hilary Jeffery performed by physically spinning in circles. His motion interacted with the laser beams and light sensors, adding percussive sound layers. A projected video of the spinning trombonist in other locations folded other spaces and times into the circular motion of *Spin*.

Score Spaces also included *The Meta-Orchestra* (2004/2005), a multi-disciplinary group of musicians, artists, designers, and engineers, using electronic extensions to their instruments, which performed in various architectural environments (Harris 2005). The digital, networked technologies provoked questions about leadership and collaboration and precipitated a dynamic, interactive notion of the score. They also demanded an analysis of space and instruments that was broader than one player, leading to the publication "The Building as Instrument" (Harris 2007c). The increasingly networked

and distributed relationship between body, instrument, and score, as provoked by technology, became a central notion in this research, leading to another publication titled "Inside-Out Instrument" (Harris 2006).

These ideas and projects led to the works that form the basis for the concept of *Scorescapes*. I began research into historical, contemporary, and animal technologies of navigation, particularly through sound. The graphic nature of the score returned as I investigated techniques of mapping the land through sound, image, and new technologies. My multi-media sound and video projects *Taking Soundings* (2006–7), developed at the Academy of Media Arts in Cologne, and *Sun Run Sun: On Sonic Navigations* (2008–9), developed at the Netherlands Media Art Institute and STEIM in Amsterdam, create embodied experiences that relate to an abstracted version of that environment through sound. Described in more detail below, these works question how we create and share knowledge of environmental locations through abstractions such as maps and technologies of navigation and how these meanings can be built up mainly from embodied interactions in space (Harris, 2007a and 2007b; Harris and Dekker 2009).

SCORES, MAPPING AND NAVIGATION: *TAKING SOUNDINGS*

The search for a coherent relationship to the environment can be found in sound art and media art dealing with landscape and new technologies, such as locative media, eco-aesthetics, and other practices, where walking, mapping, and forms of navigation and wayfinding are recurring modes of investigation. These build on the idea that a fundamental way to engage with place and to actively understand one's movement through environments is to conceptualise them as maps and journeys. This is more than just a functional relationship to environment, more than getting from A to B; rather, it insists on an embodied understanding of how one moves and how one decides the way, creating physical journeys that can be re-told, followed and notated. The map itself is abstracted from the land, much like the musical score is abstracted from the sound it denotes, but both come alive literally in the embodied process of interpretation.

The exhibition entitled "Possibility of Action: the Life of the Score," at the Museum of Contemporary Art in Barcelona (MACBA), sought to "document a revolutionary change in the way we notate and transmit music, from early graphic scores by composers such as John Cage, Christian Wolff and Morton Feldman, to intermedia experimentation and contemporary sound art" (Held and Subira 2008, 4). It contained a wide variety of notations, scores, videos, electronics and interactive software. My work on navigation, *Taking Soundings* (2007–8), named after a technique for determining the depth of water beneath a boat by lead and line, was exhibited in this context. It traced navigations I made on coastlines around the world by satellite GPS, redrawn digitally in audio-visual performances, resulting in three chart-sized prints and a sound work of environmental sound recordings and sonified GPS data (Harris 2007a and 2007b). As I wrote for the catalogue:

> These images exist on the edge between a score and a map, line and sound, an event and a recording. Produced from satellite data collected by GPS of travels at sea and along coastlines, the work is "taking soundings" of position and movement. These images are the result of re-drawing those traces during a performance; as each part of the line is digitally drawn the data is transformed simultaneously into electronic sounds. The score then is being re-created, re-drawn, and so re-interpreted at the moment the sound comes into existence. These static prints become a record of a personal map, the memory of a shared performance, and encourage new interpretations by audience and viewer. (Held and Subira 2008, 14)

As evidence of this deep connection between music and mapping, *Taking Soundings* was re-exhibited in the 2010–11 travelling exhibition "Ground Level," curated by Kit Hammonds for Hayward Touring and the Southbank Centre in London. Hammonds also included my video installation *Navigating by Circles, or Sextant* (2007), in which the view through the eyepiece of a sextant on board a boat is combined with sonified GPS data. Both these pieces use a combination of image and sound to emphasise the mediation with technology that is necessary to understand and calculate our position in a constantly shifting environment. In his rationale for exhibiting works that present a form of map-making that is experiential and physically "on the ground," rather than generated from a bird's-eye view, Hammonds writes:

> Ground Level brings together works of art that use forms of mapping to consider how we make sense of the world, how we belong to a place and to a people, and how we connect to the land we inhabit through negotiation, experience, memory and technology. The artists in the exhibition enact forms of research on the ground that echo the processes used by cartographers to draw up the land on charts, maps and legends. Rather than putting forward definitive surveys, however, the works presented open up alternative readings of the landscape, blurring the boundaries between here and there, us and them, me and you. (Hammonds 2010, 6)

The ground-level perspective is an involved, embodied experience of place and mapping, in which one experiences an intimate knowledge of the environment one moves through, contextualised as experience rather than as objective instructions. It acknowledges that a personal relation to environment is continually made and remade with every movement and orientation as a way of making sense of the world one moves through and inhabits. The parallels with the score are evident in this approach, but only if the score is rethought not as a "definitive survey," or fixed musical text, but as multiple, personal, alternative readings of the musical concepts as experienced and interpreted by composers, performers and audience.

SCORES, SOUND AND RELATIONAL ART: *SUN RUN SUN*

The way in which music has been opened up to encourage participation, aiming to influence and critique social situations, has parallels in contemporary art. Tracing a history through the artworks of the late 1960s, which emerged as site-specific and process-based rather than object-oriented, LaBelle argues

that experimental visual art constitutes a mode of artistic enquiry profoundly akin to the workings of sound. "The very move away from objects towards environments, from a single object of attention and toward a multiplicity of viewpoints, from the body toward others, describes the very relational, spatial and temporal nature of sound itself" (LaBelle 2007).

