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Those Little Things that Cannot be Reduced to the Whole that Make Art a Research (and viceversa). Composing-listening-playing Is the Same Kind of Thing

Abstract

Thinking of practice as ontologically more important than theory is an old question, but one worth mentioning. While much of the philosophy of the latter 20th century reminds us of this, in music this idea took some time to establish itself. Now we are there, and artistic practice seems to provide a range of methods and discoveries that, when listened to, profoundly transform musical knowledge. I therefore propose to begin from here and to think of artistic practice as the close observation of the small things that make up music, thinking that these things cannot be reduced to the whole. Now, one of the problems in today's music lies in the strange relationship we are taking for granted between sound and sign, forgetting that this relationship is made up of countless steps whose origin is the relationship with the instrument, the performer, reality and listening. Starting from a discussion on what a score is, I develop an artistic research project. In this text I will therefore try to relate reflection to compositional practice. Attempting to (re)activate the link between listening, composing and performing in our contemporary context, the function and role of the score is transformed. To do this, I propose a research axis with a tangible result, sonic scores.

1. Returning to practice is an old question (but one worth mentioning!)

The notion of practice has been back in popularity for some time now. In fact, looking at the philosophical and cultural context that characterises the end of the 20th century, the question of artistic research, also determined by the *Practice Turn* of the last thirty years, is a natural one. If by *Practice Turn* we mean the fact that music “produces its own socialities – in performance, in musical ensembles, in the musical division of labour, in listening, [...] animates imagined communities, aggregating its listeners into virtual collectivities or publics based on musical and others identifications [...] mediates wider social relations, from the most abstract to the most intimate”¹, thus, the traditional musical production defined by the creation and publication of the score and then its performance identifies a context similar to that of an assembly line. Musical practice and the critical perspective on it can then converge by highlighting the complex and contextual nature of the competitive act itself, opening it up to new perspectives of transmission and interpretative activity. In 2023 the boundaries between musicological and musical knowledge are profoundly reviewed, rethinking the role of the critic-musicologist and the musician in a dynamic way. Practice is a true form of knowledge that has just as much dignity as traditional academic understanding. Perhaps it is even more appropriate for our times.

¹ Georgina Born, ‘For a Relational Musicology: Music and Interdisciplinarity, Beyond the Practice Turn: The 2007 Dent Medal Address’, *Journal of the Royal Musical Association* 135, no. 2 (2010): 232.

This epistemological change accompanies the deconstruction of the assumptions of knowledge defined in the last century. Despite the resistance of certain musicologists², it is not strange to think that a musical work, after all, exists only when it is publicly presented and that this presentation depends on the choices of a performer and that therefore its very existence rests on an interaction, and intention, human and temporal.

According to Pierre Gosselin, artistic research is a method composed of four essential operations: questioning, exploring, understanding, communicating³. Musical practice has not always been associated with such a research method. In this new situation, which questions the existential and social complexity of the production of art works, art points out possible approaches to the various disciplines thanks to the transversality that characterises it. Consequently, one can use the practice to observe from the inside the process of producing the work of art by involving the artist and think of it as a model for developing knowledge. Musical creation is situated⁴, conceived and determined by a complex context within which the resulting work does not have precise boundaries with respect to the environment that accommodates it and allows its emergence⁵. Every musical passage and interpretative choice is the result of a human interplay reflected in the work. This approach concretely challenges theories, disciplines and shows their limits.

It is precisely what I will try to discuss in this article, identifying elements of reflection that seem pertinent to me and referring to my activity as a composer. I try to interrogate the function and essence of the score in today's music to overcome the traditional idea of it. I believe that the deconstruction of the score (which is not its destruction!), can contribute to reactivating the link between listening and the meaning of music, thus finding a renewed social function. One of the issues that has emerged quickly during my work as a composer and researcher is the problem of the relationship with writing. The score, which is the ultimate result of the composer's work, should express a musical thought in a transparent manner; however, I have learnt that such transparency does not exist and that transmission based on the graphic sign is anything but simple, binary or direct; is very articulate and there is no one-way relationship between thought and notation; indeed, I sometimes had the impression that it is from the graphic trace that the thought comes. I have concretely realised that "the gramophone record, the musical thought, the score, the waves of sound, all stand to one another in that pictorial internal relation, which holds between language and the world"⁶. This set of relations proposed by Wittgenstein does not include the performer's gesture and his instrument, and everything connected to it. If we think that the score is connected to this non-representational but concrete dimension of musical practice, perhaps we can see it in a new light. But how? There is no single or definitive answer to this question, but it is found in millions of varieties in every musical gesture, in every trait left on a device or on paper. Writing is ephemeral and reifies the flow of human interactions that lead to the birth of a musical work. Understanding this hypothesis makes it possible to rethink the centrality of the score and to give music the role it should have among people and human beings, as a motif of non-verbal and non-visual interaction and knowledge, which the score and the accompanying system limits. As a composer, I have learnt that the trace is as ephemeral as the sound. The score is in the becoming, a

² I am thinking in particular of the controversy over intersectional methodologies and *wokism* in France, explicitly supported by members of the Sorbonne Music Department and of the French government, who see this approach as a risk to the 'République': i.e. the conference "After deconstruction: rebuild sciences and culture", organised at Sorbonne Université in January 2022.

³ Pierre Gosselin, 'Méthodologies de Recherche-Création et Modalités Pour l'évaluation de La Compétence à créEr Des Étudiants Des Collèges et Des Universités', in *Définir l'identité de La Recherche-Création. État Des Lieux et Au-Delà*, ed. Grazia Giacco et al. (Louvain-la-Neuve: EME Éditions, 2020), 142.

⁴ Nicolas Donin and Jacques Theureau, 'L'activité de Composition Comme Exploitation/Construction de Situations', ed. Anne Sedès, *Intellectica* 48–49, no. 1 (2008): 175–206, <https://doi.org/10.3406/intel.2008.1245>.

⁵ Jacques Theureau and Nicolas Donin, 'Comprendre Une Activité de Composition Musicale : Essai Méthodologique Sur Les Relations Entre Sujet, Activité Créatrice, Environnement et Conscience Préréflexive.', in *Sujets, Activités, Environnements, Approches Transverses*, ed. Jean-Michel Barbier and Marie Durand (Paris: Presses Universitaires de France, 2006), 221–51.

