



University of **HUDDERSFIELD**

University of Huddersfield Repository

Maida, Clara

For a "nanomusic" - Sound nanomachines and elastic space-time: A transversal approach to music composition

Original Citation

Maida, Clara (2016) For a "nanomusic" - Sound nanomachines and elastic space-time: A transversal approach to music composition. Doctoral thesis, University of Huddersfield.

This version is available at <http://eprints.hud.ac.uk/id/eprint/35193/>

The University Repository is a digital collection of the research output of the University, available on Open Access. Copyright and Moral Rights for the items on this site are retained by the individual author and/or other copyright owners. Users may access full items free of charge; copies of full text items generally can be reproduced, displayed or performed and given to third parties in any format or medium for personal research or study, educational or not-for-profit purposes without prior permission or charge, provided:

- The authors, title and full bibliographic details is credited in any copy;
- A hyperlink and/or URL is included for the original metadata page; and
- The content is not changed in any way.

For more information, including our policy and submission procedure, please contact the Repository Team at: E.mailbox@hud.ac.uk.

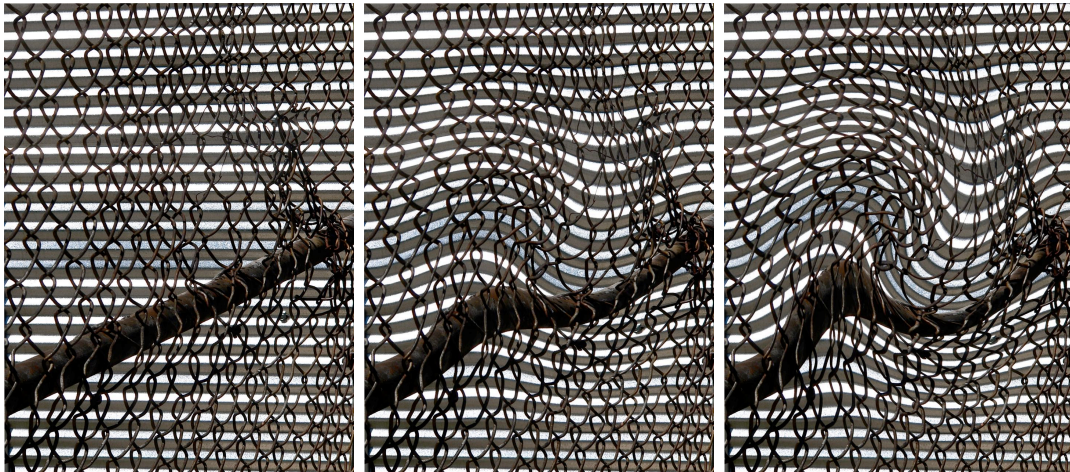
<http://eprints.hud.ac.uk/>

For a "nanomusic"

Sound nanomachines and elastic space-time

A transversal approach to music composition

Clara Maïda



Photographs: Clara Maïda - New York City, 2012

A thesis submitted to the University of Huddersfield
in partial fulfilment of the requirements for
the degree of Doctor in Philosophy

University of Huddersfield

CeReNeM, Centre for Research in New Music

September 2015

COPYRIGHT STATEMENT

- i. The author of this thesis (including any appendices and/or schedules to this thesis) owns any copyright in it (the "Copyright") and she has given The University of Huddersfield the right to use such Copyright for any administrative, promotional, educational and/or teaching purposes.
- ii. Copies of this thesis, either in full or in extracts, may be made only in accordance with the regulations of the University Library. Details of these regulations may be obtained from the Librarian. This page must form part of any such copies made.
- iii. The ownership of any patents, designs, trade marks and any and all other intellectual property rights except for the Copyright (the "Intellectual Property Rights") and any reproductions of copyright works, for example graphs and tables ("Reproductions"), which may be described in this thesis, may not be owned by the author and may be owned by third parties. Such Intellectual Property Rights and Reproductions cannot and must not be made available for use without the prior written permission of the owner(s) of the relevant Intellectual Property Rights and/or Reproductions.

ACKNOWLEDGEMENTS

This project was made possible thanks to Professor Liza Lim whom I would like to thank particularly for two reasons: first, for her invitation to do this doctoral research at the University of Huddersfield-CeReNeM, and secondly for her stimulating feedback, advice and support during this study, as well as for the esteem and interest she expressed towards my work. Without her proposal and her support, this thesis would not have been envisaged.

I also offer special thanks to my relatives and friends for the patience, encouragement, love and friendship they have so warmly given throughout this period of my life.

ABSTRACT

This thesis describes my transversal approach to composition and underlines how structuralist psychoanalysis, Deleuze and Guattari's philosophy, and areas of thinking in the nanosciences played a central role on my conceptions of space and time. My most original contribution lies in the endeavour to elaborate a malleable and evanescent musical matter in which micro-fluctuations exert their forces on macro-entities creating a musical space-time as elastic and mobile as that of the psychic unconscious. The pieces are conceived as cartographies of flux, fleeting constellations of sound particles whose migrations either interweave filaments in elastic and heterochronic textures or converge on an object. Small modular pendulums are the elementary figures of this ramified network. They connect to one another and permeate the musical matter. Time is multiple and pluridirectional. Jumps and rebounds, temporal gaps, *annunciative anticipation* and *retroactive reverberation* (Green), keep combining fragmentary elements which echo with one another and which allow the listener to perceive the work of time as a "compound of splinters", an assemblage of "quanta of memory", or a pure flow. Repetition has a paradoxical function, both favouring the identification of abstract gestures and their step-by-step mutation. Sound trajectories are envisaged as "pulsounds" and chains of "sonifiers", in reference to concepts of *pulsional* phenomena (Freud) or *signifiers* (Lacan).

This intersection between psychic topology and sound topography also investigates the structural potential of relationships between humans and urban environments. The addition of electronics, the use of both instrumental and mechanical or urban sounds, materialize a *transitional space* (Winnicott) with ambiguous boundaries between inside and outside, a hybrid sound territory, a *zone of indiscernibility* (Deleuze) between mind and machine, scream and noise, the organic and the mechanical. These evolving sound diagrams refer to nanotechnology's atom-by-atom engineering with its increasing crossing-over of animate and inanimate matters. Sound processes operate as quasi microscopic units grouped in transitory configurations under the action of forces, and with this perspective I have coined the term "nanomusic" to describe my musical project.

Keywords: Music & psychoanalysis; Deleuze & Guattari; Nanosciences; Transversality; Time nanoprocesses; Nanomusic; Musical genetics.

PORTFOLIO

LIST OF COMPOSITIONS

1 - Holes and bones for flute, clarinet, violin and cello - 1st part of **Order of release, border of relish**, 2002 (9'43)

EARPLAY DONALD AIRD PRIZE - Honorable Mention (USA, 2008).

SALVATORE MARTIRANO MEMORIAL 2nd Prize (USA, 2003).

Commissioned by the FRENCH MINISTRY OF CULTURE and ACCROCHE NOTE ensemble. Premiered on September 21st, 2002. *Musica* festival, Strasbourg, France. **ACCROCHE NOTE** ensemble.

Recording and score.

2 - ...who holds the strings... for string quartet - 2nd part of **Order of release, border of relish** and 1st part of **www**, 2004 (8'10)

Premiered on March 17th and 18th, 2004. Léonard de Vinci Opera, Rouen, France (*Les trente ans du quatuor Arditti*). **ARDITTI QUARTET**.

Recording and score.

3 - Fluctuatio (in)animi for flute, violin, viola, cello, double bass and electronics - 1st part of **Psyché-Cité/Transversales**, 2006 (13'42)

PRIX ARS ELECTRONICA - Honorary Mention (Austria, 2007).

Commissioned by the AKADEMIE DER KÜNSTE, Berlin, Germany. Residency at the Akademie der Künste and at the Studio für Elektroakustische Musik of the AdK, Berlin. Premiered on November 25th, 2006. Akademie der Künste, Berlin. **KAMMERENSEMBLE NEUE MUSIK**. Premiere's technical processing: Studio für Elektroakustische Musik of the AdK (**Andre BARTETZKI**).

Recording and score.

4 - Ipso facto for electronics - 2nd part of **Psyché-Cité/Transversales**, 2007 (9'34)

MUSICA NOVA - Finalist (Czech Republic, 2008).

Residency at the Electronic Studio of the TECHNISCHE UNIVERSITÄT, Berlin, Germany. Premiered on September 21st, 2007. *Fünf + 1* festival, Kleiner Wasserspeicher of Prenzlauer Berg, Berlin. Premiere's technical processing: Technische Universität.

Recording and no score (electroacoustic piece).

5 - Via rupta for flute, clarinet, trombone, violin, viola, cello, double bass and electronics - 3rd part of **Psyché-Cité/Transversales**, 2005 (8'55)

Commissioned by the FRENCH MINISTRY OF CULTURE and the GMEM. Residency at the GMEM, Marseille, France (live electronics - assistant: **Léopold FREY**). Premiered on May 21st, 2005. *Les Musiques* festival, Marseille. **ENSEMBLE ORCHESTRAL CONTEMPORAIN**. Conductor: **Fabiàn PANISELLO**. Premiere's technical processing: GMEM.

Recording and score.

6 - Mutatis mutandis for twelve amplified strings - 2008 (12'56)

Commissioned by the SACEM and *Klang!* festival (Netzwerk neue Musik, Kulturstiftung des Bundes, Hamburg). Premiered on September 28th, 2008. *Klang!* festival, Hamburg, Germany. **RESONANZ** ensemble. Conductor: **Stefan GEIGER**.

Recording and score.

7 - Doppelklänger for solo prepared and amplified piano - 2008 (13'37)

Commissioned by the Artists-in-Berlin programme of the DAAD. Premiered on July 25th, 2008. *Inventionen* festival, Berlin, Germany. **Heather O'DONNELL** (piano).

Recording and score.

8 - Shel(I)ter - später... () ...Winter for clarinet, bassoon, cello, three percussions and electronics - 1st part of **Shel(I)ter**, 2009 (14'40)

Commissioned by the FRENCH MINISTRY OF CULTURE and the GMEM. Residency at the GMEM, Marseille, France (live electronics - assistant: **Charles BASCOU**). Residency at the Electronic Studio of the Technische Universität, Berlin, Germany (realization of the electronic fixed part). Premiered on May 16th, 2009. *Les Musiques* festival, Marseille. **PERCUSSIONS DE STRASBOURG** and **NOUVEL ENSEMBLE MODERNE**. Conductor: **Lorraine VAILLANCOURT**. Premiere's technical processing: GMEM.

Recording and score.

9 - Shel(I)ter - seither... () ...Splitter & hinter... () ...Eiter for eleven amplified instruments - 3rd and 4th parts of **Shel(I)ter** (a piece in two parts), 2010 (12'04)

KOMPOSITIONSPREIS DER LANDESHAUPTSTADT STUTTGART - 1st Prize (Germany, 2011).

Commissioned by the FRENCH MINISTRY OF CULTURE and L'ITINERAIRE ensemble. DAAD/*Ultraschall* festival co-production. With the support of Impuls neue Musik (French-German fund for contemporary music). Premiered on January 30th, 2010. CLARA MAÏDA: PORTRAIT-CONCERT (DAAD). *Ultraschall* festival, Berlin, Germany. L'ITINERAIRE ensemble. Conductor: **Jean DEROYER**. Premiere's technical processing: **Sébastien NAVES**.

Recording and score.

10 - ..., das spinnt... for amplified string quartet - 2nd part of **www**, 2013 (9'50)

Commissioned by the FRENCH MINISTRY OF CULTURE and ARDITTI QUARTET. Premiered on November 15th, 2013. *Huddersfield Contemporary Music Festival*, United Kingdom. **ARDITTI QUARTET**.

Recording and score.