The disciplinary distinctions between contemporary art, sound art and media art were bridged by the exhibition "Playing the City," curated by Matthias Ulrich at Schirn Kunsthalle Frankfurt in 2009–10. On seventeen consecutive days, several interventions and situations occurred throughout the city of Frankfurt that stimulated social relations with public space, enticing the audience to a direct involvement with environment and social context. Ulrich writes:

> [T]he viewer plays a part in the production of art works and the traditional roles of artist as producer and audience as recipients have largely been dissolved. This has brought forth a variety of forms of interactive, cooperative and interdisciplinary methods that, however, defy a precise classification (Ulrich 2009, n.p.).

However, discourses across the different disciplines are often conflicting and the word "relational" has been used in a number of contexts. For example, citing curator Nicolas Bourriaud's recent theory of "relational aesthetics," which considers a specific genre of contemporary art that explores social relationships (Bourriaud [1998] 2002), Ulrich argues that the works in "Playing the City" "offer new forms of communication to the recipients of art, hence relational art acts as an antidote to social alienation" (Ulrich 2009). Indeed, the re-enactment of Allan Kaprow's happening *Fluids* (1967) as part of "Playing the City" demonstrated that such relational concerns had surfaced in art discourses three decades prior to Bourriaud's theory. Both sound art and media art have also been dealing with these issues for a number of years. LaBelle, who argues that sound's inherent relational quality has manifested itself in sound art over the last thirty years and increasingly through digital technologies, states that "while insightfully recognising current trends within contemporary art, it seems also important to supplement Bourriaud's relational viewpoint with the legacy of sound art, which seems sorely lacking in his perspective" (LaBelle 2007, 249). As we have seen, such a "relational quality" is characteristic of sound itself, which binds people together in space in a contextual manner (LaBelle 2007, Dyson 2009). The scorescape may be considered in light of this relational quality.

My project *Sun Run Sun: Satellite Sounders* (2008–09), included in "Playing the City," investigates sonic navigation, furthering my earlier work on satellite GPS navigation by turning the data from satellites into sound in real time. The *Satellite Sounders* are a series of custom built, hand-held instruments that sonify the movements of the satellites as they come in and out of focus, orbiting overhead. The audience listens to these sonifications on headphones while walking. The walks that I instigated and led during the exhibition allowed members of the public to move through the city by themselves while

simultaneously listening to their connection to orbiting satellites. The contrast in scale, combined with revealing the technological process through the use of sound composition, produced an experience that many participants described as completely shifting their perspectives. The public's active involvement in the work and the personal experiences that resulted help realign ideas of audience, performer and composer into a more collaborative and balanced relationship. If there is a score embedded in a work like this, it is to be found not simply in the musical "text" of digital code and sonifications but in the way the work invites people to act, to navigate, and to explore from a new perspective their own relationship to environment through sound and movement. (For a more detailed description of this work see Harris and Dekker 2008.)

SOUND, PLACE AND LISTENING: OLIVEROS AND LUCIER

Sound embeds us within an environment by providing aural information about the context through which we are moving. Sound is experienced as related to place and to other sounds, and it is bound to its spatial context as well as to our perception. This emphasis on a direct engagement with the environment relies on understanding how, what, and why we listen. The term "soundscape," most commonly associated with the Canadian composer and theorist R. Murray Schafer, considers sound with regard both to how it is produced and how we listen to it (Schafer 1977). This is also an explicit concern of composers Alvin Lucier and Pauline Oliveros, whose work demands attention and commitment to active engagement with listening in order to create meaning and complete the composition. Such composers typically use technologies to explore this aspect of listening, and the relationship between technology, sound and environment is fundamental to an understanding of this active engagement. The opportunity to work closely on residencies with Lucier (2009) and Oliveros (2010) gave me greater insight into their work and to reconsider their relationship to the score through the notion of a scorescape.

Oliveros' "Deep Listening," begun in 1991, is a growing series of techniques and compositions involving an international community of musicians, therapists, teachers and artists (Oliveros 2005). In her week-long Deep Listening Retreats, listening and walking meditations are combined with non-verbal time, dream practices, body movement, and group improvisation. By concentrating on fundamental processes that underlie music-making, Oliveros seeks an expanded awareness of our connections to the environment and each other through sound, teaching and community. Known as one of the foremost electronic music pioneers, her work combines these esoteric techniques with the latest forms of technology, most recently involving distributed social networking (including platforms such as Skype and Facebook), to expand the communities and create continuity between the intense retreat periods. Her work attempts to allow participants (no longer categorised as composer, audience, and performer but integrated as hybrids of all three) to reach a form of presentness, even over global distances, through sound. The practice of

Deep Listening emphasises connectedness and group communication over distance through sound and exemplifies, in an expanded form, a kind of scorescape facilitating relationship.

Lucier's music can be regarded as manifesting scores based on relationships by revealing the workings of sound, both in the mind and in the particular environment it is experienced. Written instructions of his pieces are often notated after the creation and performance of the work, "...after the fact of those performances we did, but before the fact of many other versions I want to do," as he states (Lucier 1995, 108). Far from constituting a definitive text, the score of *Quasimodo the Great Lover* (1970) is described by Lucier as "a guidebook of sounds suitable for acoustic testing, with suggested proceedures for putting them together" (Lucier 1995, 112). His work often makes the inaudible audible (and at times visual) in space, while emphasising a kind of psycho-acoustics whereby the music takes place within the minds and perceptions of performer and audience (Lucier 1995, 152). In the following example I illustrate how the scorescape may be considered as more fundamental to the work than a notational description alone.