⁶ Ludwig Wittgenstein, *Tractatus Logico-Philosophicus* (London: Kegan Paul, Trench, Trubner & Co., Ltd., 1922), para. 4.014.

possible action, a gesture born at a certain moment. The score is an open-ended object⁷. If art is a method, this method determines the value of the very elements that characterise artistic practice. Questioning through compositional practice the openness inherent in the score enables the virtuous circle of listening, composition and performance, brutally interrupted by the assembly line that characterises modern music production. This allows the development of a critical perspective and new knowledge about music as an act.

2. Subscendence and immergency

Art offers a knowledge, a “non-savoir”⁸. It develops such knowledge to the extent that it shows awareness of existing in a context. Indeed, artistic research starts from the assumption that knowledge cannot and must not have one and only one form:

Since it is clear that a sonic or a visual artwork can sometimes transmit knowledge in non-verbal and non-numerical terms, we believe that any definition of knowledge needs to acknowledge these non-verbal forms of transmission. It also must include the idea that knowledge is itself often unstable, ambiguous and multidimensional, can be emotionally of affectively charged, and cannot necessarily be conveyed with the precision of a mathematical proof.⁹

To proceed in this manner, one must accept the limitations of a “topical knowledge”¹⁰, which is characterised by two elements: the integration of the “blind spot” – the researcher cannot see everything and what he sees is determined by his situation and position – and “the acceptance of his finitude”¹¹. One must think of works of art as “explorations”¹². Art-research is a “non-place of knowledge, in the sense that it allows one to remove oneself from pre-existing research contexts by authorising oneself to rethink research outside of these contexts, [...] thus offering asylum to all creation-driven researchers”¹³. In fact “if the objects of musicological research are no longer the finished work, its sketches, its final score, its recording [...], but the process itself, the performance, the act of interpretation and creation, [...]”¹⁴ art research is a “specific field of activity where practitioners actively engage with and participate in discursive formations emanating from their concrete artistic practice.”¹⁵ Music is no more a “thing”, a “product”, but a “process”¹⁶. After all, to think of musical works independently of their interpretation is an absurdity, let alone apart from the sound produced:

⁷ Eric Maestri and Pavlos Antoniadis, ‘Notation as Instrument: From Representation to Enaction’, in *TENOR 2015. International Conference on Technologies for Music Notation and Representation*, 2015, <https://halshs.archives-ouvertes.fr/halshs-01644074>.

⁸ Marie-Pierre Lassus, *Le Non-Savoir. Paradigme de Connaissance* (Louvain-la-Neuve: EME Editions, 2019).

⁹ Hazel Smith and Roger T. Dean, *Practice-Led Research, Research-Led Practice in the Creative Arts (Research Methods for the Arts and Humanities)* (Edinburgh University Press, 2009), 3.

¹⁰ Christine Esclapez and Grazia Giacco, ‘Créer Ou Ne Pas Créer : Pour Une Relocalisation de l’approche Musicologique Dans l’espace de La Recherche-Création’, in *Définir l’identité de La Recherche-Création. État Des Lieux et Au-Delà*, ed. Grazia Giacco et al. (Louvain-la-Neuve: EME Éditions, 2020), 117.

¹¹ Esclapez and Giacco, 117.

¹² Christine Esclapez, *La Musique Comme Parole Des Corps* (Paris: L’Harmattan, 2007), 27.

¹³ Grazia Giacco et al., eds., *Définir l’identité de La Recherche-Création. État Des Lieux et Au-Delà* (Louvain-la-Neuve: EME Éditions, 2020), 7.

¹⁴ Esclapez and Giacco, ‘Créer Ou Ne Pas Créer : Pour Une Relocalisation de l’approche Musicologique Dans l’espace de La Recherche-Création’, 119.

¹⁵ Paulo de Assis, *Logic of Experimentation: Rethinking Music Performance through Artistic Research*, Orpheus Institut Series (Leuven: Leuven University Press, 2018), 12.

¹⁶ Nicholas Cook, ‘Between Process and Product: Music and/as Performance’, *Music Theory Online*, 2001, <http://www.mtosmt.org/issues/mto.01.7.2/mto.01.7.2.cook.html>.

if the transcendence and permanence of musical works was not some kind of inherent quality but an effect of social or ideological construction, it followed that music was to be understood as in essence less a product than a process, an intrinsically meaningful cultural practice, much in the manner of religious ritual. Indeed, one might think of twentieth century WAM musicians and audiences as jointly “performing” music’s autonomy, through the ritual of the concert hall, in the same sense that the royal chapels and courts of the seventeenth century “performed’ monarchy”.¹⁷

Cook tries to make it clear that the supposed transcendence of musical works is actually linked to the immanence of human relations and their processual aspect; music is the fruit of such relations, existing in time and space and bound by such contexts. However, in teaching and in many people’s representation, music can seem like something extremely abstract. Conservatoire-grown performers know this very well. In contemporary music, one experiences the paradoxes that arise from this idea. Many performers find contemporary music interesting because, finally, they are with the composer and they can speak to her, rather than just dealing with dead authors. The fact that only music of dead people is played, makes one reflect on the social manipulation and construction that underlies this practice, which to many seems natural but to me seems totally absurd, the sign of a certain psychosis. If the authors being performed are almost all dead, thinking of music as an abstraction is normal. Music, on the other hand, has its own immanence, which cannot be bracketed without totally denaturing it. Music is now, and it is played. A composer would never think that what he writes is a law; he writes it because he has to, and the incidence and success of today’s electronic devices, which write automatically, proves that graphical writing is one of many ways to fix music and is perhaps destined to decline in importance in the future. Music is a dialogic act¹⁸, it responds to a communication problem¹⁹. In this set of communication practices, music writing cannot replace their main objective, which is to make instruments play and to share sound with all its semantic, cultural and historical significance. Being able to interrogate this aspect of musical reality through artistic research underlines the processual, personal, intimate and provisional aspect of the musical work; not only, it studies it, thinks about it, considers it epistemologically and methodologically as fundamental. If Cook refers to transcendence in a provocative manner, we suggest to replace this term with a more recent idea, which takes into account the process of deconstruction taking place in our era in order to connect it to all the other issues of today’s culture. Using a term introduced by Tim Morton, one can think of artistic research as a subscentent process²⁰. Subscentence is

the inverse of “transcendence”, while “immanence” is its opposite. Unlike immanence, subscentence evokes an ontological gap between what a thing is and how it appears, or between a thing and its parts. Play is subscentence, connecting me with the Lego brick, the lichen, the activist network, the microbiome, the melting glacier. We are less than the sum of our parts; multitudes teem in us.²¹

Morton thinks of subscentence as a journey towards the parts that make up the whole, thinking that they are irreducible to their sum. It is a matter of conceiving the components of the organism as irreducible to the organism itself; the notion of the whole as emergence, is a deduction similar to that of thinking of the small beings that inhabit the environment as irrelevant, or of conceiving the small gestures of a composer or a performer as something unimportant with respect to the final work.