LIST OF COMPOSITIONS - RECORDINGS

1st CD - in corpore vili (DAAD/Edition RZ, 2010)

1 - Mutatis mutandis for twelve amplified strings (12'56)

2 - Fluctuatio (in)animi for flute, violin, viola, cello, double bass and electronics (**Psyché-Cité/Transversales 1**, 13'42)

3 - Ipso facto for electronics (**Psyché-Cité/Transversales 2**, 9'34)

4 - Via rupta for flute, clarinet, trombone, violin, viola, cello, double bass and electronics (**Psyché-Cité/Transversales 3**, 8'55)

5 - ...who holds the strings... for string quartet (**Order of release, border of relish 2, www 1**, 8'10)

6 - Doppelklänger for solo prepared and amplified piano (13'37)

2nd CD

1 - Shel(I)ter - später... () ...Winter for clarinet, bassoon, cello, three percussions and electronics (**Shel(I)ter 1**, 14'40)

2 - Shel(I)ter - unter... () ...Gitter for clarinet, bassoon, cello, three percussions and electronics (**Shel(I)ter 2**, 14'45)

3 - Shel(I)ter - seither... () ...Splitter & hinter... () ...Eiter for eleven amplified instruments (**Shel(I)ter 3 & 4**, 12'04)

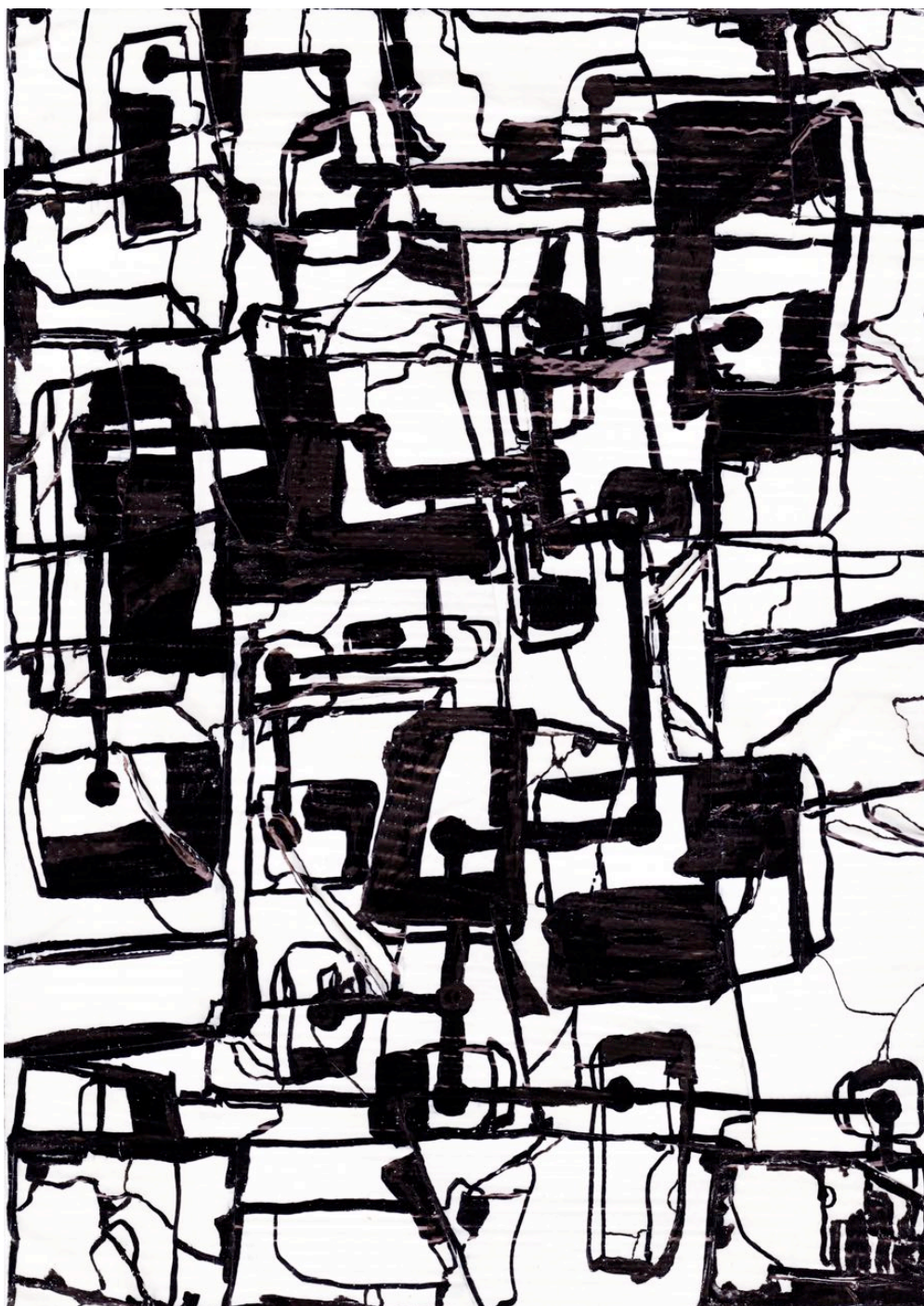
4 - ..., das spinnt... for amplified string quartet (**www 2**, 9'50)

5 - Holes and bones for flute, clarinet, violin and cello (**Order of release, border of relish 1**, 9'43)

CONTENTS

| | |
|--|------------|
| INTRODUCTION | 8 |
| Chapter 1 - MUSIC AND PSYCHOANALYSIS | 14 |
| 1.1 - THE TIME OF THE UNCONSCIOUS | 15 |
| 1.1.1 - Freud - <i>Mnesic traces, the Prägung and afterwardsness (Nachträglichkeit)</i> | 15 |
| 1.1.2 - Lacan - A network of mnesic traces, the <i>signifying network</i> | 16 |
| 1.1.3 - The <i>associative irradiation</i> (Green) and <i>reversive time</i> (Le Poulichet) | 17 |
| 1.1.4 - Repetition: a temporal crystallization or <i>identifying time</i> (Le Poulichet) | 18 |
| 1.2 - PSYCHIC PROCESSES AND SOUND PROCESSES | 19 |
| 1.2.1 - A constant rearrangement of sound traces | 19 |
| 1.2.2 - A "sonifying" figure, the pendulum, and its different functionalities | 25 |
| 1.2.3 - A "sonifying" network | 27 |
| 1.2.4 - Sound <i>Prägung</i> and <i>afterwardsness</i> | 28 |
| 1.2.5 - A multiple musical time: temporal modes or associative time | 30 |
| Chapter 2 - SOUND <i>DESIRING MACHINES</i> AND SOUND NANOMACHINES | 39 |
| 2.1 - DELEUZE AND GUATTARI: from a structural to a <i>machinic</i> unconscious | 40 |
| 2.1.1 - The <i>machinic unconscious, desiring machines and rhizomes</i> | 41 |
| 2.1.2 - <i>Territorialization, deterritorialization and becoming</i> | 41 |
| 2.2 - NEUROBIOLOGY AND NANOSCIENCES | 42 |
| 2.2.1 - The neuronal network | 42 |
| 2.2.2 - Nanosciences and nanotechnologies | 44 |
| 2.3 - TOWARDS A "NANOMUSIC" | 44 |
| 2.3.1 - PSYCHE-CITE/TRANSVERSALES - Sound hybridization and sound <i>rhizomes</i> | 45 |
| 2.3.2 - MUTATIS MUTANDIS - A "musical genetics" | 47 |
| 2.3.3 - SHEL(L)TER - Nanoprocesses | 50 |
| 2.3.4 - Relationships between micro- (or nano-) and macro-form | 55 |
| CONCLUSION | 61 |
| ARTICLES - ENGLISH TRANSLATION | 65 |
| Article 1 - ...ça écrit ça écrit ça écrit ça... (<i>Filigranes</i> n°6, Paris, Music Journal, 2007) | 66 |
| Article 2 - Für eine Nanomusik (<i>Neue Zeitschrift für Musik</i> , Berlin, Music Journal, 2011) | 77 |
| Article 3 - Worstsaid Ho, worstheard Ho (<i>Positionen</i> , 85, Berlin, Music Journal, 2010) | 84 |
| Article 4 - Instants-passages (<i>Cahiers Bleus</i> n°13, Review of Literature, Troyes, 2000) | 89 |
| SCORES AND BIBLIOGRAPHY | 96 |
| ARTICLES - ORIGINAL VERSION | 103 |

INTRODUCTION



Drawing: Clara Maïda, 2012

In short, the form of an object is a diagram of forces [...].

Thompson D. T. (1917), *On Growth and Form*¹

C'est ainsi que la musique doit rendre sonores des forces insonores, et la peinture, visibles, des forces invisibles. Parfois, ce sont les mêmes: le Temps, qui est insonore et invisible, comment peindre ou faire entendre le temps?

Deleuze G. (1996), *Logique de la sensation*²

Le rêve "démontre" l'existence d'un "temps éclaté", c'est-à-dire d'un temps qui n'a plus guère à voir avec l'idée d'une ordonnée selon la tripartition passé-présent-futur. En outre, si son contenu manifeste paraît obéir à une certaine linéarité, sans doute acquise du fait de l'élaboration secondaire, ce n'est qu'une apparence superficielle qui s'évanouit au moindre travail associatif.

Green A. (2000), *Le temps éclaté*³

I have chosen these three excerpts to introduce this text because they clearly indicate the poles around which my musical research gravitates: the relationships between forces (and flux), forms (and objects) and time. These dimensions are actually at work in any music, but each composer apprehends them in a particular order of hierarchy.

Besides, the disciplines in which the three quoted authors work - science, philosophy and psychoanalysis - underline the transversal approach that I have favoured. At first, I set a focal point between musical writing, psychoanalysis and neurobiology (the sound matter and the psychic or neuronal matter), with an opening on Deleuze and Guattari's philosophy for it refers to psychoanalytical thinking even if it casts a critical eye on some of its concepts. My interest in psychoanalysis and both philosophers might seem paradoxical, but I actually attempt to reconcile what they share despite their disagreements. Deleuze and Guattari returned to Freud's first fundamentals: the unconscious conceived as a factory which keeps assembling elements together. Their criticism is to be replaced in a historical context in which psychoanalysts were more and more using a preconceived reading (or listening) frame and did not question the socio-cultural origin of certain concepts (Oedipus complex, for instance). Both philosophers wished to carry further the freedom process (a *becoming*) that psychoanalysis had first allowed and then partially deviated from.

I then extended my spheres of interest to various scientific fields, including microbiology, genetics or nuclear and quantum physics (putting into perspective sound matter and cellular, chromosomal or particulate matter), i.e. the sciences of the infinitely small which now belong in the category of nanosciences, the latter having expanded ever more over the last thirty years or so.

¹ Thompson, D. W. (1917; 1945), *On Growth and Form*, The University Press, Cambridge, The Macmillan Company, New York, p. 16

² Deleuze, G. (1981; 1996), *Francis Bacon. Logique de la sensation*, La Vue le Texte aux Editions de la Différence, Turin, p. 39
English translation: Deleuze, G. (2003), *Francis Bacon. The Logic of Sensation*, translated from the French by Smith, D. W., Continuum, London, p. 57: "It is in this way that music must render non-sonorous forces sonorous, and painting must render invisible forces visible. Sometimes, these are the same thing: Time, which is non sonorous and invisible, how can time be painted, how can time be heard?"

³ Green, A. (2000), *Le temps éclaté (Fragmented Time)*, Les Editions de Minuit, Coll. "Critique", Paris, p. 11
English translation (Maïda): "Dream demonstrates the existence of a 'fragmented time', i.e. a time which has nothing more to do with the idea of an ordinate succession according to the past-present-future tripartition. Besides, if its manifest content seems to obey a certain linearity, probably acquired thanks to the secondary elaboration, it is only a superficial appearance that vanishes under the slightest associative work."

A kind of diagram is therefore presented here, extending its ramifications between the different axes of research that I am going to describe. It is interesting to note that regarding my way of apprehending some of the authors mentioned above, especially Deleuze and Lacan, a kind of retroactive loop occurred between my readings and my compositional production. At first, I "ingested" these thinkers' texts with an eventual partial intellectual comprehension. But this "ingestion" produced an effect: it generated new processes in my musical creation. Once I had composed a new piece, I was able to read again the same texts with an easier comprehension. This new reading catalysed again new musical processes.

In *Critical and Clinical*, Deleuze used a striking metaphor to express this way of reacting to the discovery of philosophical or artistic thinking. He put two texts into perspective: *The Anti-Christ* by Nietzsche and *Apocalypse* by D. H. Lawrence. According to Deleuze, Lawrence picked up Nietzsche's arrow and shot it elsewhere. The image of the *arrow* underlines that there is neither influence nor imitation but the continuation of a trajectory, of an arrow which can circulate between artists or thinkers if one of them "picks [it] up [...], and shoots it elsewhere" whatever domain he is involved in.⁴

Why should the different disciplines mentioned above and my musical writing be placed on a common ground?

If one distances oneself from a specific field of events, if one does not care about perceptible units as such, but if the attention is exclusively focused on the relationships that these units weave with one another, one can observe an underlying structure which goes beyond categories. What matters is that these minimal units, whatever they are (psychic *signifiers*, neurons, molecules or particles, sounds) undergo forces which cause them to link together, to assemble and form agglomerates, eventually objects, in a moving and complex network.

But what characterises a network structure? The connectivity of the units; the plasticity of the form; a multiple, pluridirectional time; an elastic space, whose formation of more or less dense zones or the superimposition of eventual strata keep modifying.

My musical research has been through three different stages.

During the first period, and more particularly in my triptych *Order of release, border of relish* (2002-04), a kind of existential quest when my psychoanalytical experience and the reading of books about this discipline were narrowly related to my questioning of musical language, I developed a certain number of concepts in order to throw a bridge between musical writing and psychoanalysis.⁵ From Freud's notions of *drive* (*pulsion*) and of *pulsional motion* (1905), I imagined "pulsounds" ("pulsions", in French) and "propulsounds" ("propulsions").⁶ I made the

⁴ I mention again Deleuze's metaphor in the conclusion of the thesis.

Deleuze, G. (1993), "Nietzsche et Saint Paul, Lawrence et Jean de Patmos", in *Critique et clinique*, Editions de Minuit, Paris, p. 60
English translation: Deleuze, G. (1998), "Nietzsche and Saint Paul, Lawrence and John of Patmos", in *Essays: Critical and Clinical*, translated by Smith, D. W., p. 37

⁵ *Order of release, border of relish*, a triptych for four instruments. First piece: *Holes and bones* for flute, clarinet, violin and cello (2002). Second piece: *...who holds the strings...* for string quartet (2004). Third piece: *Repeats, defeats* for oboe, clarinet, violin and cello (2003).