In *Music for Solo Performer: for enormously amplified brain waves and percussion* (1965) EEG electrodes on the performer's head translate sub-sonic alpha waves (8 to 12 hertz) into electrical signals that are amplified. These are made audible by using loudspeakers to physically activate percussion instruments placed throughout the space. As the audience sees Lucier sitting on stage in a meditative state needed to produce alpha waves, which activate the cones of the speakers and thereby produce sound on the percussion instruments, one connects the three elements visually as well as sonically. Interestingly, the more alpha waves are produced, the more sound is created; and this must feed directly back to the performer, who may hear it, but must not be distracted by it, as this would bring him out of the alpha state. The performer is paradoxically active in an inactive state, and his relationship to the sound itself is but one part of a larger feedback system. *Music for Solo Performer* is a sonic externalisation of internal listening, making audible the inaudible states of mental feedback, building what we might call an interconnected scorescape of relationships between performer and audience, space and sound.

SCORESCAPES AND COMPOSITION AS RESEARCH

My artistic research project *Scorescapes* (2008–11), which includes investigations into underwater sound, cetacean communication, making the inaudible audible, and futures of field recording, prompted further reconsiderations of the score and the role of composition (Harris 2012a, 2012b). By understanding sound, navigation, and the environment in combination, I arrive at an idea of artistic practice that is embodied, practical, and poetic and that places the participant in the centre of an active experience. This approach literally turns inside out a conventional concept of musical composition, and this inevitably requires a rethinking of the score. Rather than learning to listen in order to organise sounds into final compositions, this approach asks us to use the

process of composition in order to learn new ways of listening to sound. David Dunn describes this method as inherently unfamiliar to the trained composer, as it generates an argument that musical activity and composition is learning to listen (Dunn 2009). It evokes a field in which sound enables a focused presentness that links the internal and the external, joining the individual human consciousness with a larger, less anthropocentric field of consciousness. Along these lines, La Monte Young realised that "sounds and all other things … were just as important as human beings and that if we could … give ourselves up to them … we enjoyed the possibility of learning something new. …" (LaBelle 2007, 70). Composition itself becomes a research method. This resonates with LaBelle's observation that "composition becomes a form of research conveying cartographic routes in and through relations to place" (LaBelle 2007, 198).

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Drawing and the Score

Anne Douglas

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> Artistic Creativity and its relationship with artistic research (thus) becomes a paradigm in Agamben's sense of the word (1999), as constituting and making intelligible those aspects of human experience that are concerned with *managing our freedom as human beings*. (Coessens, Douglas and Crispin 2009, 180 [own emphasis])

Traditionally a score in Western classical music has ensured the music's presentation and replication to an audience. Drawings as blueprints in architecture/engineering ensure that designs are translated into real structures in ways that are more or less faithful to the designer's intention and state of the art of technical knowledge. Viewed culturally, both designer and composer are clearly flagged as originators of the work. Underpinning these traditional forms of "score" or "drawing" is the belief that both can be performed more or less literally. This belief and associated practices secure their value as artefacts to society.

However artists tend to challenge fixed meaning and value. An artist views conventions as "plastic," as having a potential for infinite variability. A creative artist establishes a tension, dissonance even, between what is expected of artworks and what is actually presented to audiences.

One artistic ruse is to stray out of the territory of a particular medium, smuggling concepts and practices from other art-forms to "make the break." It is commonplace to observe music's referencing of the graphic and the visual arts' referencing of time and music. It is not surprising to learn that score, notation and drawing share a root in the eleventh-century Norse word "skor," meaning to score, notch or scratch. While notation and drawing have acquired a more specialised meaning as a system of graphic symbols used in particular contexts, they also spill over into the non-specialised and quotidian: mark-making, direction-finding, delineation, framing or forming connections. These meanings bridge lay, legal and artistic domains.

This chapter draws on the experiences of artists across the domains of music and the visual. The first part briefly examines perceptions of the score by two musicians—Paulo de Assis and Juan Parra Cancino. De Assis is a classical pianist; Cancino, a composer/performer working within the digital. They offer perspectives of a performer and a composer respectively. It is striking how both articulate the importance of the visual/spatial in their particular experiences of music-making. The second, larger section examines a particular work of a visual artist, John Latham, in relation to score—*Time-Based Roller with Graphic Score (1987)* (Flat Time House collection). In this work, time, imagined through

music, in particular through "score," is articulated by means of a material object in which "score" is a metaphor, incorporating the viewer "as performer" actively within the work, embodying time. The insights gathered from these examples are used to examine my own collaborative experimental art project, *Calendar Variations*, 2010–present.

The point of this small handful of examples is to observe in particular situations what happens when an artist transposes concepts of drawing and notation across the borders of art-forms. Is it possible that these tactics and their results can inform in very particular ways those "experiences that are concerned with managing freedom"? These are a few of many possible examples from the mid-twentieth century onwards in which the notion of "the score" becomes a very particular means to introduce time into the domain of the visual/spatial and, conversely, space and the graphic into time-based media. For example, George Brecht (Robinson 2005), as both musician and visual artist, was in fact one of the first experimental artists in twentieth-century USA (working alongside Allan Kaprow and under the influence of John Cage) to introduce score into the visual domain, effectively establishing a new kind of protocol for artistic experience.

Three Aqueous Events
– ice
– water
– steam
(August 1961)

No action is actually involved other than within the imagination, prompted by the sequence of words and their implied transition/movement through three states of matter. Brecht's score cues our interaction, structuring time and space into the potential for an event. It is an event within our imagination. The score prepares us to take this imaginary action and move in a new direction.

Paulo de Assis, pianist and musicologist[1]:

> I started working with Nono almost twenty years ago. ... At the beginning I had an approach as a traditional interpretive performer. There was a score, and I was reading the score in a mimetic way, trying to realise what was there. At a certain moment I arrived at a couple of problems—a couple of questions—that could not be answered through a normal reading of the score. I felt strongly that I wanted to see the original sketches—to see the manuscripts.
>
> One of the fascinating things when you work with sketches is that, in a certain way, we can *see* or, at least, we have the impression that we are seeing the thoughts of the composer at the stage of the working process. This is especially the case, I believe, in

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Beethoven's sketches and in Nono's sketches. Both composers used a large number of sketches. They needed them. They wrote and rewrote the same passages and the same pieces.