¹⁷ Cook.

¹⁸ V. Kofi Agawu, ‘Music Analysis versus Musical Hermeneutics’, *The American Journal of Semiotics* 13, no. 1–4 (1996): 9–24.

¹⁹ V. Kofi Agawu, *Playing With Signs. A Semiotic Interpretation of Classic Music* (New Jersey: Princeton University Press, 1991), 3: “How do composers reach their audiences? If we accept as valuable the traditional distinction among composers, performers, and listeners—roles that are not mutually exclusive of one another—then we might say that the search for an answer to this question forms an essential component of the activities of various musicians, irrespective of their individual callings as historians, theorists, analysts, and critics”.

²⁰ Timothy Morton, *Dark Ecology. For a Logic of Future Coexistence* (New York: Columbia University Press, 2016), 116.

²¹ Morton, 116.

Instead, these small beings or small gestures are the basis of those things we call musical works, rather than the application of secret strategies, improbable calculations or even genius spirits. It is crucial to free these tiny, insignificant gestures. The sensibilities involved in a constant relationship with sound matter, in the case of music, provoke reactions in the person who attends such material. The public presentation of the musical construction, which emerges from this intimate relationship and is irreducible simply to the work as a whole, is based on external, contextual elements, which harness creation but which in turn can be moved by a strong creative act. For Morton, we must not think of emergency, but of *immergency*, of entering the whole to touch its parts, to grasp its Lego bricks. Morton claims that

[...] things exist in a profoundly “withdrawn” way: they cannot be splayed open and totally grasped by anything whatsoever, including themselves. You can’t know a thing fully by thinking it or by eating it or by measuring it or by painting it . . . This means that the way things affect one another (causality) cannot be direct (mechanical), but rather indirect or vicarious: causality is aesthetic.²²

Music allows one to learn the aesthetic part of sounds. Music provides knowledge about many things: sounds, the energies that release them, listening, forms in time, instruments, matters, etc. It seems to me that artistic practice, as it unfolds, reminds us how every detail of the whole cannot simply be traced back to a larger entity: is a subscendent practice, linked to the individual experience, then presented in a fictitious manner in a seemingly coherent whole. It is a matter of going through and feeling the details, of experiencing and perceiving them, of conceiving, as Christine Esclapez suggests, the finitude of knowledge and the act that underlies it: “the finitude is drastic because it is irreducible. I can’t bust through it”²³. Art, in its confrontation with the reality of matter, of meaning, of context, is the necessary antidote to all reductionism. One must pay attention to those little things that are not reducible to the whole and enhance them; one must (re)activate the listening-writing (composition)-performance circle, realising that it is the same act.

3. To compose: an act made up of small things that cannot be reduced to the act itself

Art is a practice that escapes current economic and social determinations, and the artist is not easily framed in the usual schemes. Contemporary and experimental music, trying in part to unhinge the assumptions and prejudices attached to music by working on alternative practices, has a relevant position in this non-economic economy. The dissemination of knowledge of human relations and the awareness that artistic practice proposes and provides can be the basis for a radically new way of thinking about the world and the politics. Art proposes the experience of using matter for expressive and cognitive purposes. It is that practice that is irreducible to abstract elements while remaining at the same time the basis of every possible abstraction, precisely because it interrogates the experience in a concrete, nominalistic manner. One can think of artistic creation as a “unconsummated symbol”²⁴. Music is “articulation, [...] not assertion; expressiveness, not expression. The actual function of meaning, which calls for permanent contents, is not fulfilled; for the *assignment* of one rather than another possible meaning to each form is never explicitly made. [...] such significance is implicit, but not conventionally fixed”²⁵. Music has a counterpart that cannot be fully known clearly and distinctly through words and written formulas. Music reflects its actors, who are not fully present but who unravel in different forms through the multiplicity of listening and creation practices: the artist is also a visitor and a listener, just as the listener is a composer. This reality is poorly concealed by the musical

²² Morton, 16.

²³ Morton, 16.

²⁴ Susanne Langer, *Philosophy in a New Key. A Study in the Symbolism of Reason, Rite, and Art* (New York: The New American Library, 1948), 195.

²⁵ Langer, 195.

practice of the modern era. Art is a process of “forming and sharing meanings”²⁶, “an exemplary field, representative of the forms that human beings abstract from that chaos of sensations-events-emotions that constitutes the vital relationship with the environment [...] and which, if shared, transform the chaos into a *mundus*: an organised space endowed with meaning, a place where shared meaning makes communication and the encounter between men possible”²⁷. It is precisely the kind of forms that music can provide access to that allow for a sensitive understanding of the reality in which we live and act. This organisation is fundamental to all knowledge and results from the artistic act. Hence, instead of proceeding from the part to the whole, it is necessary to think that the whole is not attainable and that instead of thinking of the emergence of a new entity, it is better to understand the immergence in its infinite possible parts. The parts of music are sounds, signs, gestures, instruments, musicians, institutions, concert halls, etc. One poetics could be to mobilise this complexity by moving its bricks without thinking of joining its totality. In this, technology can help.

3.1. Signs as action

The musical languages resulting from the use of new technologies and the broadening of the timbral potential available to composers²⁸, is at the origin of current transformation of compositional approaches. The process of structuring modern society has shaped musical practice, segmenting its elements and giving them a function in an assembly line. The writing, realisation, dissemination and publication of a score is an important aspect of this process. Writing strongly characterises the European musical tradition and has undergone a remarkable development in the last century, to the point, with informatics and the web, of entangling human reality in many points²⁹. It was precisely this latter development that brought writing to such a limit that new forms of orality were created. And if this assembly line has no more sense today? The score rests as a simulacrum. Contemporary music shows the fragile, aleatory nature and substantial openness of the traditional notion of a score, as well as the fact that it is the result of negotiations that go far beyond the composer’s mind. Artistic research fits into this historical process showing its subtle articulation through the interrogation of practice. This offers the occasion to deconstruct the traditional compositional approach by deepening and sharing knowledge of the practice of composing and by activating the listening-composition-performance nodes, showing that this tripartition can be perfectly unbalanced in its three elements – sound ecology, for instance, shows that listening can be more important than composition or performance³⁰. Charles Seeger thought of composition as a “function in a context of functions”³¹. These functions depend on materials (objects, matters, which are used for living and for producing sound signals), which are selected and processed in accordance with cultural and social traditions in order to make them usable for practical purposes such as protection, communication and play, by people capable of doing so. This elaboration serves, for Seeger, to structure culture by providing material evidence of values and their continuity, as well as to exemplify and conceptualise, for the members of a given community, the value of the continuity and variety of culture and its potential³².