⁶ Freud, S. (1905; 1968), "Pulsions et destins des pulsions" ("Drive and The Destiny of The Drives"), in *Métopsychoanalyse* (*Metapsychology*), translated from the German by Laplanche, J. and Pontalis, J.-B., Editions Gallimard, Paris, pp. 11-43

In the whole text, I will use italics when I mention concepts developed by different authors (Freud, Lacan, etc.): *drive*, *signifier*, for instance. I will put between inverted commas the concepts I developed myself: "pulsound", "sonifier", "nanomusic", for instance.

Lacanian concepts of *signifier*, *signifying chain* or *signifying network* (1955-56) evolve towards the notions of "sonifier", "sonifying chain" and "sonifying (or sound) network".⁷ The *pulsional object* (Freud) described by psychoanalysis found its musical expression in the elaboration of evanescent objects tending to elementary figures, as abstract as possible, which thereby question representation.⁸

Additionally, three composers mostly influenced my musical writing in this period: Ligeti's polymetric textures made of superimposed gestural microelements whose numerical processes gradually transform the fluctuating layers;⁹ Xenakis' interdisciplinary thinking, his use of different scientific theories to elaborate sound masses;¹⁰ Lachenmann's reflections on *sound structures/structured sounds* and his approach to composition envisaged as the building of an instrument.¹¹

But Time is the focus of my preoccupations, and particularly the time of the psychic unconscious. The psychoanalytical journey places any individual at the heart of a time experienced in a singular way. It is a multiple time. The numerous associative threads by which the analysands allow themselves to be carried away break the discursive linearity of surface.¹² The latter is crossed through by interruptions, junctions, backward movements and resonance phenomena. When two fragments of speech rebound from one phoneme of a word to another, or from one element of a dream towards that of an experience, these sudden collisions open a new unexpected trajectory or make a crossroads emerge where a part of the unconscious can be caught. It is a complex temporal framework whose weaving keeps varying, by associating imaginary and real materials, fragments of memories or events taken from different times, particles or "quanta of memory". It is the time of dream, as it is reconstructed on awakening, and the time of analytical speech, which make us feel the temporal structure of the psychic unconscious. In this respect, I will call to mind Freud and Lacan, but also psychoanalysts A. Green and S. Le Poulichet who focused a part of their thinking on the time of the unconscious. The sound processes I developed are an attempt to recreate this unique experience of the *work of time in psychoanalysis*.¹³

⁷ Lacan, J. (1955-56; 1981), *Le Séminaire. Livre III. Les psychoses* (*The Seminar of Jacques Lacan. Book III. The Psychoses*), edited by Miller, J.-A., Editions du Seuil, Paris

Lacan, J. (1957-58; 1998), *Le Séminaire. Livre V. Les Formations de l'inconscient* (*The Seminar of Jacques Lacan. Book V. The Formations of The Unconscious*), edited by Miller, J.-A., Editions du Seuil, Paris

⁸ Freud, S. (1905; 1968), *Ibid.*

⁹ I was particularly impressed by the pieces that Ligeti composed in the 1960-70s, such as *Ramifications* (1968) or *Kammerkonzert* (1970), or by his writing in the *Studies for piano* (1985-94).

¹⁰ To give two examples, a few metrical aspects of *Holes and bones* have been inspired by the complex polymetry of the strata in *Pléiades* (1978). The mobile irradiative sound network in *Shel(l)ter* is a formalization of Xenakis' intuitive approach to this kind of form in *Anaktoria* (1969).

¹¹ See: Lachenmann, H. (2009), "De la composition" ("On Composition"), in *Ecrits et entretiens (Writings and Interviews)*, chosen and prefaced by Kaltenecker, M., translated by Donin, N., Kaltenecker, M., Lauxerois, J., Mannoni, O., Potzmanter, M., Saint-Amant, Y. and Szendy, P., Editions Contrechamps, Geneva

¹² The term *analysand* is the English translation of the French term *analysant* that Lacan preferred to the Freudian word, *patient*, in order to show the active part of the subject involved in a psychoanalytical process.

See: Lacan, J. (1966; 1970, 1971; 1999; 2002; 2006), *Ecrits. The First Complete Edition in English*, translated by Fink, B., in collaboration with Fink, H. and Grigg, R.W. Norton & Company, New York, London

¹³ Le Poulichet, S. (1994), *L'œuvre du temps en psychanalyse (The Work of Time in Psychoanalysis)*, Editions Payot & Rivages, Paris

Over a second period, in my series *Psyché-Cité/Transversales* (2005-07),¹⁴ I became interested in the relationships between the structure of psychic and cerebral space and that of urban space, sound creation being conceived as a kind of *transitional* or *potential space*.¹⁵ This term created by psychoanalyst D. W. Winnicott (1975) accounts for the fact that young children have not a very clear distinction between the ego and the non-ego, the internal and external realities. Space is an intermediate area of experience, in which the *transitional object* they need or play with (the corner of a blanket sucked, or a teddy bear, for instance) is both a projection of their subjective reality and the internalization of the external world. According to Winnicott, this *potential space* is between illusion and reality. It never disappears and is expressed in adulthood through cultural experiences, among which artistic creation.¹⁶

Referring to these concepts, I consider artistic works as a prolongation of these *transitional objects*. The psychic fantasies are no longer projected onto toys, as is the case for children who express their affects by playing with a doll, for instance, making it speak or act on their behalf. In adulthood, the fantasmatic world is now materialized into artistic objects. I experience musical writing as an intermediary state, the time of passage from my inner world, my Imaginary, to a perceptible production, as if I were externalizing a "piece" of my psyche, making it become... a (musical) piece.

Psyché-Cité/Transversales proposes this *transitional space*, this ambiguity of boundaries between inside and outside, but also a *zone of indiscernibility* (Deleuze) that is even more obvious if the attention is focused on the relationships between the objects and not on the objects themselves.¹⁷ That is why I decided in this series to use as models the subway structure (an urban organization) and the neuronal one (a cerebral organization) for they present the same kind of connective articulation and can meet therefore in a hybrid and ramified sound territory, a transverse space where organic and mechanical matters merge, a *zone of indiscernibility* between man and machine.

Over a third period, with the piece *Mutatis mutandis* (2008),¹⁸ the series *Kinêm(a)* (2008-12)¹⁹ and *Shel(l)ter* (2009-10)²⁰ or my last string quartet ..., *dass spinnt...* (2013),²¹ my interest focused on

¹⁴ *Psyché-Cité/Transversales*, a series for instruments and electronics. First piece: *Fluctuatio (in)animi* for flute, violin, viola, cello, double bass and electronics (2006). Second piece: *Ipsa facta* for electronics (2007). Third piece: *Via rupta* for flute, clarinet, trombone, violin, viola, cello, double bass and electronics (2005).

¹⁵ Winnicott, D. W. (1975), *Jeu et réalité, l'espace potentiel* (*Playing and Reality. Potential Space*), Editions Gallimard, Paris

¹⁶ Winnicott, D. W. (2010), *Les objets transitionnels* (*Transitional Objects*), Petite Bibliothèque Payot, Paris

Winnicott, D. W. (1953), "Transitional Objects and Transitional Phenomena. The Study of the First Not-Me Possession", *International Journal of Psychoanalysis* 34, pp. 89-97: "It is usual to refer to 'reality-testing', and to make a clear distinction between apperception and perception. I am here staking a claim for an intermediate state between a baby's inability and growing ability to recognize and accept reality. I am therefore studying the substance of illusion, that which is allowed to the infant, and which in adult life is inherent in art and religion [...]."

¹⁷ Deleuze evokes this *zone of indiscernibility* about Francis Bacon's painting in his book *Francis Bacon. Logique de la sensation*. Deleuze, G. (1981; 1996), *Francis Bacon. Logique de la sensation*, La Vue le Texte aux Editions de la Différence, Turin, p. 19

English translation: Deleuze, G. (2003), *Francis Bacon. The Logic of Sensation*, translated from the French by Smith, D. W., Continuum, London, p. 21: "In place of formal correspondences, what Bacon's painting constitutes is a *zone of indiscernibility* or *undecidability* between man and animal."

¹⁸ *Mutatis mutandis* for twelve amplified strings (2008).

¹⁹ *Kinêm(a)*, a series for four to seven amplified instruments (2008-12). First piece: *Kinê-Diffr(a)ct* for amplified flute, saxophone, guitar, prepared piano, percussion, violin and viola (2008). Second piece: *Kinêm(a)bstract* for amplified flute, saxophone, prepared piano and percussion (2012). The series is still in progress.

²⁰ *Shel(l)ter*, a series for ensemble and electronics. First piece: *Shel(l)ter - später... () ...Winter* for clarinet, bassoon, cello, three percussions and electronics (2009). Second piece: *Shel(l)ter - unter... () ...Gitter* for clarinet, bassoon, cello, three percussions and electronics (2010). Third and fourth pieces (a piece in two parts): *Shel(l)ter - seither... () ...Splitter & hinter... () ...Eiter* for eleven amplified instruments (2010).

²¹ *www*, a series for string quartet. First piece: *...who holds the strings...* for string quartet (2004). Second piece: *..., dass spinnt...* for amplified string quartet (2013). The series is still in progress.

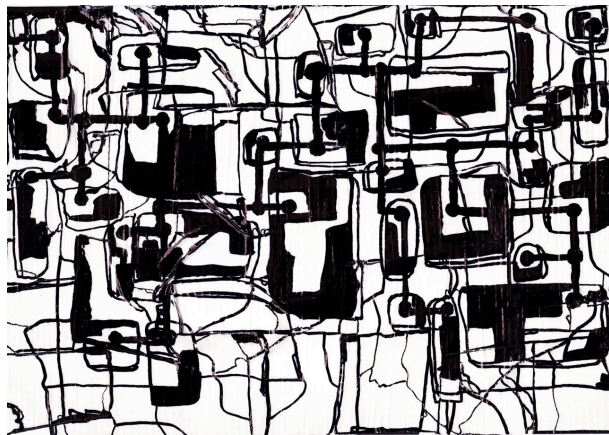
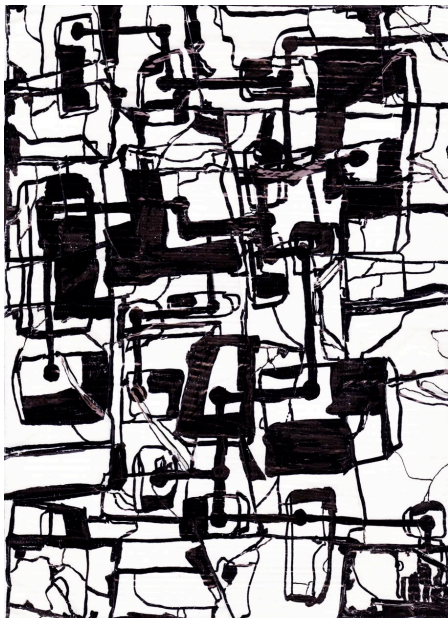
evolving diagrammatic structures in which configurations appear under the action of forces extended to the study of microscopic phenomena. In the psychoanalytical field, Freud named *driving forces* (or *drive*) the flow of psychic forces that connect mnesic traces to one another. Neurobiology has described how the propagation of electrochemical signals, the synaptic currents, the excitability of the neurons and their connectivity, generate the activation of varying areas of the brain.²²

Considering the impact that trajectories of minimal units have on sound matter and forms, I turned towards other fields of research: microbiology and genetics (cellular life and the structure of the chromosome), nuclear and quantum physics (wave-particles and the oscillatory nature of any physical system, including sound), and nanosciences. The latter, which came into prominence in the 1980s, refer to the nanometre scale (a billionth of a metre) and study the supramolecular structure of matter. Nanotechnologies elaborate objects with what they define as a *bottom-up* approach. It consists of assembling elementary constituents (atom by atom) so as to build ever more complex agglomerates.²³

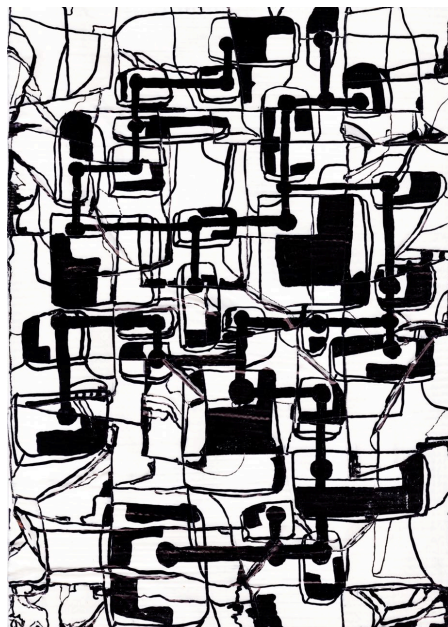
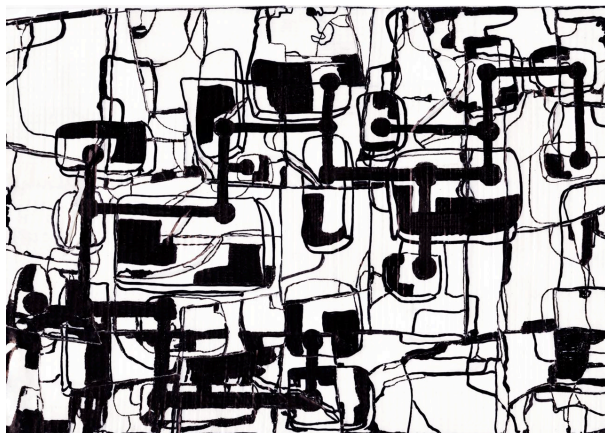
From a musical perspective, such an approach allows one to operate on a multitude of "nanoprocesses" which, because of their tiny variations, influence the sound matter in a very subtle way. Writing does not work block by block, but "sound particles" connect to one another, forming "sound molecules" which proliferate and whose trajectories keep modifying the form of the piece as a whole. Considering that the nanotechnological building of objects and the elaboration of sound objects in my pieces have a similar structural basis, I named my music "nanomusic".