Nono, for example, also used a lot of colour and graphic visualisation of the music. Furthermore, this graphic visualisation is very often the origin of the piece. Nono goes from this origin as sketch to slowly defining the score. This yields a completely different kind of information for the performer that you could not get out of the printed version of the final score. The graphic score is the result of a complex process where different kinds of visualising a musical object are coming together, closing, and defining new objects. For me it would be impossible now to think of this piece without remembering, in my mind, all those beautiful pictures that Luigi Nono drew when he was composing the piece.

What might we understand about the spatial/temporal qualities of notation from this articulation?

In this particular instance—de Assis' exploration of Luigi Nono—the visual is a strong sensory presence: the musician "sees" and "reads." The graphic sketch gives the work particularity, a character, the quality of emerging, being in formation rather than formed. The graphic quality of the sketch prompts development. It becomes the means to go somewhere with the work—as de Assis says, "a complex process where different kinds of visualising a musical object are coming together, closing, and defining new objects." Freedom and constraint are differently balanced in the sketch than in a printed score. The latter indicates both what the music sounds like and also what the performer should do. By looking at the musical sketch, de Assis suggests, we are able to "see" the thought processes of the composer in the act of composing, "at the stage of the working process," in ways that shift the performer's role from interpretation to creation.

At the same time de Assis lays out a paradox. These new insights are dependent upon getting closer to the thoughts and actions of the composer at the moment of origination, by suspending individuality rather than imposing the personality/character of the performer in ways that might distance him/herself from that origin.

Interestingly, "sketch" is a word that we use in both drawing and music to denote an act/moment of originating a new artistic idea. The sketch can be held in one's imagination. It is vivid: "it would be impossible now to think of this piece without remembering, in my mind, all those beautiful pictures …" In other words, the performer's imagination is gripped, head and heart. It is perhaps this catharsis that opens up the performer's role to deeper levels of creative response and potential responsibility.

Juan Parra Cancino[2] offers another view that emerges from a different set of research concerns. Where de Assis focuses on a spectrum of approaches—interpretation /creation as a pianist—Cancino is a composer challenged by the lack of specialisation within the computer as instrument.

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2 Juan Parra Cancino is a composer and fellow of Orpheus Research Centre in Music (ORCiM). The quoted material is a transcript of an interview with the author conducted at ORCiM in July 2009.

> My research considers how can we describe the performance practice of an instrument that does not exist and how can we take this limitation and connect the performance practice of this non-existent instrument with performance practices of traditional musical instruments. I look at elements like physical gestures, or a concert situation, or interactivity—social interaction between musicians and the whole idea of the score—as the outcome of a collaborative process instead of the starting point for a collaborative process. ... I use graphic notation as a very basic way of saying, "OK, we will work together; we will make a piece—but what we want is to have different interpretations of one single score."

In Cancino's work, the graphic presents an invitation for something to happen, rather than a set of instructions to the performers for what will happen, a blueprint. An "invitation" is a metaphor that has implications for how one might act in response. This creative proposition places in tension all aspects of music making: the physical (gestures), social/cultural mores of the concert hall, and expectations and knowledge of the audience, as well the interpersonal—the creative potential of one musician working with another. The score is at the fulcrum.

What quality of experience does this produce? Mieko Kanno, violinist, has worked collaboratively with Cancino[3]:

> We go into the room, connect everything together, test everything together, improvise a little bit. We know what would work nicely and what would not work and then the balance—just trying out many different combinations of things, talking about how we want to shape sounds so that it can have a certain visual reference. It can realise a certain visual shape. Let's say there is a triangular shape. What kind of possibilities are there out there for us to communicate that sound using either our playing techniques or the sound that comes out of it, or the processing the computer is doing? We independently have different ideas, but at the same time, because we are working as a duo, between us it has to be communicative. It has to be clear without using words because once we start describing everything we are no longer listening to each other. We are not musically communicating in that sense.

Kanno, in this interview at ORCiM in 2009, describes an interplay between the visual and the musical from the perspective of the performer. The score encourages composer and performer to shape music, drawing from the visual as a source and giving music shape as a result. The graphic that Cancino presents invites the possibility of having different ideas and also gives permission to explore these ideas. It does not predetermine the musician's or composer's passage through the material. The energy driving the process is pleasure in the doing, the love of music-making and the desire to communicate well through music. This process, with its freedoms and constraints, challenges knowledge and experience, giving energy to pose new and better questions. Kanno articulates a starting point in deep knowledge—"we know what would work and what would not work". That deep knowledge leads to communicability. It is a foundational principle that allows for clarity as a priority between players and with the audience.