Anne Veitl proposed a model for understanding the main characters of a contemporary score. When faced with the problem of indicating the salient elements of 21st century notation, that is, the notation defined by the digital technologies, the French researcher listed some precise characteristics. In the context of digital technologies, the score does not merely indicate a set of gestures or provide information, but acts, performs directly when the writing is written on a computer medium. The fact that writing produces sound, i.e. sound synthesis, is a major revolution. Turning numbers into sound

²⁶ Lucia Demartis, *L'estetica Simbolica Di Susanne Katherina Langer* (Palermo: Centro Internazionale Studi di Estetica, 2003), 7.

²⁷ Demartis, 7.

²⁸ Joel Chadabe, *Electric Sound. The Past and Promise of Electronic Music* (New Jersey: Prentice Hall, 1997).

²⁹ Maurizio Ferraris, *Documentalità. Perché è Necessario Lasciare Tracce* (Roma-Bari: Laterza, 2009).

³⁰ Raymond Murray Schafer, *The Soundscape. Our Sonic Environment and the Soundscape* (Rochester: Destiny Book, 1977).

³¹ Charles Seeger, ‘The Music Process as a Function in a Context of Functions’, *Anuario 2* (1966): 1–42.

³² Seeger, 36.

directly realises an age-old project that, thanks to informatics, has come to reality³³. For Anne Veitl, a writing system fulfils five conditions: materiality – a computer is based on a concrete entity, a hard disk; visibility – writing must be able to be seen and understood in its fundamental elements as well as defined in its differences; readability – a writing system must be characterised by elements that can be identified; performativity – it must be able to be executed; and finally, systemic character. A sixth condition is fundamental, causality: a writing system must be able to be at the origin of events that either correspond to their occurrence directly with the writing or can be realised at a future moment in relation to its trace³⁴. This reflection indicates how the material, performative and causal aspects determine what a score is in today's music. These aspects are new but are based on characteristics that already exist. Performance is a deferred writing, and viceversa. It is an ancestral theme that is re-emerging today: music is an agentive, intentional and contextual complexity³⁵. It is precisely from here that we must start to rethink the score and conceive it in an artistic research project³⁶.

I embrace the idea that music is not a thing, but

[...] an activity, something that people do. The apparent thing “music” is a figment, an abstraction of the action, whose reality vanishes as soon as we examine it at all closely. This habit of thinking in abstractions, of taking from an action what appears to be its essence and of giving that essence a name, is probably as old as language; it is useful in the conceptualizing of our world but it has its dangers. It is very easy to come to think of the abstraction as more real than the reality it represents, to think, for example, of those abstractions which we call love, hate, good and evil as having an existence apart from the acts of loving, hating, or performing good and evil deeds and even to think of them as being in some way more real than the acts themselves, a kind of universal or ideal lying behind and suffusing the actions.³⁷

The same goes for the act of composition. Compositions do not exist as objects in themselves, and performances are not just the last chain of production. According to Small, “performance does not exist in order to present musical works, but rather, musical works exist in order to give performers something to perform”³⁸. Consequently, a composition is not an entity defined once and for all, it is not an object, but an activity shared directly or indirectly. Musicking signifies “to take part, in any capacity, in a musical performance, whether by performing, by listening, by rehearsing or practising, by providing material for performance (what is called composing), or by dancing”³⁹. The act of musicking, as Small believes it to be, defines a series of relationships, which are the very meaning of the act itself. The meaning of music lies not only in the relationship between the sounds but also in the relationship between the people who make the performance real. These relationships are metaphors – i.e.

³³ Max Mathews, ‘The Digital Computer as a Musical Instrument’, *Science*, no. 3591 (1963): 553–57.

³⁴ Anne Veitl, ‘Notation Écrite et Musique Contemporaine : Quelles Grandes Caractéristiques Des Technologies Numériques d’écriture Musicale’, 2007, <http://www.tscimuse.org/biblios/veitl/technologiestechnologiesecrituremusicale.pdf>.

³⁵ Simon Emmerson, *Living Electronic Music* (Aldershot: Ashgate, 2007), 3.

³⁶ In the thinking behind electronic music, this issue appeared very early, perhaps because in instrumental music, the fact that it is played by musicians better conceals the structure behind it and the type of representation that emerges and its traditional assembly line. If we think of the compositions of Trevor Wishart, we understand that the problem of reference to a context that wants to be mobilised through sound experience is extremely present. In *Journey into Space* (1973), for example, Wishart tells a story, that of a hallucinatory day in which from a night's sleep the protagonist set off into space while listening to the radio in the car. This story mobilises the listener's experience and makes him a key player in the creation of the form. Most of the sounds used in this piece, if not contextualised, have no meaning: this context can only be understood by those who have experienced it! In this way we leave the abstract and enter the concreteness of a shared experience. *Aus den Sieben Tagen* (1968) by Karlheinz Stockhausen (1928–2007) as well as *Sonic Meditations* (1974) by Pauline Oliveros (1932–2016) also require active listening by the performers.

³⁷ Christopher Small, *Musicking. The Meaning of Performing and Listening* (Middletown, Connecticut: Wesleyan University Press, 1998), 2.

³⁸ Small, 8.