²² Changeux, J.-P. (1983), *L'Homme neuronal (Neuronal Man: The Biology of Mind)*, Hachette Littératures, Coll. "Pluriel", Paris

²³ Houdy, P. (April 21, 2008), "La révolution des nanotechnologies" ("The Revolution of Nanotechnologies"), *Futura-Sciences* (online), available at: <http://www.futura-sciences.com/magazines/high-tech/infos/dossiers/d/technologie-revolution-nanotechnologies-790/>



Chapter 1 - MUSIC AND PSYCHOANALYSIS



Drawings: Clara Maïda, 2012

1.1 - THE TIME OF THE UNCONSCIOUS

Before writing this text, I had a kind of non-musical impulse which urged me to reopen a diary that I have been writing since 1991. I was curious to read, with hindsight, with the distanciation that time allows, in which terms I had been formulating my artistic preoccupations while I was deciding to venture into musical writing. It is not an ordinary diary in which daily facts or various thoughts are recorded. It is the diary of my own psychoanalysis in which I wrote the content of my meetings with the analyst, dreams, and the associations related to the psychic material enounced.

To my great surprise, I found an account of a dream made about twenty years ago (and since then forgotten), but which was anticipating by five or six years the elements of my musical language before they consciously appeared.

In one part of the dream, I was standing in a space where my body was crossed through with abstract, geometrical, mostly triangular figures, with sharp angles, as well as by graphics evoking crescendos and decrescendos. In another part of the dream, a person was playing Chopin's *Revolutionary Study*, Op. 10 n°12 in C minor.

The abstract triangular figures of the first part of the dream and their trajectories call to mind the sound materials and processes of a great number of my pieces (I will describe them later). And the title of Chopin's work which is performed in the second part of the dream can be considered as a kind of artistic ideal, my ultimate goal: I experience the writing of each new piece as an attempt at an internal revolution, aiming to move, piece by piece (atom by atom?), what is jammed in the "psychic machine", to restore its mobility, a possible opening on new affective and intellectual circuits.²⁴

I am now going to describe a few psychoanalytical notions which had an important impact on my musical writing.

1.1.1 - Freud - *Mnesic traces, the Prägung and afterwardsness (Nachträglichkeit)*

As early as 1895,²⁵ Freud foresaw the heterochrony of the psyche and a plural and pluristratified memory: nothing is forgotten, *mnesic traces* persist in the unconscious.²⁶ If the traces of an event, which broke in a subject's psyche, acquire no meaning, they are not integrated into their verbalized system. If for various reasons, for instance, the psychic immaturity when it happened, or the traumatic character of the affect, these traces remain inaccessible to consciousness. But they do not disappear and they are continually rearranged by the proliferation of their associations with more recent traces. If an incident happens later on and includes an element which resonates

²⁴ I briefly evoked this position towards creation in my article "Worstsaid Ho, worstheard Ho" written in 2010.

Maïda, C. (November 2010), "Worstsaid Ho, worstheard Ho" (French title: "Cap au dire, cap au ouïr"), *Positionen*, 85. *Texte zur Aktuellen Musik*, "Schreibkrise?", Nauck, G. (ed.), Verlag Positionen, Berlin, pp. 37-39

²⁵ Freud, S. and Breuer, J. (1895; 1956; 1996), *Etudes sur l'hystérie (Studies on Hysteria)*, translated from the German by Berman, A., PUF, Paris

Freud, S. (1887-1902; 1956; 2002), "Lettres à Wilhelm Fließ" ("Letters to Wilhelm Fließ") and "Esquisse d'une psychologie scientifique" ("Project for a Scientific Psychology"), in *La naissance de la psychanalyse (The Birth of Psychoanalysis)*, translated from the German by Berman, A., PUF, Paris

²⁶ Psychoanalyst Le Poulichet describes this kind of memory in her book *L'œuvre du temps en psychanalyse*.

Le Poulichet, S. (1994), *L'œuvre du temps en psychanalyse (The Work of Time in Psychoanalysis)*, Editions Payot & Rivages, Paris, p. 22. English translation (Maïda): "Through a series of various recordings and inscriptions, traces integrate thus to a network of associations in movement which can be named a plural memory. The latter never gives place to one single and accurate recording of one experience. And if this plural memory is nothing but a network in which each element gets its value only in its relation to others, then nothing is kept identical: as soon as one event enters memory, its only way to subsist would be to link - as a trace - to other traces, implying the possibility to be moved in this anachronic device in which the excitation 'flows'."

with one of these unconscious mnesic traces, the psychic repercussion of the past traumatic event takes place retroactively, in *afterwardsness*, *Nachträglich* (Freud, 1896).²⁷ The *beforeness*, the breach that the first trauma had opened in the psyche, and which had remained unobserved, acts as a kind of gravitational pole which attracts other traces, the latter connecting to the unconscious trace and being likely to reactivate it. In his first Seminar, Lacan explained this phenomenon in two times conceptualized by Freud by introducing the term *Prägung*, defined as an unconscious *striking*, an imprint which breaks in the psychic tissue (time 1) and which is likely to be associated to a further event (time 2), in *afterwardsness*.²⁸ The first impact, the striking, is virtually active. A second impact is necessary to generate the actualization of traumatic points.

In this possible resonance between mnesic traces, each trace can potentially associate with several other traces, which underlines that they connect in a web-like structure.

Two forms of time can be mentioned here: on the one hand, time is *fragmented* (Green, 2000), without any directional chronology, and it can gather fragments which belong to different periods (in a dream, for instance); on the other hand, *temporal modes* (Le Poulichet)²⁹ or microprocesses, keep recombining these fragments with what Freud named *primary processes*.³⁰

From these phenomena described by psychoanalysis, I derived a few temporal aspects of my pieces, particularly the sudden sound shocks which introduce a heterogeneous material and the resonance between minimal elements (sound traces) which appear in several situations separated in the chronology of the piece (I will describe these processes more precisely later).

1.1.2 - Lacan - A network of mnesic traces, the *signifying network*

Times collide in this re-composition of unconscious memory which can occur under the form of dreams or *screen-memories*, for instance.³¹ Both are scenarios which agglomerate mnesic traces. But while the imaginary dimension of the constellations elaborated in dreams is obvious for the subject, they consider their childhood memories to be a part of their history. Those seem to have really happened even though they have actually been retrospectively reconstructed.

²⁷ Freud, S. (1887-1902; 1956; 2002), "Lettre à Wilhelm Fließ du 6 décembre 1896" ("Letter to Wilhelm Fließ on December 6th, 1896"), in *La naissance de la psychanalyse (The Birth of Psychoanalysis)*, translated from the German by Berman, A., PUF, Paris, pp. 153-154. English translation: "[...] I am working on the assumption that our psychic mechanism has come into being by a process of stratification: the material present in the form of mnemonic traces being subjected from time to time to a re-arrangement in accordance to fresh circumstances. Thus what is essentially new about my theory is the thesis that memory is present not once but several times over and that it is laid down in various species of 'specifications'."

²⁸ Lacan, J. (1953-54; 1975), *Le Séminaire. Livre I. Les écrits techniques de Freud (The Seminar of Jacques Lacan. Book I. Freud's Papers on Technique)*, edited by Miller, J.-A., Editions du Seuil, Paris, p. 295.

English translation: Lacan, J. (1991), *The Seminar of Jacques Lacan. Book I. Freud's Papers on Technique, 1953-54*, translated with notes by Forrester, J., W. W. Norton & Company, New York & London, p. 190: "[...] the *Prägung* - this term possesses resonances of *striking*, striking a coin - the *Prägung* of the originating traumatic event. This *Prägung* - Freud explains in the most clearcut fashion - is at first located in a non-repressed unconscious [...]. Let us say that the *Prägung* has not been integrated into the verbalised system of the subject, that it has not even reached verbalisation, and not even, one might say, attained signification. This *Prägung*, strictly limited to the domain of the imaginary, re-emerges in the course of the subject's progress into a symbolic world which is more and more organised."

²⁹ Le Poulichet, S. (1994), *L'œuvre du temps en psychanalyse (The Work of Time in Psychoanalysis)*, Editions Payot & Rivages, Paris, p. 44. English translation (Maïda): "[...] these unconscious processes are not actually likely to be modified by time, for they are already in themselves forms of time or [...] forms of passages. Each operation, specific to an unconscious process (displacement, projection, formation of sequences, transfers, etc.), has in fact only a temporal and not a spatial consistency: it is a mode of time or an operation of transformation and of passage."

³⁰ The *primary processes* are unconscious processes and can be noticed in dreams or symptoms. Freud describes them in *The Interpretation of Dreams: condensation, displacement*, for instance.

Freud, S. (1900; 2010; 2012), *L'interprétation du rêve (The Interpretation of Dreams)*, "Sur la psychologie des processus du rêve" ("The Psychology of Dream Processes"), chapter VII, translated from the German by Altounian, J. and Robert, F., PUF/Quadrige, Paris, pp. 562-677

³¹ Freud, S. (1899; 1973; 2002), "Sur les souvenirs écrans" ("Screen Memories"), in *Névrose, psychose et perversion (Neurosis, Psychosis and Perversion)*, translated under the direction of Laplanche, J., PUF, Paris, pp. 113-132

According to Lacan, lines of forces are drawn between these traces, between these *signifying traits*.³² Unlike De Saussure's linguistic definition according to which each *signifier* corresponds to a definite *signified*,³³ the Lacanian signifiers are fragmentary units (one phoneme, one colour, one sound, a movement of the body, etc.) which are meaningless in themselves. It is in their relationship to other signifiers, in the psychic charge which passes from one signifier to the next along a chain, that an *effect of sense* can be produced.

The analytical cure creates the place of a possible reactualization of these "quanta of memory", of these traces of the past, whether real or fantasmatic, on the one hand thanks to the *transference* with the analyst (sentiments felt for people, in the past, are repeated, projected onto the person of the analyst), and on the other hand thanks to the *free association* technique which consists in following the thread of concatenations of signifiers (the analysand must say everything that comes to his mind, avoiding all censorship, all value judgement).

1.1.3 - The associative irradiation (Green) and reversive time (Le Poulichet)

Green shows how the analytical speech reveals the effect of *associative irradiation* of the unconscious network.³⁴ In the linearity of surface, one element opens, beforehand, a possible link with one element to come, not enounced yet, still unpredictable (*anticipative annunciation*). A *retroactive reverberation* makes a further element rebound towards an element named earlier.

It is also what Le Poulichet names *reversive time* according to which the past comes from the future, in these meetings between signifiers.³⁵ Time seems pendular, oscillating forwards and backwards.

In my article "...ça écrit ça écrit ça écrit ça..." (2007),³⁶ I mentioned a fragment of my own analysis which illustrates this collision of signifiers likely to make some sense emerge, to open an *identifying time*.³⁷ I evoked a close person who fell down in my presence (in French, "elle est tombée"). With this fall, this person, who was assuming until then a dominating posture as if she was the only fount of knowledge, also "fell off her pedestal" ("tombée de son piédestal"). Her position changed; she was no longer above but below. It became suddenly obvious that her so-called knowledge was as limited as that of any human being who does not know what death is (that is how I had formulated it). Here, the analyst intervened by indicating the link between "mort" ("death") and "tombe" ("elle tombe": she falls down; "la tombe": the grave, the tomb). This

³² Lacan, J. (1955-56; 1981), *Le Séminaire. Livre III. Les psychoses* (*The Seminar of Jacques Lacan. Book III. The Psychoses*), edited by Miller, J.-A., Editions du Seuil, Paris

Lacan, J. (1957-58; 1998), *Le Séminaire. Livre V. Les Formations de l'inconscient* (*The Seminar of Jacques Lacan. Book V. The Formations of The Unconscious*), edited by Miller, J.-A., Editions du Seuil, Paris

³³ De Saussure, F. (1916; 1972; 1985; 1995), *Cours de linguistique générale* (*Course in General Linguistics*), Editions Payot & Rivages, Paris

³⁴ Green, A. (2000), *Le temps éclaté* (*Fragmented Time*), Les Editions de Minuit, Coll. "Critique", Paris, p. 50. English translation (Maïda): "At first [...], something obscurely foreseen happens [...] which occurs and pervades the psyche. This not clearly identifiable matrix will be awakened by a more or less incidental - but not contingent - even which will give this time a wider impact, a meaning, an added value, to what was received in the form of an impregnation invested of a certain significant potentiality, without the possibility to define either the force, or the trace imprinted in the psyche, or its clearly conceived goal, or above all when and how it will arise again and with which connections [...]. Two places, two times, two processes."