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3   Mieko Kanno, violinist, is Head of Strings at the Royal Conservatoire of Scotland. She was a Research Fellow with ORCiM in 2008–10.
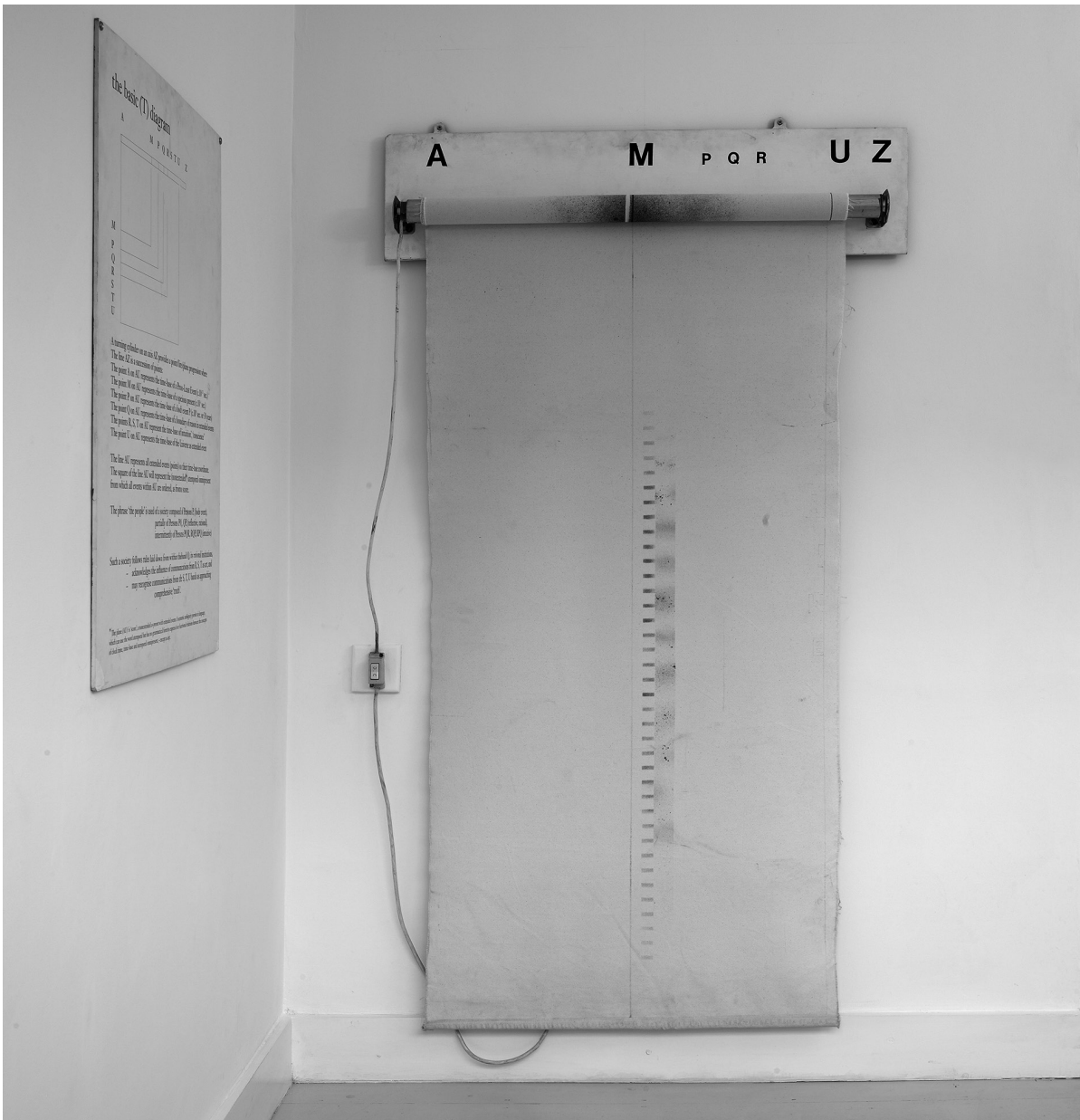
Fig. 1

It would appear from these experiences that the presence of a graphic element in composition interrupts the linearity of relations between composer/performer, intercepts the conventions of "reading in a mimetic way," opening up a spatial dimension. Within the newly configured space, composer and performer re-invent their roles and creative responsibilities, distributing these differently in relation to time and process. A performer (de Assis) exhausts the creative possibilities of a particular score and goes back in time to a point of origin. In so doing he reworks the piece in his imagination, recovers creative energy by discovering the graphic as a point from which to move and develop differently. A composer (Cancino) opens his musical ideas to multiple possible interpretations, inviting the performer (Kanno) to be part of the generation

Figure 1. *Time-Base Roller with Graphic Score*, 1987 (*with Basic T Diagram on left*). Canvas, electric motor operating metal bar, wood, graphite. Photo Ken Adlard. Courtesy the John Latham Foundation 2005.

of a piece that confronts the lack of specialisation of the composer's instrument, the computer, by constraining this seemingly infinite potential by means of a graphic.

What happens in the relation between score and the visual arts?

THE INCIDENTAL PERSON
JOHN LATHAM

Imagine a room—a normal-sized sitting room sparsely furnished. Imagine a tall, thin, elderly man—an artist, well respected by other artists and largely ignored for much of his life by the establishment. He is now celebrated as an important figure internationally. It is a Saturday afternoon late in 2004. The room is in a house in Peckham in South London, called *Flat Time House*. To the right of the chair on which the artist sits is a large canvas suspended from a roller, an improvised roller blind. The work is called *Time-Base Roller with Graphic Score (1987)*. [Fig. 1]

Late in 2004, I visited John Latham in his studio and home on the invitation of his wife, Barbara Steveni. Latham articulated his theory of time. The following narrative is a reconstruction, drawing on this experience as well as secondary documentation from the John Latham Foundation and Furlong (2005).

The artist explains:

> All time can be represented by the length and width of a flat canvas. Along the top of the roller, time is divided into intervals that mirror the way the human mind imagines time. A marks an event of the shortest duration, a "least event" (like quarks in quantum physics). M marks the present of an individual. P marks an event in human time in terms of one generation of a human being (approximately 30 years). Q marks "the boundary of reason" or society and its rules, the rational/structural. RST marks intuition and conscience, the domain of art; STU, the domain of truth; and U, the time base of the whole universe. [Note at this point how Latham merges and paces those intervals referencing the domain of art, the domain of truth and the universal.]