³⁹ Small, 9.

transformations! –, of ideal or thought relationships, as the participants in the performance conceive them⁴⁰. There is for Small a direct relationship, through music, between sounds, musicians and their environment:

[...] the way people relate to one another as they music is linked not only with the sound relationships that are created by the performers, not only with the participants' relation to one another, but also with the participants' relationships to the world outside the performance space, in a complex spiral of relationships, and it is those relationships, and the relationships between relationships, that are the meaning of the performance.⁴¹

Music as a practice is metaphorical for a series of relationships that cannot simply be connected, but must be experienced:

Metaphor is much more than the decorative “figure of speech” that we were taught to recognize at school. It is an important means by which we think about and apprehend the world. When we think metaphorically, we project patterns that derive from the concrete experience of our bodies and our senses onto more abstract experiences and concepts. The relations that our senses perceive between the parts and the concrete experience are equated with more abstract sets of relationships such as those of morals, ethics, social relations on both the large and the small scale, and the shapes of political power.⁴²

For Small, these relations are reified in objects that are as controllable as possible. This is a common procedure in our culture, which makes something extremely concrete seem like an abstract object, which instead results from mistakes, afterthoughts and wishes. Abstracting something has to do with the sacred and serves to create rituals in which we recognise and comfort ourselves. Here, the score has to do with this sacred aspect. The desires and afterthoughts of the creator are poured into an object that has very little chance of carrying the meaning originally intended, but which responds to its own logic, in which the listener plays a predominant role. It seems a sphinx, a pyramid. These logics are controlled as much as possible, and the artist must know this – moreover, he is among the few people who can participate in rituals consciously, precisely because it is the trained person who creates the objects of myth (even if this awareness is not enough widespread)⁴³. The compositional act must then take on the impossibility of defining once and for all how a piece sounds definitively. It is about thinking of composition as the preparation of future performances⁴⁴.

4. (De)constructing the score (and thus the author and thus the work itself and thus the structure that includes it)

The above analysis frames an artistic research project that is well summarised by Small's thinking, which invites us to think of musical works, and thus scores, not as entities in their own right, but as materials for performance. Now, experimenting with writings, sounds, forms, is a way of experiencing potential societies⁴⁵. To problematise art means to problematise relationships by taking a step forward from classical critical theory⁴⁶. While this research determines the musical interpretation, which emphasises the openness of the score and the interpretation, the necessary vitality that the performer

⁴⁰ Small, 13.

⁴¹ Small, 47.

⁴² Small, 102.

⁴³ Trevor Wishart, 'Sound Symbols and Landscapes', in *The Language of Electroacoustic Music*, ed. Simon Emmerson (London: Palgrave Macmillan, 1986), 53. Wishart ne è perfettamente consapevole: “Using people, objects and wild animals with a particular significance for the group, the myth illuminates more abstract relationships and categories of thought. At the same time the myth gains its power from its unfolding in time. The way the myth is told is of great importance”.

⁴⁴ Eric Maestri, 'Composition as an Act and Existential Trace', *Perspectives of New Music* 59, no. 1 (2021): 55–78.

⁴⁵ David Graeber, *Pour Une Anthropologie Anarchiste*, trans. Karine Peschard (Québec: Lux, 2018).

⁴⁶ Theodor Adorno, *Negative Dialectics* (Frankfurt am Main: Suhrkamp Verlag, 1970).

gives to the work by being an integral part of it, it can also show that from a compositional point of view, the traditional paradigm of the score must be rethought. I propose to think scores as a differed performance, and vice-versa, performances as differed scores⁴⁷.

In general, we think of instrumental music in an abstract way, as if the relationships between notes and timbres were constructed according to some rigorous and scientific rules. This is the effect that this music has created since its appearance in the 17th century. However, this process, with the emergence of notation then due to the music economic system – publishers! – and then its substantial dissolution in the 20th century, is a reification, a naturalisation of a cultural assumption that is arbitrary but sedimented over time. We look at the context in which the practice is implemented and how it is connected to it. If we think about it for a moment, what does the sound we hear of instrumental music represent? It evidently represents many things, potentially everything representable because there is the author's intention, the culture of production, the reception, etc. But, let's take a closer look, what does instrumental music denote? Here, instrumental music denotes instruments in the first place. The sounds we hear of pieces for solo instrument or instrumental ensemble, or even for choir or solo voice denote primarily the instruments and voice that are producing them. By denoting the instrument, it is its material and at the same time the body that produces the sound that appears – evidently, the more a listener knows about the instrument and the technique for playing it, the more she or he understands what it is all about. One can also conceive the workmanship of the instrument as well as its culture in a vague manner if one is not an expert. And, in turn, what does the instrument bear as signs? Its material and the intention of the instrumentalist. Now, if we accept this line of thinking, instrumental music speaks of instruments, denoting them, and notation is the instrument that enables the coordination and narration of this musical narrative made up of people and matter transformed into instruments. Notation allows one to annotate and then becomes the means of composing scores. The score is a hyper-instrument that allows the composition of a set of sounds that speak of the instruments and their being together: it allows to compose relationships⁴⁸. If we look even closer at what composition is, we realise that it is an activity that defines in advance how instruments are to fit together and how the sounds produced can be interesting, and thus give a certain sensitive (beautiful!) image of a certain human organisation⁴⁹. This togetherness determines a context of human interactions symbolised by the sounds as produced by the instruments. It is not the same for electronic music, which is a kind of secondary representation to instrumental music. But, many aspects remain similar. Similar with electronic music is in fact the ability to present relationships. In instrumental music, such relationships are real, in front of the listeners' eyes. The score is a way of organising, through sound, human beings in a certain order. It is about making them work together, for better or for worse. The ordinary, instrumental gesture Denis Smalley speaks of when indicating gestural substitutes is also evoked by instrumental music⁵⁰, which, through instruments – beautiful, refined objects that require to be played to reveal all their sonorous richness – creates timbral and melodic configurations. The combination of gestures, bodies, human intentions and listening creates sound. This sound envelops the action and offers an “aesthetic presentation” of it⁵¹. In this sense, music shows something and, in its

⁴⁷ This idea is very similar to that expressed again by Small: Small, *Musicking. The Meaning of Performing and Listening*, 200: "The pattern of relationships that is established during a musical performance and connects together its relationships, whether they be first-, second-, third-, or nth-order, models in metaphoric form, the pattern which connects us to ourselves, to other humans, and to the rest of the living world, and those are matters which are among the most important in human life. As in all human relationships the pattern is complex and often contradictory, and it is an image of our deepest desires and beliefs. If we would seek a reason for the central position that musicking occupies in human life"

⁴⁸ In this the idea of Charles Seeger mentioned above seems particularly right to me.

⁴⁹ Small, *Musicking. The Meaning of Performing and Listening*, 220. Here again Christopher Small has a fantastic intuition to understand the “sense of beauty” in music: “Our sense of beauty, [...] is by no means a free-floating or functionless source of pleasure but is an important element of the way in which we explore, affirm, and celebrate our sense of how the universe is put together and of how we relate to the other elements of it.”