³⁵ Le Poulichet, S. (1994), *L'œuvre du temps en psychanalyse* (*The Work of Time in Psychoanalysis*), Editions Payot & Rivages, Paris, p. 86. English translation (Maïda): "As soon as a new element intervenes, a whole past network is recomposed. Any forward path modifies thus what has been preceding it."

³⁶ Maïda, C. (2nd semester 2007), "...ça écrit ça écrit ça écrit ça..." ("...it writes it writes it writes it..."), *Filigranes* n°6, "Musique et inconscient" ("Music and unconscious"), Delaplace, J. and Moll, O. (ed.), Editions Delatour, France, pp. 145-160

³⁷ Le Poulichet, S. (1994), *Ibid.*, p. 35. English translation (Maïda): "The identifying time in analysis actualizes these repetitions of meetings between signifiers, images and objects, giving rise for instance to a figure which had never been seen or to a word which had never been pronounced. The time of listening is among others this time of recombination of figures - absolutely proper to each analysis - which condensate heterogeneous elements."

interpretation elicited an association and I thought of the expression "muet comme une tombe" ("silent as the grave") and remembered my mutism when I was a child. The analyst just formulated a "chut!" ("shush!"), which resonated with the fall ("la chute", in French).

With the polysemy of language and its sonorities (which makes translations often difficult), a kind of retroactive loop has been established between the fall ("chute", "tomber") and death ("la tombe"), silence and death ("muet comme une tombe"), silence and the fall ("chut!" and "chute"). The associative journey went on with the consonance between "muet" ("silent") and "muer" ("to moult", the moulting of the insect, a mutation), between "se taire" (from "chut!", to be silent) and "se terrer" ("to hide" or "to go to ground"), then "s'enterrer" ("to bury oneself"), and the tomb and death were back. Does being silent mean dying a little? Does speaking mean coming (back) into the world, choosing life and mutating?

This example underlines both the ricochets between signifiers and their insistence, the role that repetition plays in their recognition. My personal experience of these phenomena had a strong impact on my musical thinking. I used the same kind of concatenation of fragments in my sound structures. Very tiny formulae are repeated. They are as minimal as the Lacanian signifying units. In the example mentioned above, "chute" becomes "chut". The disappearance of one single letter makes a new meaning emerge. I introduced the same kind of system in order to modify the sound structures. Each repetition of the formulae is connected to the next and comprises a slight fluctuation of their outlines. The series of repetitions and their superimpositions finally lead to another texture (I will describe this musical writing later).

1.1.4 - Repetition: a temporal crystallization or *identifying time* (Le Poulichet)

Repetition is at the heart of any structure, whether musical or not. Linguistics has described the architecture of any language: a definite number of phonemes are repeated and the way they combine and permute produce different morphemes and words. Microbiology has shown that matter is made of the reiteration of the same components. The DNA molecule, for instance, is based on the varied repetition of only four chemical elements (adenine, cytosine, guanine, thymine).³⁸

Repetition is also a fundamental concept in psychoanalysis. As early as 1895, Freud developed a theory of the psychic apparatus according to which neuronal memory is formed under the action, either of stimuli of strong intensity, or of repeated stimuli (even if their intensity is low).³⁹ Some neuronal pathways first facilitated by the repeated passage of the excitation (Freud used the term *Bahnung*) will then be preferably used because the permeability of the *contact-barriers* between neurons has decreased.⁴⁰ In 1914, Freud connected the notion of repetition to a phenomenon that he noticed during

³⁸ Goodsell, D. S. (2009; 2010), *La machinerie de la vie (The Machinery of Life)*, translated from the American by Fourmentin, E., Mariviere, D., Schwartz, N. and Molino, F., EDP Sciences, France

³⁹ Freud, S. (1887-1902; 1956; 2002), "Esquisse d'une psychologie scientifique" ("Project for a Scientific Psychology"), in *La naissance de la psychanalyse (The Birth of Psychoanalysis)*, translated from the German by Berman, A., PUF, Paris, p. 320. English translation: "Psychological experience shows that memory (that is, the persisting force of an experience) depends on a factor that is described as the 'magnitude' of the impression and on the frequency of the recurrence of the same impression. Or, translated into our theory, facilitation depends on the quantity (Q_n) which passes through a neurone in the excitatory process and on the number of repetitions of that process."

⁴⁰ Freud, S. (1887-1902), *Ibid.*, p. 320. English translation: "[...] memory is represented by the facilitations existing between the ψ -neurones."

In this theory, Freud distinguished on the one hand the φ -neurons (neurons of perception) whose permeability is constant despite the repeated passage of excitations and, on the other hand, ψ -neurons whose permeability has decreased after the passage of excitation (memory depends on these degrees of facilitation). What Freud named a *contact-barrier* corresponds to what neurology will name a *synapse* later on.

the cure process: where memories are inaccessible to consciousness, the patients' memory can be expressed by the compulsive repetition of acts, behaviours and affects related to their personal history (*repetition compulsion*).⁴¹

Lacan distinguished two forms of repetition, the *automaton* and the *tuchê*.⁴² The *automaton* refers to the insistence to signify, the insistence of the signifier which circulates along the chains of the *signifying network*. Its detection will therefore have an identifying function: in a *parenthesis of time*, two signifying traces collide and make some sense emerge ("tomber" and "la tombe", in the example given above).⁴³ As already mentioned, this collision is what Le Poulichet names an *identifying time*. The second kind of repetition, the *tuchê*, hinges on the force of attraction exerted by the traumatic pole, which induces a crystallization of the psychic configurations. What is also repeated is the insistence of the *drive* (*pulsion*). What inexorably returns is what could not be verbalized and integrated into the symbolic system of the subject, what will never be, despite an analytical cure, for a part of non-symbolizable always persists.

Repetition has a fundamental function in my music. It occurs at every level of the sound matter.

In *Fluctuatio (in)animi* (2006),⁴⁴ for instance, I worked on both repetitions: one is a *differentiating repetition* (Deleuze).⁴⁵ It has both an identifying and a mutative function since each repetition introduces a tiny difference (this difference being perceptible because something is repeated), and produces a step-by-step metamorphosis of the material. The other is a mechanical reiteration of the material which remains identical and seems to be stuck on a same shape.

1.2 - PSYCHIC PROCESSES AND SOUND PROCESSES

1.2.1 - A constant rearrangement of sound traces

In my pieces, this writing of sound traces can present various modes of expression. From the dream processes and their constant reshuffling of mnesic traces that creates numerous configurations, I derived sound structures conceived as a matrix within which units are reluctantly recombined.

Holes and bones (2002)⁴⁶ is based on an underlying structure (or matrix) which generates the sound material but which is meant to remain virtual, *latent* (Freud).⁴⁷ This structure, not performed by the musicians, is conceived as a network of forces within which the minimal units keep gravitating around vertical and horizontal poles. The gravitation in this matrix can be considered as

⁴¹ Freud, S. (1914; 2007; 2010), "Remémoration, répétition, perlaboration" ("Remembering, Repetition, Working Through"), in *La technique psychanalytique (Psychoanalytic Techniques)*, translated from the German by Altounian, J., Balseinte, A., Bourguignon, A. and Laplanche, J., PUF/Quadrige, Paris, p. 120. English translation: "[...] we may say that the patient does not remember anything of what he has forgotten and repressed, but acts it out. He reproduces it not as a memory but as an action; he repeats it, without, of course, knowing that he is repeating it."

⁴² Lacan, J. (1964; 1973), *Le Séminaire. Livre XI. Les quatre concepts fondamentaux de la psychanalyse (The Seminar of Jacques Lacan. Book XI. The Four Fundamental Concepts of Psychoanalysis)*, edited by Miller, J.-A., Editions du Seuil, Paris

⁴³ Lacan, J. (1953-54; 1975), *Le Séminaire. Livre I. Les écrits techniques de Freud (The Seminar of Jacques Lacan. Book I. Freud's Papers on Technique)*, edited by Miller, J.-A., Editions du Seuil, Paris, p. 370

⁴⁴ First piece of *Psyché-Cité/Transversales* (2005-07), mentioned above.

⁴⁵ Deleuze, G. (1968), *Différence et répétition (Difference and Repetition)*, PUF, Paris

⁴⁶ First piece of *Order of release, border of relish* (2002-04), mentioned above.

⁴⁷ The term *latent* refers here to Freud's definition. Dreams have both a *latent content* and a *manifest content*. The analysand tells his dream as he remembers it (its *manifest content*). Thanks to his associations, he can gradually make the *latent content* of the dream emerge.

Freud, S. (1900; 2010; 2012), *L'interprétation du rêve (The Interpretation of Dreams)*, translated from the German by Altounian, J. and Robert, F., PUF/Quadrige, Paris

the "unconscious" level of sound since it is not an audible sequence of the piece. It is composed in order to be the virtual origin of figures or objects which are actualized in the piece and which can thereby be considered as the "conscious" level of sound since their occurrence is audible, *manifest*.

The first stage of elaboration of the structure consisted in selecting sound units. The vertical pole is an aggregate built from eight frequencies selected in two sound spectra of multiphonic sounds of the bass clarinet. The horizontal poles alternate the enunciation of two variations of a microintervallic scale derived from a succession of frequencies in two of the spectra. Their function is to destabilize the harmonic field thanks to a reiterative falling movement.

Figure 1 - Holes and bones

An aggregate derived from the spectral analysis of two multiphonic sounds of the bass clarinet



Multiphonic sound n°50: time 3 of the spectral analysis. Multiphonic sound n°86: time 4. The frequencies shown in green are selected in order to build the aggregate of the virtual structure [F4 1/4T; B4 1/4T; E5 1/4T; G#5; A5; D6 1/4T; F#6; A6 1/4T]. This aggregate underlies this only structure and does not appear in the piece.⁴⁸

Figure 2 - Holes and bones - Two microintervallic scales derived from the same two spectra



Multiphonic sounds n°50 and 86: the frequencies shown in green are those selected in order to build two microintervallic scales used in the virtual structure. Multiphonic sound n°50, intervals of the six-pitch scale: [3/4T; 1/2T; 1T1/4; 1/4T; 1/4T]. Multiphonic sound n°86, intervals of the seven-pitch scale: [1/2T; 3/4T; 3/4T; 1/2T; 1/2T, 3/4T]. A permutation of the intervals provides variations of these scales.⁴⁹

⁴⁸ The numbers of the multiphonic sounds correspond to those indicated in the book: Bok, H. and Wendel, E. (1989), *Nouvelles techniques de la clarinette basse. New Techniques for the Bass Clarinet*, Editions Salabert, Paris. Regarding the numbers attributed to the pitches, the Anglo-Saxon notation is used: the A4 is the A of the diapason (440 Hz).

⁴⁹ Unlike the early spectral composers such as Grisey or Murail, I am exclusively using inharmonic sound spectra to build the material of my pieces. The spectral components generate two dimensions of the pitch material: 1/ a harmonic one, with a selection of some frequencies in different zones of the spectrum in order to build some aggregates; 2/ a horizontal one, with the selection of a series of nearby frequencies (mostly in the highest spectral zones) in order to build microintervallic scales.

Three characteristics of this virtual structure are essential: 1/ repetition; 2/ polymetry; 3/ liquidation (it can be noted that they are actually present in all my pieces).

For each of the eight strata, the descending path of the same sound chains relentlessly returns to its origin (its first pitch: one of the frequencies selected to build an aggregate). But each chain has a specific metrical scheme and a process of slowing down, which generates a constant rearrangement of the vertical meeting points between the units. In addition, the structure is more and more torn apart by the increasing duration of the silences inserted between the units, which entails its gradual liquidation.

Figure 3 - *Holes and bones* - The virtual structure (eight evolving strata) - Excerpt from the process

The image displays a complex musical score for an excerpt from 'Holes and bones'. At the top, a header reads 'MULTI 50 x 86'. Below this, a sequence of numbers '1 2 3 4 1' is aligned with vertical bar lines. The score is organized into five systems, each containing two staves. The instruments are labeled on the left: 'Fl.' (Flute), 'Vin.' (Violin), 'Clar.' (Clarinet), and 'Vlc.' (Violoncelle). Each system is annotated with various musical notations, including notes, rests, and dynamic markings. Specific labels are placed above certain measures: '50a' and '50b' above the first Fl. staff, '50c' and '50d' above the second Fl. staff, '50a' and '50b' above the first Vin. staff, '50c' and '50d' above the second Vin. staff, '50a' and '50b' above the first Clar. staff, '50c' and '50d' above the second Clar. staff, '50a' and '50b' above the first Vlc. staff, and '50c' and '50d' above the second Vlc. staff. At the bottom of the score, there are labels '86b' and '86a' under the Vlc. staves, and a large '1' in a box at the very bottom center.

It is a paradoxical structure. Despite its capacity of constant movement, the motion is governed according to a constraint which depends on the return to the first aggregate and on the polarities of attraction of the scales. Like the psychic traumas described above, the trajectories of the units cannot escape the crystallization around a same zone. There is an antagonism between the force

of mobility of the units and their insistence to repeat the same patterns on each chain. It induces a kind of fixed mobility.