> The long canvas is wound round the roller, which is operated by an electrical switch. As the barrel turns, more of the canvas is unwound until a whole length is unfurled. The whole represents an entire universe understood "timelessly like a musical score." Furled or partially furled, most of the canvas is obscured from view most of the time, rolled up or only visible at the top. The backside is reality. The narrow visible strip that we can actually see on the roller is the now. The square produced by the co-ordinates of M-horizontal/M-vertical, P-horizontal/P-vertical, etc., is an "atemporal omnipresence from which all events are ordered". [Fig. 2]

The artist believed that time and event were primary. Objects in the world are mere traces of events. There are no phenomena without time but there are many phenomena without space. The score is effectively a generative metaphor of time. [Fig. 3]

This work might be interpreted as follows: As human beings, and the only species perhaps to have this capability, we can cast our imagination back and

drawing

the Time-Base Cylinder, showing

- a (specious present moment) NOW, changing with the turning of the cylinder,

- the atemporal omnipresent plane (AZ)^2 that includes past and future, represented by the material on and off the cylinder,

- the vertical time-base bands appearing on the cylinder, as visibly defined (by a letter in some sequence as time passes).

Note:
As a means of referring to nature the line M is clearly structural in defining the NOW effect, which might appear differently to another observing organism with a "present" at either side of M. A visualisation for the relative shift in time-base of "present moments" might be as suggested by Gregory & Kohsen, a hypersphere of radius AZ.

Fig.2

Fig.3

Figure 2. The time-base cylinder (Latham 1991, 111). © Image courtesy of Modern Art Oxford.

Figure 3. The roller AU and (AU squared)—Person/Object relatedness (Latham 1991, 116). © Image courtesy of Modern Art Oxford.

forth but always from a point in the present. This interpenetration of past, present, future gives form to how we act in the world. We can imagine timescales beyond what we will ever experience in a single life. Our imaginings are structured by rules of society within which we locate ourselves as individuals, creatively and productively. The rational is mediated through sensibilities such as conscience, intuition, the artistic and poetic, taking us into new domains— truth, the universal.

This artwork shares many but not all of the visual, formal and functional qualities of a score. It adopts the conventions of linear organisation using parallel lines in relation to symbols that create points of location within a geometric space. Duration is represented both in a horizontal reading from left to right and in a vertical dimension, allowing a two-dimensional space to open up and contain interim events at different scales. The vertical therefore manifests a visual/spatial function rather than the musical function of denoting pitch. Space/material/concept establish a tension between values of time and values of space: Which should call our attention in the artwork? Like a score by George Brecht, it cues an event the precise "rhythms," "timbres," and "pitches" of which are deliberately unspecified. We inhabit the space. We make the work with our experience.

John Latham understood his time/event theory in terms of music and of drawing. In drawing, a point in space can represent a point of mobility, a point from which to move, a zero point. This moment is potent. It has a prehistory. The score, while it is not heard as sound, exists as a possibility. It is in a sense "timeless." Once sounded, the score enters experience by controlling time (frequencies, rhythms, and pause lengths), forming experience. Latham's way of imagining time in terms of score rehearses the principles of graphic exploration developed by Paul Klee, in which time in terms of movement and process are privileged. In a similar way, Latham believed, the composer creates a musical idea. At the outset there is a score as an initial impulse to gather an audience to come together within a new event and listen. They listen for a duration of thirty minutes or so. The musical idea unfolds in real time through complex frequencies. Latham observed that in the minds of the audience, the score does not exist in the moment of the performance. It can be assumed. It is effectively "tucked away in a drawer" (Furlong 2005). Likewise Latham's score can be committed to memory and taken into everyday experience, becoming something to work with, a means by which events in a single life become connected and located in relation to each other and beyond. To work with the score, to create with it, we need to have made an investment in understanding it, mastering and interpreting its specificity, its constraints, its severity.

What are the implications of this transposition between the visual and spatial?

The artist's intention and unfolding of the work is revealing. With his time/event theory, Latham was seeking to overcome the fragmentation in knowledge that occurs over time. This fragmentation can be experienced in the emergence of different ideologies, different belief systems, divisions between knowledge in art and science and within the sciences themselves. Latham articulates an image of a struggle to bridge difference as differences
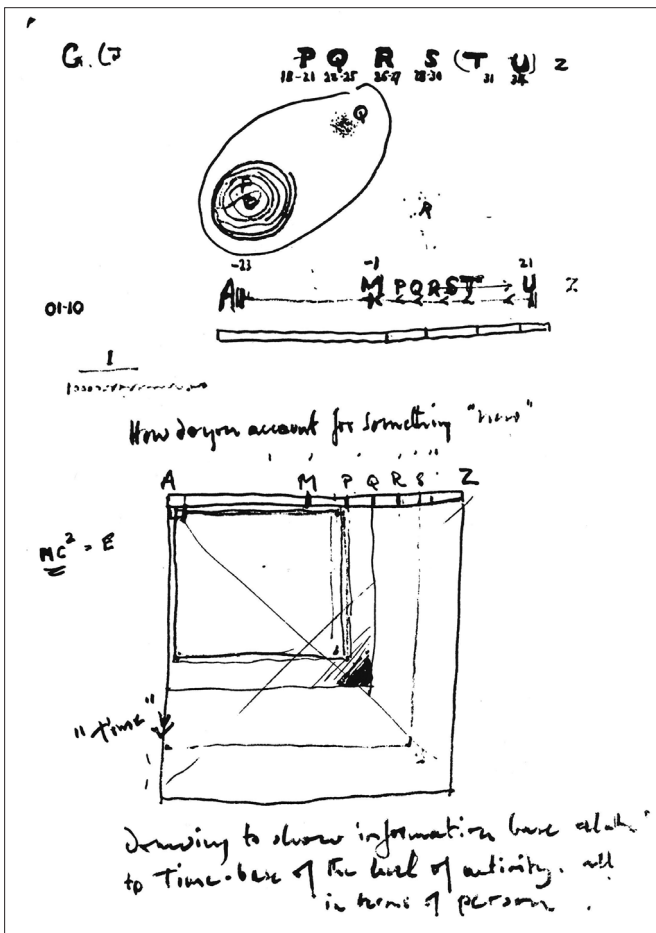
Fig. 4

pull apart. He creates an image and artefact in *Time-Base Roller with Graphic Score (1987)* that presents another way of thinking about time and experience—a single plane that is seemingly endless.