⁵⁰ Denis Smalley, ‘Spectromorphology: Explaining Sound-Shapes’, *Organised Sound* 2, no. 2 (1997): 110.

⁵¹ Bernard Sève, ‘Utilisation et « présentation esthétique » Des Instruments de Musique’, *Methodos [En Ligne]* 11 (2011), <https://journals.openedition.org/methodos/2569>.

experimental form, shows the objects of its constitution with the hope that the listener will participate in the construction⁵². The project I propose brings together instrumental music and electronic music.

4.1. *The invisible sounds of the sonic scores*

The score is a trace that gives a set of coordinates to realise a performance: if this score, instead of being visual, is sonorous, what happens? How does eliminating the visual aspect of the score affect the performers' attitude to music, and how can forcing the performer to listen lead to a new situation for the composer-performer? Requiring the performer to listen rather than to read, what does this imply about artistic realisation and what does it reveal about the limits of our music and our way of thinking about it? How does the sound character that listening proposes put the performer in a strange dialogue situation?

The idea of interrogating the score and making it an object of artistic elaboration is based on the desire to formulate the spaces surrounding the music, between index and signification. It is thus a question of interrogating sound in its multiplicity, of making the players participate in the process they are performing. The idea of sonic score, which I developed independently of Sandepp Bhagwati⁵³, aims at resonating the performer's sound experience, pushing the limits of his acquired techniques in a new way. It is precisely listening and abstracting instrumental techniques from the practice of tablature and score that puts the musician in the position of having to rethink his approach to music and also his creativity. Thus, there are no definitive versions; they require listening and the invention of interaction strategies; in addition, they subvert the usual human-machine relationship, which demands the machine to invent according to algorithms from the interaction. Here it is listening that predominates, invention, timbre, human mobility and intuition. Creative strategies therefore emerge on the part of the musician: the performer becomes a composer through listening. In this sense, listening, composing and playing are assembled around an object, which is similar to the score, because it is always the same, but constructs the interaction in a totally open manner, more open than the written score while still placing well-defined constraints in terms of time but also sound and timbre. The composer must also shed control over the sound organisation and the work by seeing his work as the "preparation of materials for performance".

The audio file has many points of contact with a score: it is written somewhere, it is fixed and always the same; it can be replicated, sent, read. Ontologically, scores and audio files share many characteristics. I have been working on this in the last years, in a non-systematic way, following such intuitions during the composition of a few pieces of mixed music. Continuing my reflections on this kind of music, whose discourses are steeped in technological concerns, I have relied on my experience and understanding of the problem of the relationship between the musician and the electronics, which cannot be solved in a purely technical manner. Inspired by Karlheinz Stockhausen's *Kontakte* — for electronic sounds, piano and percussion (1958-1960) —, I became convinced that listening to electronic sounds can indicate new instrumental timbres to the interpreter. By listening and imitating, the performer creates his own part by interacting in a musical way with the electronics.

A first attempt was in a piece for instruments and electronics whose title is *Comme le vent c'est nu c'est de l'encre*, composed in 2019. In a recording session with wind instruments, I asked them to improvise over the composed electronic music. The musicians had to imitate the electronic passages in order to create a sonic fusion with the electronics. The performers followed the electronics and progressively adapted their performance to the sound heard. This experiment forced them to feel the electronic part, to interact with it and to invent ways of coexistence. This made them wonder how to invent the

⁵² Morag Josephine Grant, 'Experimental Music Semiotics', *International Review of the Aesthetics and Sociology of Music* 34, no. 2 (2003): 173–91.

⁵³ Sandepp Bhagwati, 'Elaborate Audio Scores: Concepts, Affordances and Tools', in *Proceedings of the 4th International Conference on Technologies for Music Notation and Representation* (TENOR 2018, Montreal, 2018).

relationship and gave me many ideas on how to write the instrumental part. At the time, I noticed that the musicians did not know how to relate to the sound object with their instrument. They have to improvise a bit, and not all classical performers can do that. Once this initial contact phase has passed, the musicians begin to tune their ears and enter into a mimetic relationship with the electronics. This leads to instrumental difficulties. Electronic sounds are very different from instrumental ones, see they are impossible to do with an instrument, and therefore cannot be easily realised. A certain instrumental frustration appears with the musician, which, however, at the same time motivates him to seek solutions that can, in certain cases, be very interesting in terms of timbre and gesture. In the same period, I wrote *Trans*, for tenor saxophone and electronics. Working with a soloist makes things easier for these kinds of experiments. I realise the electronic part and meet the saxophone player in studio. I ask him to imitate the electronic sounds and I record his improvisations. Then I integrate the improvisations in the electronic part and realise the instrumental one starting from the electronics⁵⁴. During this phase of work, I realized that this approach could be explored in greater depth. Sound scores are similar with non-idiomatic contemporary writings, i.e. by Klaus K. Hübler⁵⁵. Pushing the limits of the performer and the instrument, the musician must reinvent himself and be part of the composition. In this manner, a critical distance from the traditional musical approach is created, if the practice is carried out consistently, sounds are discovered, and negotiations take place between the musicians to achieve something unexpected; instrumental techniques can be extended with the fundamental contribution of the instrumentalist and a kind of new sharing emerges. The traditional assembly line is broken.

A more recent project, that is for the first time explicitly composed as a sonic score, is the piece *Metaction*, for flute, viola and harp (2021). This piece has never been performed and it was only possible to start to rehearse on the viola part. *Metaction* is a short electronic piece to listen to through headphones so that the performer could play on it, improvising, composing or transcribing the part. Those possibilities are conceived as part of the composition. It is an open work based on an open score. The instrumental part can be realized as the performer wishes. However, the file gives a shape and timbre to follow and imitate. This piece is in monophonic version, there is no specific composition on the inherent space of the piece or on its diffusion, because I thought of it diagrammatically – simplified contours, indices, “di-sounds”, François Bayle would say⁵⁶ –, i.e. as a kind of sonic ideogram (see Figure 1 for a graphical free representation). The performer follows the electronics and elaborates its part from listening. This electroacoustic score was created according to criteria that allow the instrumentalist to be able to approach it and understand its meaning through listening. In this way, I developed a piece that can be defined as hybrid, in the sense that it combines the criteria of the instrument – gestures, presence of pitches, variation of amplitude, etc. – with the electronic sound in the sense of timbre that brings together noises and pitches, the length of sounds held, etc. For instance, in the original sonic score, I ask the harp to play continuous sounds, or to the flute to play chords. These indications are impossible and force the performers to find instrumental solutions. The performer is confronted with a sound sequence in which the densities, timbres and harmonic elements are foregrounded. Recently I was able to work with a violist and researcher and the work is still ongoing; however, it is already possible to indicate some observations supported by this experience. The particular profile of the interpreter, in this case, helps the experiment. She is a musician and musicologist who reflects on art-research and pedagogy. Thus, she participates in the creative and research project understanding its fundamental objectives.