Xenakis' notions of *outside time* and *inside time* (1963) are made slightly more complex here.⁵⁰ These two natures of time that the composer evoked again in *Kéleütha*⁵¹ coincide with Freud's concepts already mentioned: on the one hand, an outside time without any chronology, *timeless*, *Zeitlos* (1920),⁵² and on the other hand, temporal processes and their constant activity of combination, *condensation*, *displacement*, for instance (1900).⁵³

In *Holes and bones*, a first level *outside time* concerns the constraints of the matrix: the allowed intervals between the units of the aggregate (the vertical dimension) and of the chosen microintervallic scales (the horizontal dimension), as well as the insertion of a silence every two or three units (*holes*).

A second level *outside time* comprises several possible actualizations of the matrix, according to the way these constraints are used: the variations of the selected scales, the location of the silences, the choice of the metres and their evolution. On this level, the recombination of the meetings between the chains is potentially infinite. The structure could repeatedly turn on itself, without tearing up, if the duration of the silences was not increasing or if the metres of the strata were not varying. It might on the contrary become more dense if the metrical schemes were accelerating instead of slowing down. Each actualization might propose one different expression of the same constraints. But one single actualization is realized, while remaining inaudible. Since it is *latent* and not included in the audible chronology of the piece, it can be considered as an *outside time*. However, it is more than a choice of musical constraints. Elements are articulated with one another in a sequence. Therefore, it is an intermediary state between virtual (non audible) and actual (audible) structures. Paradoxically, the matrix is virtually actualized, i.e. actualized only for a *latent* level.

Regarding the perceptible actualization, the *manifest* proceeding of the structure, agglomerates of units are cut out from different temporal portions of its reiterative path (t1, t2, t3, etc.) and build the sound objects of the piece, *inside time* (in the chronology of the piece).

This kind of musical process refers to the way dreams are elaborated, their matrix of traces and their *latent-manifest* double side. Let us recall their three stages: 1/ a potential ensemble of *mnesic traces* is ready to be used (*outside time*); 2/ different forces act upon the traces and build *pulsional* configurations unknown as long as no associations have been done by the analysand (the *latent content*); 3/ the scenario of the dream, its figures, its situations, are remembered when awake, but they have been modified by the *dream-work* - particularly *condensation* and *displacement* (the *manifest content*).

⁵⁰ Xenakis, I. (1963; 1981), *Musiques formelles (Formalized Music)*, Editions Stock/Musique, Paris

Xenakis refers to *outside time (hors-temps)* and *inside time (en-temps)* structures at p. 191 of this book.

⁵¹ Xenakis, I. (1994), "La voie de la recherche et de la question" ("The Path of Research And Question"), in *Kéleütha. Ecrits (Kéleütha. Writings)*, L'Arche, Paris, p. 68. English translation (Maïda): "Two natures must be distinguished: inside time and outside time. What allows itself to be thought of without changing by before and afterwards is outside time. Traditional modes are partly outside time. The relations or logical operations inflicted to classes of sounds, intervals, characters, are also outside time. As soon as speech includes before and afterwards, we are inside time."

⁵² Freud, S. (1915-23; 1981; 2001), "Au-delà du principe de plaisir" ("Beyond the Pleasure Principle"), in *Essais de psychanalyse (Essays on Psychoanalysis)*, translated from the German by Laplanche, J., Altounian J. and Pontalis, J.-B., Editions Payot & Rivages, Paris, p. 76

⁵³ Freud, S. (1900; 2010; 2012), *L'interprétation du rêve (The Interpretation of Dreams)*, "Le travail de rêve" ("The Dream-Work"), chapter VI, translated from the German by Altounian, J. and Robert, F., PUF/Quadrige, Paris, pp. 319-559

Figure 4 - Holes and bones (excerpt) - Two strata merged into one single stratum for each instrument

The red parentheses indicate the temporal portions (t1, t2, t3, etc.) which are cut out from the structure and detached from this moving background in order to build objects.

Figure 5, on the left - An object cut out from a first portion of time in the violin's layer.

Figure 6, on the right - An object cut out from a first portion of time in the cello's layer.

Like in dream processes, the mobile traces of the virtual structure have been agglutinated, condensed, in order to form figures or objects whose contours can be discerned in the piece. This structure has imprinted its three processes - repetition, polymeric strata and liquidation - to the set of situations in the piece although each of them expresses it in a particular way. The objects cut out from it remain permeated with the rotary character of the structure and revolve around a horizontal axis.⁵⁴ They are both permanent and ephemeral. On the one hand, the constant oscillation which characterizes them favours their identification, their discernibility. On the other hand, in spite of their repetition, they keep undergoing metamorphoses, such as *drive objects* in dreams. Each reiteration induces a microvariation of the objects in each layer and a gradual mutation of the whole musical matter. It tends to a liquidation of the objects, bares them and reveals their framework (*bones*) step by step, an elementary and abstract movement: a three-pitch pendulum. A *signifying* sound figure, a "sonifier", emerges from now on recognizable in spite of its transformations (violin, bar 58; cello, bar 60). This concept of "sonifier" accounts for the fact that a sound signifier is distinct from a linguistic or psychoanalytical signifier. It is an "asignifying signifier", without any semantic value, provided with one single sound quality.⁵⁵ What gives it a

⁵⁴ The first objet cut out in the violin's layer of the virtual structure is presented in its reversed form at bar 20. The first objet cut out in the cello's layer of the virtual structure is presented in its reversed form at bar 57. At bars 19-20, 24-25, 29-31, then 35-36, two successive objects extracted from this structure are each time uttered by the violin and the cello. They revolve around a horizontal axis. At each enunciation, their swinging movement spreads in the harmonic field up to a stabilization of the pitches at bar 38.

⁵⁵ The association of both terms might seem paradoxical, but it is a way to emphasize that the sound figures can be at the same time *signifying* since they can bring some structural meaning and a formal coherence (especially when they recurrently occur), and *asignifying* if the term *signifying* is limited to its first linguistic use, strictly related to language.

I insisted on this virtual structure governed by a kind of Lacanian *automaton* (the automatic dimension of repetition, the insistent return of the units) because this articulation of extremely mobile sound traces and the antagonism between repetition and mutation of the material are a fundamental dimension of my music.

In *Shel(l)ter - später... () ...Winter (Shel(l)ter*, 2009-10),⁵⁶ the sound objects are not cut out from a few temporal portions of superimposed chains of mobile traces, as described in *Holes and bones*. The condensation of traces builds objects with looser contours and divided among an instrumental group. In the example given below, an object groups together the trio of clarinet, bassoon and cello, and regularly reappears to punctuate the evolving texture of the three percussions. Its first utterance lasts seven and a half beats, then pulverizes into splinters in the next three bars.

Example - Rhythmical object 1, divided among the instrumental trio (bars 82 to 84)

[illegible]

Six possible rhythms can be chosen to build the three strata of each object (each instrumental compound) and are played either in their original version, or in a permuted and eventually retrograde version.

Handwritten musical notation for the Cello part, labeled "CELLO (PERMUTATION)". The notation is written on a five-line staff and includes various rhythmic values (e.g., eighth, sixteenth, and thirty-second notes) and rests. The piece concludes with a double bar line and repeat dots.

Strata 2 and 3 (bassoon and cello) play one single rhythm (1st line of the image). The cello plays a permuted version.

⁵⁶ *Shel(l)ter* (2009-10), mentioned above.

⁵⁷ This kind of "kaleidoscopic" object appears again in the second piece of the series (*Shel(l)ter - unter... () ...Gitter*, 2010), still divided among the trio of clarinet, bassoon and cello (bars 219: 240 and 269). It also occurs in the last piece in two parts (*Shel(l)ter*

Once again, one is reminded of dream processes (notably *condensation*) which form *composite* figures or objects whose components are unsteady (for instance, a character in the dream includes features which belong to different individuals that the dreamer knows. Then he/she reappears in the dream with slightly varied characteristics).

1.2.2 - A "sonifying figure", the pendulum, and its different functionalities

Whatever arrangement of traces is favoured in my pieces, the swinging three-pitch module mentioned above which first appeared in *Holes and bones* is a persistent sound figure in my music. Its oscillating identity is clearly recognizable. With its recurrence and its capacity of combination, proliferation and circulation across the sound field, it can be considered as a "sonifier", i.e. a marker for the perception of structure and form. Its function is essential.

It presents three characteristics: 1/ it is modular. It links three pitches together and it can either be connected to itself while repeated, which forms a chain of pendulums, or be transplanted onto other figures or objects; 2/ its contours can be distorted. It can be presented under a reversed form. Its units can also be permuted or the intervals or durations between them can be modified; 3/ it can be fragmented if the three pitches are separated.



According to its amplitude of movement (the intervals between its units), this pendular figure can modify the harmonic field in different ways whether it favours a wide swinging movement or a very slight sliding towards another aggregate.



It can also enrich a harmonic area if it holds on to a sustained pitch. In *Mutatis mutandis* for twelve amplified strings (2008), a pendulum played by Violin 1 is transplanted onto the sustained pitch of Violin 4 (*D#8*, bar 28); the one played by Violin 4 punctuates the *G7 1/4T* of Violin 5 (bar 30); the one played by Violin 5 is connected to the *F7 3/4T* of Viola 3 (bar 31), while the one played by Violin 3 hangs on to the *D7 3/4T* of Violin 5 (bar 32).



Several pendulums can also be stacked together. In *...who holds the strings...* (2004), a chain of three-pitch pendulums spreads across the quartet by hanging on the last pitch of a module to the first pitch of the next one (bars 38-39; 40).

In addition, superimposed chains of pendulums with various metrical schemes and independent rhythmical processes build an elastic musical matter full of torsions according to the more or less convergence between the different strata.

This kind of polystratified assemblings of pendulums can be observed in *...who holds the strings...* (bars 64-85), *Fluctuatio (in)animi* (bars 138-146), *Via rupta* (bars 190-215), *Mutatis mutandis* (bars 228-262), *Shel(l)ter - seither... () ...Splitter & hinter... () ...Eiter* (bars 204-264) and *..., das spinnt...* (bars 86-133).

They have a mutative function, gradually favouring the passage from one kind of sound constellation to another. The eventual arrival on a sustained pitch or chord, or on a homorhythmic figure, is an *identifying time* (Le Poulichet, 1994).

- *seither... () ...Splitter & hinter... () ...Eiter*, 2010) in the group of five winds (bars 20-21; 34-36; 59-60) and in the group of five strings (bars 18-20; 36-37; 88). It is also present in *Mutatis mutandis* for twelve amplified strings (2008) at bars 28-29; 35-36; 259-260 and 266-268, and in *..., das spinnt...* for amplified string quartet (2013) at bars 62; 67 and 75.

Figure 9 - *Fluctuatio (in)animi*⁵⁸

A process of gradual rhythmical distortion - A four-string polyrhythmic texture (bars 138-146)

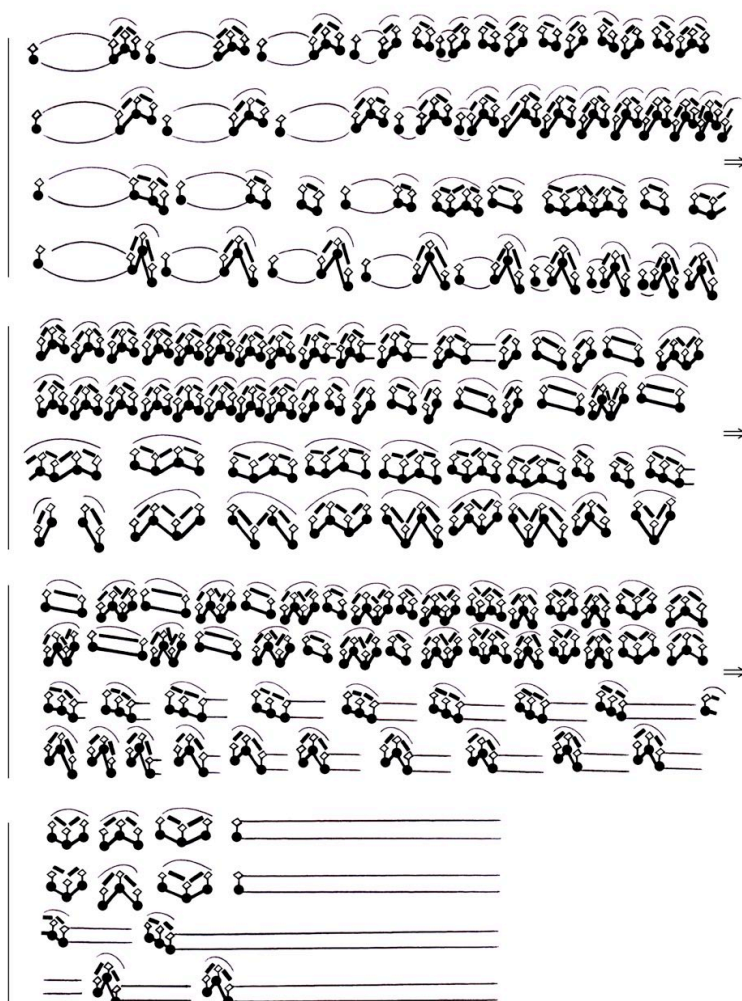


Diagram: Clara Maïda, 2007

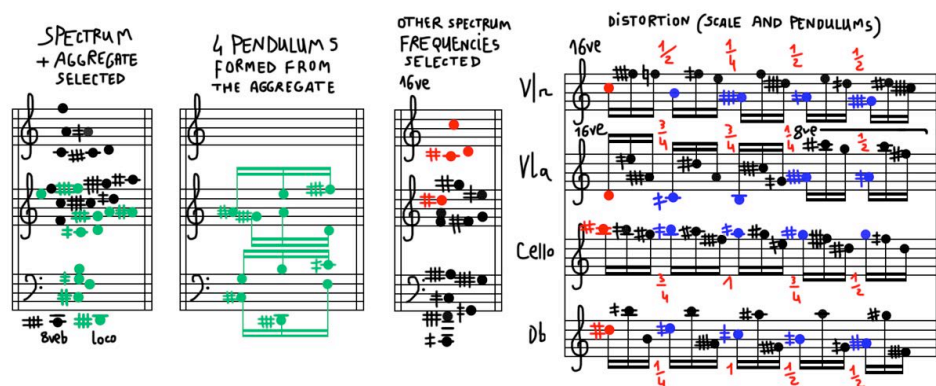
This diagram is presented in my article "...ça écrit ça écrit ça écrit ça..." (*Filigranes* n°6, p. 160). See p. 76.