In fact Latham used his score (and the theory of flat time that it represents) to inform his understanding of the role of the artist in society. The human being is instinctive as well as having intellectual power, a rational being. Reflective and intuitive aspects both come together within original thought. The artist originates by observing and acting in the world. Latham named the artist an "incidental person," occurring in time and space in ways that extend beyond physical bodily presence. An artist is uniquely placed to work within the local and the specific while simultaneously grasping the meaning and implications for action within different frames of reference as mapped in the score. Such artists can think through the long-term implications of their actions, whereas most areas of production or service are expedient. Artists are capable of working across hierarchies, social groupings, barriers of discipline, belief and specialism, through dialogue or improvisation.

These understandings were brought to test within the Artist Placement Group (APG) that Latham and Steveni developed in the early 1970s. Artists were placed within industry or government, including British Steel and the then-Scottish Office. Over a three-month period they negotiated the nature

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of their work and relations. Latham's intellectual underpinning of these placements offered a framework—a kind of score that critiques the institutional—that structured expectations in ways that allowed the artists to act freely within highly regulated institutional contexts. The effect was to stimulate new ways of thinking within the routine (Douglas 2009).

CONCLUSION

The research that drives this paper began with a commonplace observation: music draws on the visual and vice versa. This led me to seek out examples of artists in both media whose work changes or is changed by such cross-media interventions. Many of these reference both drawing and the score. I was curious to know how such interventions were achieved and to what effect. These questions in turn revealed a tension between the cultural constructions through which activities of score-making and drawing secure value. By challenging assumed values, acting creatively with the material to hand, the artist opens up new possibilities for experience. In so doing, I believe, the artist constitutes and makes intelligible in very particular, grounded ways how, as human beings, we manage freedom.

Taking Latham's *Time based Roller with Graphic Score 1987* as an example, we experience a reconfiguring of the dynamic of artist/work/audience. Score—as a familiar construct within the domain of music—frames this structure in a particular and thoughtful way. What occurs is neither a musical score nor a drawing, though the conventions of both are present and active. By admitting a tension between the one and the other a new form emerges that impacts on all stages of the work: conception, making, presentation and reception, looping these activities across and between author/audience. This score is not a representation of what already exists but rather a movement towards an outcome that has the potential to exist. [Fig. 4] The balancing between determined and indeterminate elements tilts our perception towards the world of immediate experience. It heightens that experience. This is a quality that is shared with George Brecht, Allan Kaprow, John Cage and others working a decade or so earlier than Latham. Their aims and activities opened up the visual/musical fields to increasing the potential for indeterminacy through experimentation underpinned by significant critical discourse (Kaprow's *Essays on the Blurring of Art and Life*, George Brecht's *Notebooks*, Cage's essays on *Composition as Process*, to name a few). They were named "research artists" for good reason.

Finally my aim is to take these insights and the deep mining of particular works into establishing /rethinking the nature of artistic experimentation in research. In a recent project, *Calendar Variations 2010–11*, I worked with a group of artist-researchers enacting one of Allan Kaprow's scores, *Calendar* (1971) (Kaprow 2003). The work challenged this diverse artistic research group to respond to the score both individually and as a group. The emergent body of work forms the content of an analysis of improvisation, to be developed with Kathleen Coessens in future. Improvisation has been a key concept through-

out my artistic practice and research career, and *Calendar Variations* is managed through the understandings that have emerged as a result.

What is important in this particular project is to rethink the interrelationship between activities, such as drawing and walking, and shifts in aesthetic understandings of art-making, feeding these insights back into the practice. The enactment of Kaprow's score is not an historical exercise but an opportunity to create within a context, as sole author and as a shared, social experience that acknowledges Kaprow's intentions for his scores and the variability that occurs when the score engages a new, different context (Kelley 2004). The artist-researchers who participated in *Calendar Variations* are well developed in their rethinking of artist, artwork, audience relationships. They have a perspective on art-making that is outwardly focused into the fields of ecology, farming, intercultural relations, public communication. This extended, expanded field of art-practice demands that we think through form-making in new ways, with the same intellectual rigor and creative intensity as is evident in Latham, among others, not least to avoid becoming consumed by discourses that are predominantly social, economic or political.

Understanding art-making as an incidence of managing freedom draws out a critical perspective that focuses on process and dynamic relations, with a potential for new possibilities for the forms themselves as well as how we understand them. In the final result we carry the responsibility as artists to keep in tension how we act and how we think and in so doing to retain the fresh and unexpected nature of the work.

> A composer knows his works as a woodsman knows a path he has traced and retraced, while a listener is confronted by the same work as one is in the woods by a plant he has never seen before. (Cage 1971, 7)

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Postlude

Kathleen Coessens

The richness of these contributions is tremendous. And it is with some humility that I offer a concluding text inspired by the breadth of the reflections and research.

> Gertrude Stein wrote, a hundred years ago, "Rose is a rose is a rose is a rose" (Stein 1922, 187).

What's in a rose? Is there more in a rose than what the rose is itself, more than the rose as a noumenon, as something which happens to be in this world, more than its intrinsic qualities and outer form? Is there emotion connected to the rose: tenderness, love? Is it the rose which arouses complex experience, visual pleasure linked with sweet haptic feelings and aesthetic apprehension? Or is it this strange human being who adds and creates a surplus of sensation, meaning and feeling by encountering a rose? Moreover, why does the word "rose" itself, even without the presence of the object, afford these complex experiences; why, in hearing the word, or reading the semiotic symbol, do I have complex perceptual sensations; why do I "see" a rose, a beautiful one, and why do I feel emotions, tender touch and hear sweetness, think about my lover, and even experience a fine odor?