⁵⁴ Eric Maestri, ‘L’acte Compositionnel Comme Écoute Projective : Le Cas de *Trans*, Pour Saxophone Ténor et Électronique’, *Hybrid. Revue Des Arts et Médiations Humaines* 6 (2019): [En ligne].

⁵⁵ Klaus K. Hübler, ‘Expanding the String Technique’, in *Polyphony & Complexity (New Music and Aesthetics in the 21st Century)*, ed. Claus-Steffen Mahnkopf, Frank Cox, and Wolfram Schurig, vol. 1 (Hofheim am Taunus: Wolke Verlag, 2002), 233–44.

⁵⁶ François Bayle, ‘L’image de Son, Ou “i-Son” : Métaphore/Métaforme’, in *Musique Acousmatique, Propositions... ..Positions* (INA-GRM, Editions Buchet/Chastel, 1993), 97.

The violist-researcher I am working with has a classical musical training and has therefore developed in her instrumental practice a privileged relationship between vision, instrumental gesture and listening. What can be observed in this case, as in the other, is the initial exploratory moment, which determines a crisis and the need to act in order to seek solutions to arrive at the result. The first objective is to work mimetically with the electronic sound. The violist tries to imitate the electronic part and immerse herself in it, as if dubbing it. She transcribed the score using words and metaphors. To do this, the violist experiments with gestures and sounds and then notes them down after making a detailed and personal segmentation of the piece. She needs this annotation to construct her instrumental sequence, anticipate her gesture and interact effectively with the instrumental part. In this way the performer creates her part, she has to act creatively on her own. I did not intervene in any way during the elaboration. The idea is to leave the performer free to create by opening the doors of creation and not segmenting the process of listening-composing-performing as the structure of music in its economy of the last two centuries has always done – even though it finds a critical perspective in contemporary music. One has to force the performer, but also the composer, to look in a new way at all the little gestures, the little things that make up his or her store of knowledge. Electronic sound, in its alterity, allows this kind of journey through listening. This is precisely how, in my opinion, this type of work becomes interesting.

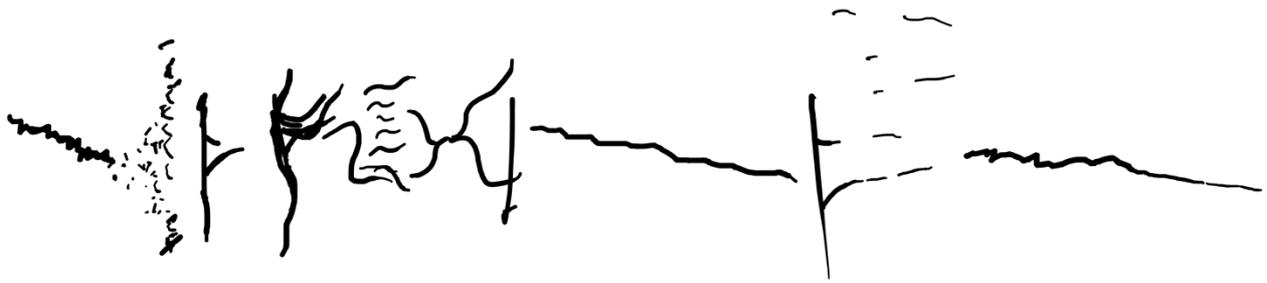


Figure 1 Eric Maestri, *Metactions*, graphical free transcription of the viola part.

In the Figure I have transcribed the part for viola. How does it sound to you when you look at it? If music can be seen in the continuum between environment and musical work, the hope is that by acting on the listening-composing-performing structure, one acts on the environment. By altering and opening up the performer’s listening-action perspectives, the dimension of music production is directly touched. In this way, the set of differences that characterise the relationship between work and environment can take another form. The “pattern which connects” evoked by Small, can be modified, updated, transformed:

[...] musicking is an activity by means of which we bring into existence a set of relationships that model the relationships of our world, not as they are but as we would wish them to be, and if through musicking we learn about and explore those relationships, we affirm them to ourselves and anyone else who may be paying attention, and we celebrate them, then musicking is in fact a way of knowing our world [...] and in knowing it, we learn how to live well in it.⁵⁷

⁵⁷ Small, *Musicking. The Meaning of Performing and Listening*, 50.

The sonic score is an intermediate dimension of notation, which gives constraints in terms of time and sound but leaves one totally free in terms of realisation and composition. They allow to invent new musical relationship based on aural experience. They disturb the usual structure of musical production, force us to rethink the relationship between gesture and listening and confuse the existing cards. In this way they in turn generate positive critical knowledge. Through the strangeness of the experience proposed, sonic scores allow participants to step outside their usual practice and immerse themselves in something totally new, which can generate unexpected instrumental, musical, compositional and analytical knowledge that is totally open to the experience of all those who will participate with an open mind in this type of exploration.