The sequence starts with a quasi-synchronization of the four strings. They all play the three-pitch pendulum, except that for each string, the sustained pitch which the pendulum hangs on to has a different length.

Then, each layer follows its autonomous temporal process, with a rupture of the pendulum, for instance, or with contractions or dilations of the durations between the units, and with the displacement of the sustained pitch finally enounced after the pendulum.

The arrival is a crossing point on a sustained pitch: it is both an *identifying time* (a crossroads) and the liquidation of the pendulum.

Figure 10 - *Fluctuatio (in)animi* - A transplant of the pendulums onto a microintervallic scale - Micro-distortions of a harmonic zone (bars 138-146)



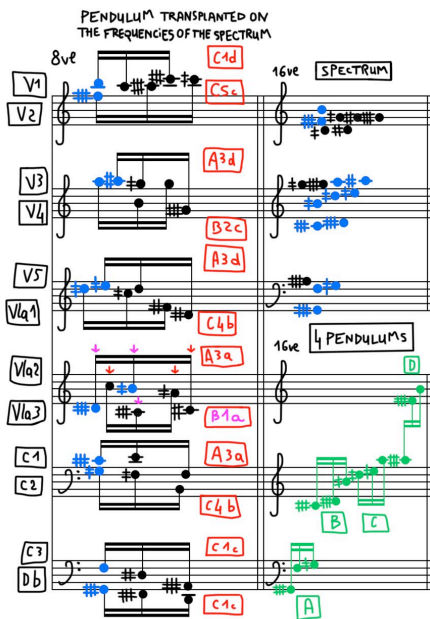
First two images on the left - Twelve frequencies are selected in the first spectrum (pitches shown in green) and form four three-pitch pendulums.

In the middle - Four frequencies are selected in the second spectrum (pitches shown in red) and form an aggregate.

On the right - This aggregate (*outside time*) is distorted by a five-pitch microintervallic scale which uses intervals going from 1/4T to 1T (pitches shown in blue). The pendulums hold on to each pitch of the scale (pitches shown in black).

⁵⁸ First piece of the series *Psyché-Cité/Transversales* for instruments and electronics. A piece for flute, violin, viola, cello, double bass and electronics (2006).

Figure 11 - *Mutatis mutandis*⁵⁹ - A transplant of pendulums onto an aggregate (harmonic enrichment)



Conclusive aggregate (bars 201-262)

Above, on the right - From the analysis of a sound spectrum, certain frequencies are selected in order to build an aggregate (pitches shown in blue).

Below, on the right - The same frequencies selected in the spectrum are grouped by three in order to build four pendulums (A, B, C and D, shown in green).

On the left - Each pendulum can be used in its different variations (reversed, with a permutation of the pitches) and it is transplanted onto each pitch of the aggregate in order to harmonically enrich it (pitches shown in blue, pendulums shown in black).

Two of the pendulums exchange one of their units in order to give a new pendulum (see the red and pink arrows, viola 2 and 3).

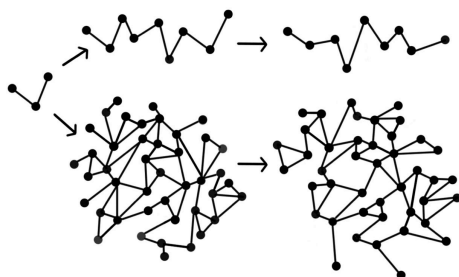
1.2.3 - A "sonifying" network

The sound network is established on different levels of writing. Regarding the articulation of minimal units, as mentioned above, they connect in order to form sound chains and weave an elastic fabric whose zones of density keep varying.

Being a modular and mutative figure, the pendular "sonifier" is a key element in this network. As seen above, its possible transplant onto any pitch of an aggregate, a melodic formula, or another pivoting mobile, maps out the possible journey of chains of pendulums throughout the sound fabric. On a structural level, such associativity is at the basis of the elaboration of any matter. If the pitches are converted into dots and the durations into lines or curves, an infinitely evolving formal potentiality can be graphically visualized.

Figure 12 - A three-pitch pendulum (a module with three dots) - Graphic: Clara Maïda, 2015

A "sonifying" chain (1st line, above) **or a "sonifying" network** (2nd line, below)



On the left - An isolated modular element: the three-pitch pendulum.

Above, at the centre - An example of connection between several pendulums on a horizontal axis (they are located in the same harmonic zone). Their association forms then a chain.

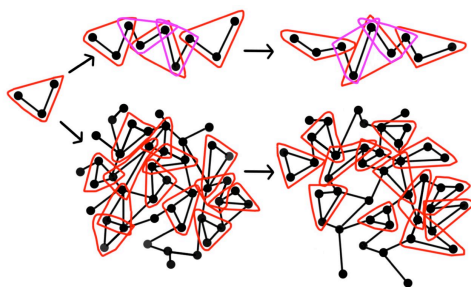
Above, on the right - The trajectories of the dots are modified and make the latter move, which entails a modification of the envelope of the chain.

Below, at the centre - An example of connection between several pendulums towards different zones of the surface. Their association forms then a ramified network.

Below, on the right - The trajectories of the dots are modified and make the latter move, which entails a global modification of the ramified structure.

⁵⁹ *Mutatis mutandis* for twelve amplified strings (2008).

Figure 13 - Envelope of the three-pitch pendulums - Graphic: Clara Maïda, 2015

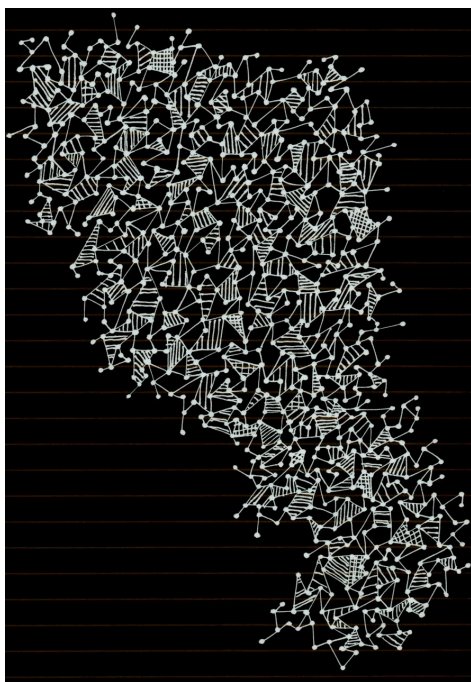


If an envelope of flux is traced around the three-pitch pendulums, one gets the triangular figure which was traversing space in the dream that I described in the introduction.

One can consider these pendulums either as **elementary abstract figures**, or as a **play of forces**, the insistence of an **oscillating force** which crosses through the whole sound field: a **driving force**.

The repetition of this elementary pivoting force finally makes this persistent sound triangular figure appear. Despite the possible distortions of its envelope, its three characteristics (insistence, associativity and circulation) give it the "sonifying" function already mentioned. A sound trait is identified and its potentiality for proliferation and irradiation of the sound surface is huge.

Figure 14 - A ramified structure (a connection of modular elements)



Drawing: Clara Maïda, 2012

This drawing is related to this kind of modular musical writing in which the connections between minimal units can form or be destroyed according to the evolution of their trajectories.

Were the drawing as mobile as music, the whole form would be elastic. It would depend on the variable directions and lengths of the filaments which would generate a moving layout of the dots and lines (see *Fluctuatio (in)animi*'s sound process in **Figure 9**).

It is a 2D drawing, but the connections are potentially possible in all directions and dimensions. On a 3D drawing, they could also proliferate towards the depth of the field. It would be a volume and not only a surface.

Therefore a structural network underlines the musical work. It is connective and diagrammatic. But it also operates on a more global formal level, in the organization of the objects and figures in a piece.

1.2.4 - Sound *Prägung* and afterwardsness

What characterizes a web-like musical form is its non-linear time. Even if the events follow one another on the level of the sound surface (like the speech in the psychoanalytical situation), the *time's arrow*,⁶⁰ pointed forwards, is disrupted by the associations and echoes which appear between sound elements despite their temporal distance.

⁶⁰ Eddington, S. A. (1929), *The Nature of Physical World*, Cambridge University Press, United Kingdom, p. 68

The concepts of *Prägung* (a striking, a first impregnation) and *Nachträglich* (a retroactive reaction, in *afterwardsness*) reveal the possible rupture of the linearity of time and the collision between two times. As mentioned above, Lacan commented these concepts in reference to Freud's notion of *trauma*.⁶¹ On a musical level, I mostly applied this phenomenon (a first striking and its retroactive impact) to the whole form of my pieces. I used two characteristics of the *Prägung*, either its sudden and traumatic impact on the psyche (here, on the perception of the listener), or its heterogeneity to the sound context which makes it non-meaningful when it first happens.

I will give two examples of a sound striking which can take its full coherence in *afterwardsness*, when it returns and is this time clearly perceptible because it is integrated into a longer and more structured sequence.

In *Shel(l)ter - seither... () ...Splitter & hinter... () ...Eiter* (2010),⁶² a violent sound shock breaks in, from the very beginning of the piece, in a very abrupt way, and produces a kind of auditory *trauma* (bars 1-3) which will leave its mark over the listening of all that will follow.⁶³ A long silence interrupts this sound "explosion" (bar 4). Then a sustained aggregate, which is tense like a scream (bar 5), is also followed by a long silence (bar 6). Both are totally heterogeneous short events. They are separated by a void and their extreme intensity is the only common character. It generates an immediate rupture of sound space. The units that compose this introduction are not yet integrated into a coherent system although they already herald certain sound figures of the piece (*anticipating annunciation*, Green, 2000).

Several anticipating traces of further events are included in this introduction: 1/ the micro-glissandi (*slaps*, *pizzicati*, *struck col legno*, and *gettati*) precede several falls of fragments of the same kind to come (bars 28-30; 48-50; 51-54; 105-122); 2/ the multiphonic sound of the oboe announces the recurrent interventions of this distorted timbre played by the winds or by the strings with a very crushed bow (bars 9-11; 15; 69-70; 72; 75-74; 78-80; 82-86; 88; 91 and 95). These raucous and moaning sounds will occur within a bare texture in the second part of the piece (bars 184-190); 3/ the formula of the bass clarinet duplicated by the double bass (bar 87) is itself an anticipating trace of the duos in the second part of the piece (oboe/viola, bars 173 and 178; clarinet/cello, bars 175; clarinet/double bass, bar 179). These duos are themselves residues of duos which were presented in the previous pieces of the series. Sound traces can also merge in one composite material. For instance, the timbre of the oboe's multiphonic sound and the strident and sudden *overblow* glissando of harmonics played by the flute (bar 2) generate the envelope of the bass clarinet's split sound or the glissandi of harmonics of the horn (playing semi-valve). This short and violent curve is also a sound marker of all these swinging movements which will cross through the instrumental space all along the piece. In addition, the sustained aggregate at bar 5 anticipates the harmonic structure of the conclusion of the piece (bars 268-278), while the short repeated scrapings on the Chinese tam-tam are a *beforeness* to its further way of utterance (each

⁶¹ Lacan, J. (1953-54; 1975), *Le Séminaire. Livre I. Les écrits techniques de Freud* (*The Seminar of Jacques Lacan. Book I. Freud's Papers on Technique*), edited by Miller, J.-A., Editions du Seuil, Paris, p. 295.

English translation: Lacan, J. (1991), *The Seminar of Jacques Lacan. Book I. Freud's Papers on Technique, 1953-54*, translated with notes by Forrester, J., W. W. Norton & Company, New York & London, p. 190s

⁶² A piece in two parts for eleven amplified instruments (2010). Third and fourth parts of the series *Shel(l)ter* for ensemble and electronics (2009-2010)

⁶³ I also introduced my piece *Kiné-Diffra(a)ct* (2008) with this kind of "traumatic" effect. It is the first part of *Kiném(a)*, a series for four to seven amplified instruments. A sound sample of the piece is available at: http://www.claramaida.com/docs_comm/mp3/Kine-Diffract.mp3

instrument will repeat the same pitch with a very pronounced crescendo). These different elements will return in a movement of *retroactive reverberation* (Green, 2000) thus echoing the first *Prägung* (striking) of the introduction (I will describe the global form of the piece later).