Stein's work is a poem. James Tenney, musician and composer, wrote fifty years later a music score on it, called *A Rose Is a Rose Is a Round*. It is a composition that explores the idea of a round and of circularity, both in music and in notation. The melody contains 11 notes which are presented three times, using each time a different order of the three-word pattern: *A rose is / Rose is a / Is a rose*. By the repetition of these words, as in a canon, the music comes to resemble an infinite contrapuntal composition. The music plays with the notions of repetition and infinity implicit in the words of the poem, bringing the same, exploring still otherness and new significations.

Let us take the word "score" and substitute it for "rose": "Score is a score is a score is a score." What's in a score? Is there more in a score than what the score is itself, more than the score as a noumenon, as something which happens to be in this world, more than its intrinsic qualities and outer form? Is that what the rose in the poem—and the score in art—do? Make the invisible visible? Indeed the interrogation point of this book was the score, rather than the sound, even if the notion of sound was present: the score seemed the mysterious element to discover.

Human beings always have wanted to leave traces of their endeavors, artists even more. The score is one of such traces—a strange trace, because it is meant to reveal what it, in itself, is not. As a visual, two-dimensional trace of something which is neither two-dimensional nor visual, it is indeterminate and alien to the world it conveys. The score is a vehicle in a different space in which multisensorial transactions have to take place. It is part of another sensory world, a visual translation of totally different sensory and sensorimotor practices and events: music. The score in itself seems to be a poor thing. It is a channeled black-white trace which is not immediately understandable without a complex, expertise-sustained, multisensorial translation. But its poverty implies at the same time its richness. The indeterminacy of the score as a codification of other sensory worlds—the haptic and the aural—needs a process of dialogue, of semiotic dialectics, not only to convey its richness and its multisensorial references but also to enact something new, something experimental. Imagine a world which would have jumped from oral transmission to recorded transmission. What a pity for music and musicians! Even this book would have been meaningless.

A score lies in between a musical thought-Gestalt and the management of artistic freedom. It confines the frontiers of both, creating understanding and dissonance, inviting endeavor, discussion and artistic dynamics. It is thus more a layer of relation than of notation. As such, the score is a powerful example of the general human multi-perceptual and multi-modal way of making sense of the world:

> In our thinking, subconsciously or consciously, in our feelings, we constantly translate from one medium to another. This ability, and this fact of synaesthesia is essential for humans to understand the world (Kress 1997, xv).

The score invites the artist to negotiate between notions of the map and the terrain. It invites him or her on a journey, following a path, more or less defined, but the landscape and the experience will never be exactly the same due to human and natural dynamics.

By the way, "Rose is a rose is a rose is a rose" is but one phrase of Gertrude Stein's beautiful poem "Sacred Emily," written in 1913 and published in *Geography and Plays*. The poem—and I offer here a longer excerpt—questions still further the power of notation, sound and signification:

> Rose is a rose is a rose is a rose
> Loveliness extreme.
> Extra gaiters,
> Loveliness extreme.
> Sweetest ice-cream.
> Pages ages page ages page ages.
>
> (Stein 1922, 187)

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Virginia Anderson is a musicologist who specialises in British experimental indeterminacy, minimalism and alternative (graphic and text) notation. A PhD recipient from Royal Holloway, University of London, in 2004, she has lectured at several universities in Britain and the United States. She has written articles and chapters for a number of journals and books on experimental organology, time and listening, linguistics, language and politics, and British minimalist systems music. She is on the editorial board of the French journal *Tacet* and the Experimental Music Catalogue, editor of the peer-reviewed *Journal of Experimental Music Studies*, and she was a founding member of the Society for Musical Minimalism. Formerly a clarinet soloist who premiered over twenty new works for the Eb clarinet and other clarinets, she now specialises in experimental performance and free improvisation. She is currently recording an album with the free improvisation group CHA (for Bruce Coates, Christopher Hobbs, and Virginia Anderson), which is scheduled to be released in late 2013 or early 2014.

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Kathleen Coessens is a philosopher and artist, exploring the crossings of science and art, human creativity and cultural representations, embodiment and epistemology. She graduated in piano and chamber music in Paris and Brussels and subsequently studied philosophy, sociology and psychology. In her PhD in philosophy she investigated cartography and mapping as fundamental aspects of the human condition. She works as a professor and post-doctoral 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 Conservatory for music, dance and drama, Antwerp. She supervises PhD students and also teaches semiotics

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Jeremy Cox has been Chief Executive of the *Association Européenne des Consevatoires, Académies de Musique et Musikhochschulen* (AEC) since January 2011. Established in 1953, the AEC is a European cultural and educational network that, today, represents nearly 300 member institutions in 55 countries, including some 30 associate members in Asia, America, and Australia. Prior to this appointment, Jeremy had more than ten years' experience as Dean of the Royal College of Music in London, with overall responsibility for learning, teaching, and research in that institution. While there, he oversaw the review and modernisation of all the RCM's programmes at Bachelor, Masters and Doctoral level and led the College's preparation for the 2008 UK Research Assessment Exercise. Jeremy has been closely involved in European developments in higher music education since the start of the Bologna Process in 1999. He was the chief architect of the AEC's '*Polifonia*' Learning Outcomes, which are now widely used as reference points across the European higher music education sector, and has written AEC guides on Curriculum Design & Development and on Admissions & Assessment. From the time of his DPhil at Oxford University, Jeremy's personal research interests have been primarily focussed on Francis Poulenc and the *mélodie*. Poulenc's extensive activities as performer of his own music have also acted as the stimulus for a wider interest in how composers' performing activities mediate between the scores they publish and their inner creative conceptions.

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modern constructions of Brahms's "hale and hearty" Classicist canonic identity by encouraging the emergence of the corporeal and psychological conundrums more characteristically associated with Romantic pianism. Anna is currently pursuing a practice-based doctoral degree at the Orpheus Institute in Ghent 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), and she is also a doctoral artistic researcher at the Orpheus Research Center in Music (ORCiM).

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