Bibliography

- Adorno, Theodor. *Negative Dialectics*. Frankfurt am Main: Suhrkamp Verlag, 1970.
- Agawu, V. Kofi. 'Music Analysis versus Musical Hermeneutics'. *The American Journal of Semiotics* 13, no. 1–4 (1996): 9–24.
- . *Playing With Signs. A Semiotic Interpretation of Classic Music*. New Jersey: Princeton University Press, 1991.
- Assis, Paulo de. *Logic of Experimentation: Rethinking Music Performance through Artistic Research*. Orpheus Institut Series. Leuven: Leuven University Press, 2018.
- Bayle, François. 'L'image de Son, Ou "i-Son" : Métaphore/Métaforme'. In *Musique Acousmatique, Propositions... ..Positions*, 93–101. INA-GRM, Editions Buchet/Chastel, 1993.
- Bhagwati, Sandeep. 'Elaborate Audio Scores: Concepts, Affordances and Tools'. In *Proceedings of the 4th International Conference on Technologies for Music Notation and Representation*. Montreal, 2018.
- Born, Georgina. 'For a Relational Musicology: Music and Interdisciplinarity, Beyond the Practice Turn: The 2007 Dent Medal Address'. *Journal of the Royal Musical Association* 135, no. 2 (2010): 205–43.
- Chadabe, Joel. *Electric Sound. The Past and Promise of Electronic Music*. New Jersey: Prentice Hall, 1997.
- Cook, Nicholas. 'Between Process and Product: Music and/as Performance'. *Music Theory Online*, 2001. <http://www.mtosmt.org/issues/mto.01.7.2/mto.01.7.2.cook.html>.
- Demartis, Lucia. *L'estetica Simbolica Di Susanne Katherina Langer*. Palermo: Centro Internazionale Studi di Estetica, 2003.
- Donin, Nicolas, and Jacques Theureau. 'L'activité de Composition Comme Exploitation/Construction de Situations'. Edited by Anne Sedès. *Intellectica* 48–49, no. 1 (2008): 175–206. <https://doi.org/10.3406/intel.2008.1245>.
- Emmerson, Simon. *Living Electronic Music*. Aldershot: Ashgate, 2007.
- Esclapez, Christine. *La Musique Comme Parole Des Corps*. Paris: L'Harmattan, 2007.
- Esclapez, Christine, and Grazia Giacco. 'Créer Ou Ne Pas Créer : Pour Une Relocalisation de l'approche Musicologique Dans l'espace de La Recherche-Création'. In *Définir l'identité de La Recherche-Création. État Des Lieux et Au-Delà*, edited by Grazia Giacco, John Didier, Sabine Chatelain, and Frédéric Verry, 107–32. Louvain-la-Neuve: EME Éditions, 2020.
- Ferraris, Maurizio. *Documentalità. Perché è Necessario Lasciare Tracce*. Roma-Bari: Laterza, 2009.
- Giacco, Grazia, John Didier, Sabine Chatelain, and Frédéric Verry, eds. *Définir l'identité de La Recherche-Création. État Des Lieux et Au-Delà*. Louvain-la-Neuve: EME Éditions, 2020.
- Gosselin, Pierre. 'Méthodologies de Recherche-Création et Modalités Pour l'évaluation de La Compétence à créER Des Étudiants Des Collèges et Des Universités'. In *Définir l'identité de La Recherche-Création. État Des Lieux et Au-Delà*, edited by Grazia Giacco, John Didier, Sabine Chatelain, and Frédéric Verry, 137–61. Louvain-la-Neuve: EME Éditions, 2020.
- Graeber, David. *Pour Une Anthropologie Anarchiste*. Translated by Karine Peschard. Québec: Lux, 2018.
- Grant, Morag Josephine. 'Experimental Music Semiotics'. *International Review of the Aesthetics and Sociology of Music* 34, no. 2 (2003): 173–91.
- Hübner, Klaus K. 'Expanding the String Technique'. In *Polyphony & Complexity (New Music and Aesthetics in the 21st Century)*, edited by Claus-Steffen Mahnkopf, Frank Cox, and Wolfram Schurig, 1:233–44. Hofheim am Taunus: Wolke Verlag, 2002.
- Langer, Susanne. *Philosophy in a New Key. A Study in the Symbolism of Reason, Rite, and Art*. New York: The New American Library, 1948.
- Lassus, Marie-Pierre. *Le Non-Savoir. Paradigme de Connaissance*. Louvain-la-Neuve: EME Editions, 2019.
- Maestri, Eric. 'Composition as an Act and Existential Trace'. *Perspectives of New Music* 59, no. 1 (2021): 55–78.
- . 'L'acte Compositionnel Comme Écoute Projective : Le Cas de Trans, Pour Saxophone Ténor et Électronique'. *Hybrid. Revue Des Arts et Médiations Humaines* 6 (2019): [En ligne].
- Maestri, Eric, and Pavlos Antoniadis. 'Notation as Instrument: From Representation to Enaction'. In *TENOR 2015. International Conference on Technologies for Music Notation and Representation*, 2015. <https://halshs.archives-ouvertes.fr/halshs-01644074>.

- Mathews, Max. 'The Digital Computer as a Musical Instrument'. *Science*, no. 3591 (1963): 553–57.
- Morton, Timothy. *Dark Ecology. For a Logic of Future Coexistence*. New York: Columbia University Press, 2016.
- Schafer, Raymond Murray. *The Soundscape. Our Sonic Environment and the Soundscape*. Rochester: Destiny Book, 1977.
- Seeger, Charles. 'The Music Process as a Function in a Context of Functions'. *Anuario* 2 (1966): 1–42.
- Sève, Bernard. 'Utilisation et « présentation Esthétique » Des Instruments de Musique'. *Methodos [En Ligne]* 11 (2011). <https://journals.openedition.org/methodos/2569>.
- Small, Christopher. *Musicking. The Meaning of Performing and Listening*. Middletown, Connecticut: Wesleyan University Press, 1998.
- Smalley, Denis. 'Spectromorphology: Explaining Sound-Shapes'. *Organised Sound* 2, no. 2 (1997): 107–26.
- Smith, Hazel, and Roger T. Dean. *Practice-Led Research, Research-Led Practice in the Creative Arts (Research Methods for the Arts and Humanities)*. Edinburgh University Press, 2009.
- Theureau, Jacques, and Nicolas Donin. 'Comprendre Une Activité de Composition Musicale : Essai Méthodologique Sur Les Relations Entre Sujet, Activité Créatrice, Environnement et Conscience Préréflexive.' In *Sujets, Activités, Environnements, Approches Transverses*, edited by Jean-Michel Barbier and Marie Durand, 221–51. Paris: Presses Universitaires de France, 2006.
- Veitl, Anne. 'Notation Écrite et Musique Contemporaine : Quelles Grandes Caractéristiques Des Technologies Numériques d'écriture Musicale', 2007.
<http://www.tscimuse.org/biblios/veitl/technologiesecrituremusicale.pdf>.
- Wishart, Trevor. 'Sound Symbols and Landscapes'. In *The Language of Electroacoustic Music*, edited by Simon Emmerson, 41–61. London: Palgrave Macmillan, 1986.
- Wittgenstein, Ludwig. *Tractatus Logico-Philosophicus*. London: Kegan Paul, Trench, Trubner & Co., Ltd., 1922.