In *...who holds the strings...*, the sound *Prägung* manifests itself in a somewhat different way.⁶⁴ All of the sudden, a short polystratified sequence (bars 8-11) breaks the alternation between two musical situations which had been reiterated from the beginning of the piece. The distorted timbre (very crushed bow) of this sudden sequence, the wide amplitude of the glissandi and the jerky rhythm of each intervention's attack are unexpected and cannot be inserted coherently into the sequence when they first appear. This texture can resonate with the first imprint only during the second presentation (bars 64-85). This time, it is part of a process which leads all the strata towards a homorhythmic crossroads and a "sonifier", the three-pitch pendular figure already evoked.⁶⁵ In a way, this pendulum is a kind of condensate of the more global temporal oscillation of the form, with its backward and forward movements, its jumps and its anticipations. In a *reversive time* (Le Poulichet, 1994), the first sound trace enters the auditory mnemonic field in *afterwardsness*, when the second musical situation occurs. At the end of a polyrhythmic process, the forces finally converge and connect in one same repeated swinging movement which spreads to all the chains, identically. It is an *identifying time* (Le Poulichet, 1994). In a kind of temporal gap, the two sequences of the piece (two times) which enounce this repeated pendular figure can be connected in the memory of the listener.

1.2.5 - A multiple musical time: *temporal modes* or *associative time*

One can refer again to the distinction between *temporal modes*, on the one hand (for instance, the dream processes described by Freud: *condensation*, *displacement*, etc.), and on the other hand, a time envisioned over its whole proceeding, whether linear or fragmented.⁶⁶

Musical writing can be considered as a writing of flux. Regarding the temporal modes (or time microprocesses), the chains of pendulums described above are at the same time "sonifying chains" (if the connections of units are considered), or trajectories of flux, pushed by an irresistible force which combines repetition, movement and mutation (if their flowing dimension is favoured). In this respect, they can also be named "pulsons" ("pulsounds") or "propulsons" ("propulsounds"). Both terms are coined from the French terms *pulsion* (*drive*, Freud) and "son" (sound), or "propulsion" and "son".⁶⁷ These concepts underline their force of propagation across the sound space.

⁶⁴ Second piece of the triptych *Order of release, border of relish* and first piece of the series *www*. A piece for string quartet (2004). This piece is at the intersection of two series of works.

⁶⁵ The three-pitch pendulum successively emerges in each instrumental stratum: bar 77 (violin 1); bar 78, 3rd beat (violin 2); bar 79, 3rd beat (cello); bar 8 (viola).

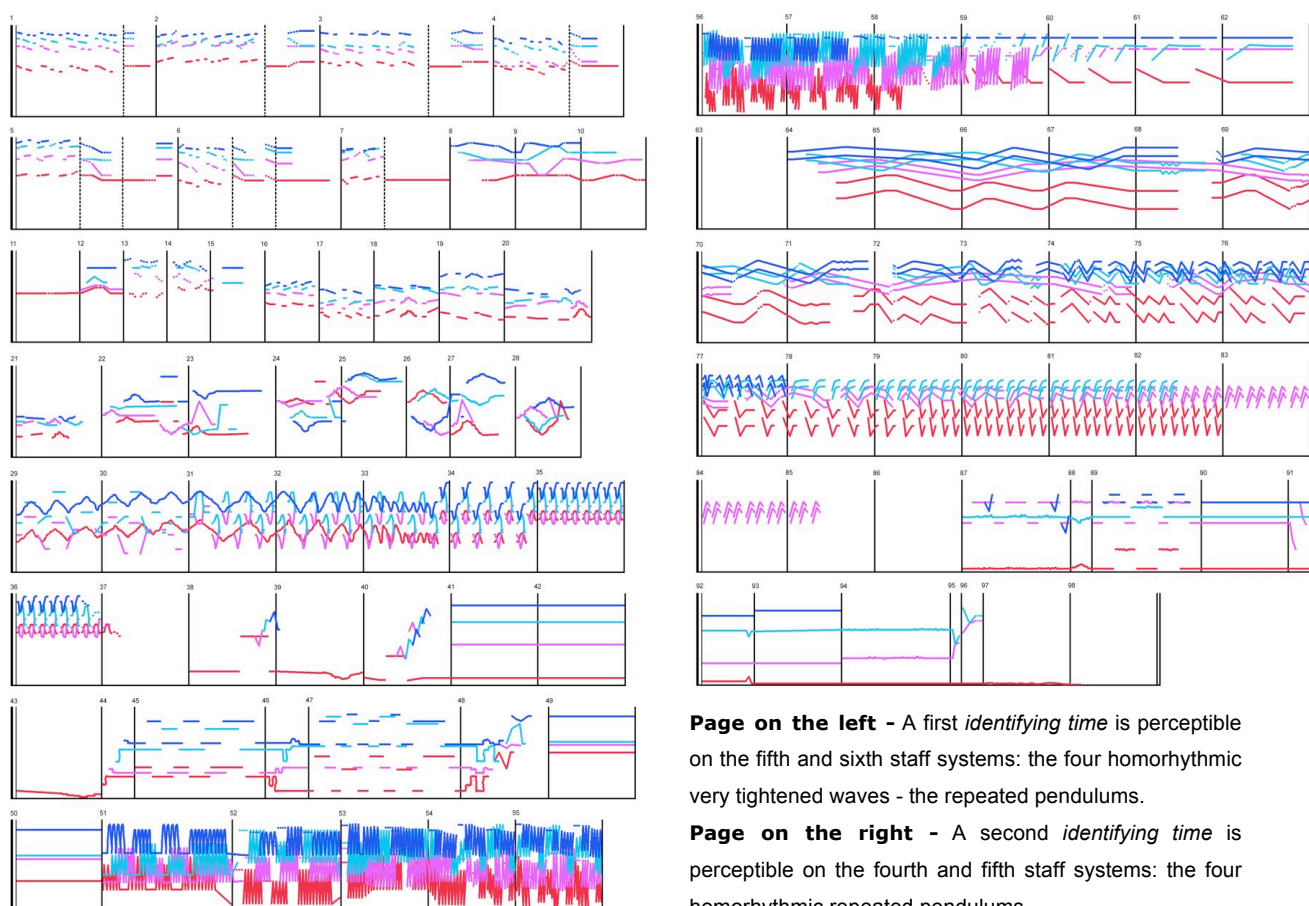
⁶⁶ For Freud, *condensation* mostly appears in symptoms and dreams. For instance, one same element of the dream is at the intersection of different associative chains. Let us give one fictive example: in a dream, the face of a person reminds of a clown seen in a circus; the behaviour of this person evokes the father's dreamer; but a bandage located on one of his eyes makes the dreamer remember a bandage he had once when he was a child. Three associative chains arrive on this *composite figure* of the dream. The *displacement* is the process by which the intensity attached to a representation is displaced onto another representation, less intensive but linked to the previous one by an associative chain. In case of a phobia, for instance, the anguish generated by unconscious psychic conflicts can be displaced onto the fear of an animal, if the latter has been unconsciously connected to the original source of anguish.

⁶⁷ Reminder: in the whole text, I use italics when I mention concepts developed by different authors (Freud, Lacan, etc.): *drive*, *signifier*, for instance. I put between inverted commas the concepts I have developed myself: "pulsound", "sonifier", "nanomusic", for instance.

The other dimension of time concerns rather more the articulation of events and is expressed by constellations of fragments which resonate with one another (*associative irradiation*, Green, 2000). Both forms of time can coexist. The musical work is therefore conceived as a "compound of splinters" and these splinters are connected by forces and flux.

...who holds the strings... (2004) is an echo chamber in which the multiple traces collide in encounters or are on the contrary diffracted towards other circuits to come. Fragmentary elements - a rebound, a contour, a mode of articulation or of assemblage - cross through the path of events with a complex temporality which proceeds with ricochets, jumps, ellipses, delays or precipitates. Pushed by various forces, they weave a precarious fabric with constant rearrangements. The temporality of surface seems to be doubled by other threads (*strings*) which suddenly emerge through a gap and make one foresee the absence of formal closure, the thickness of the musical text. Step by step, some arrangements relentlessly return and predominate, settling down on one configuration, more perceptible: the three-pitch pivoting mobile already evoked (a "sonifier" or a "pulsound", whether one considers its articulation or its capacity of flowing). Two *identifying times* occur in the piece (bar 34, then bar 79: homorhythmic crossing points).

Figure 15 - *...who holds the strings...* - Diagram of fluxes⁶⁸
Graphic (2 pages): Clara Maïda, 2012



Page on the left - A first *identifying time* is perceptible on the fifth and sixth staff systems: the four homorhythmic very tightened waves - the repeated pendulums.

Page on the right - A second *identifying time* is perceptible on the fourth and fifth staff systems: the four homorhythmic repeated pendulums.

⁶⁸ A first diagram was drawn during the composition of the piece (2004). Then, I traced a more accurate diagram in 2012. The vertical black lines correspond to the bar lines of the score. The four colours show the different instrumental voices (dark blue: violin 1; light blue: violin 2; pink: viola; red: cello).

Figure 16a - ...who holds the strings... - Cartography of "sonifiers" - Page 1

Graphic (2 pages): Clara Maïda, 2012

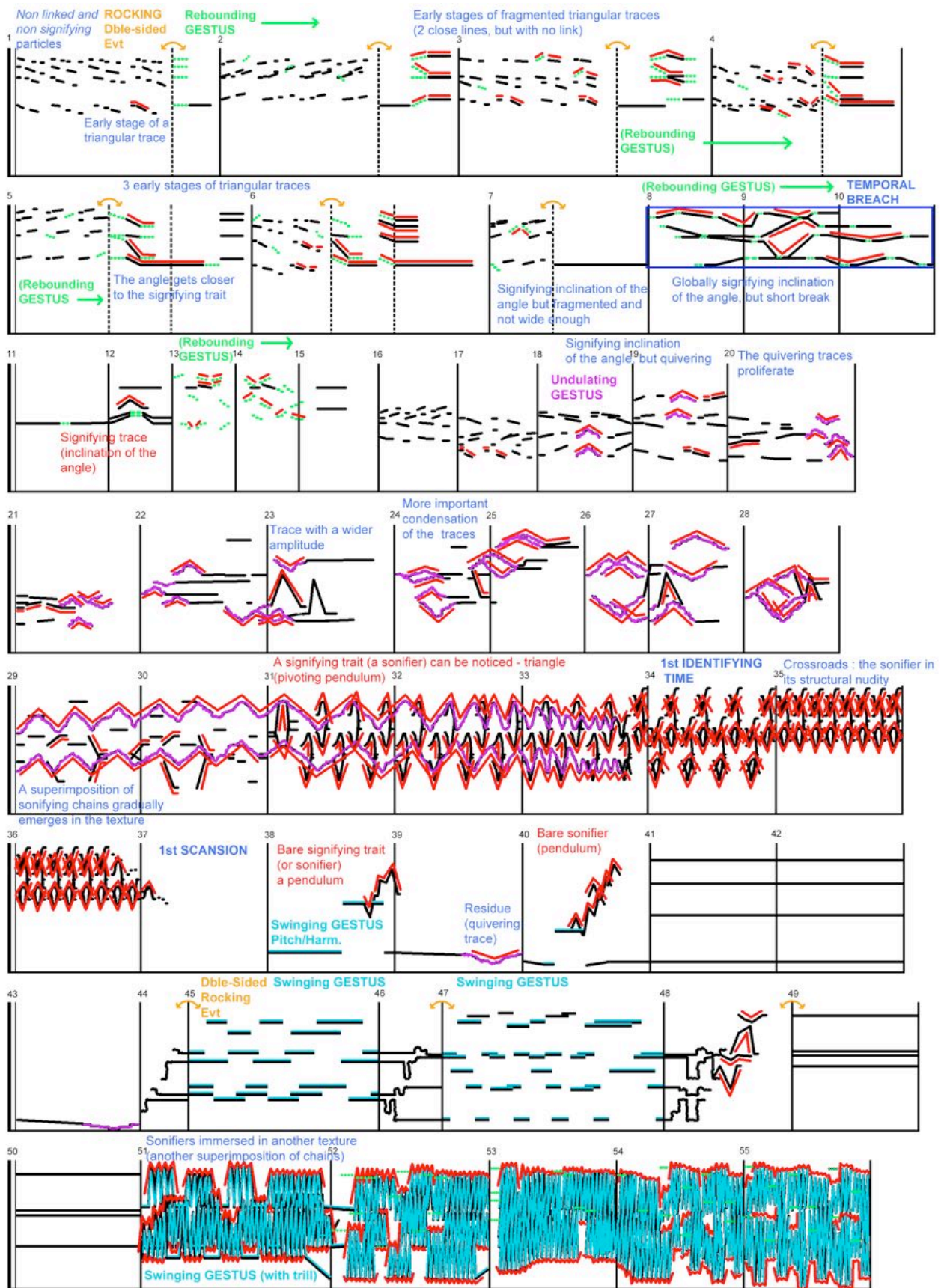
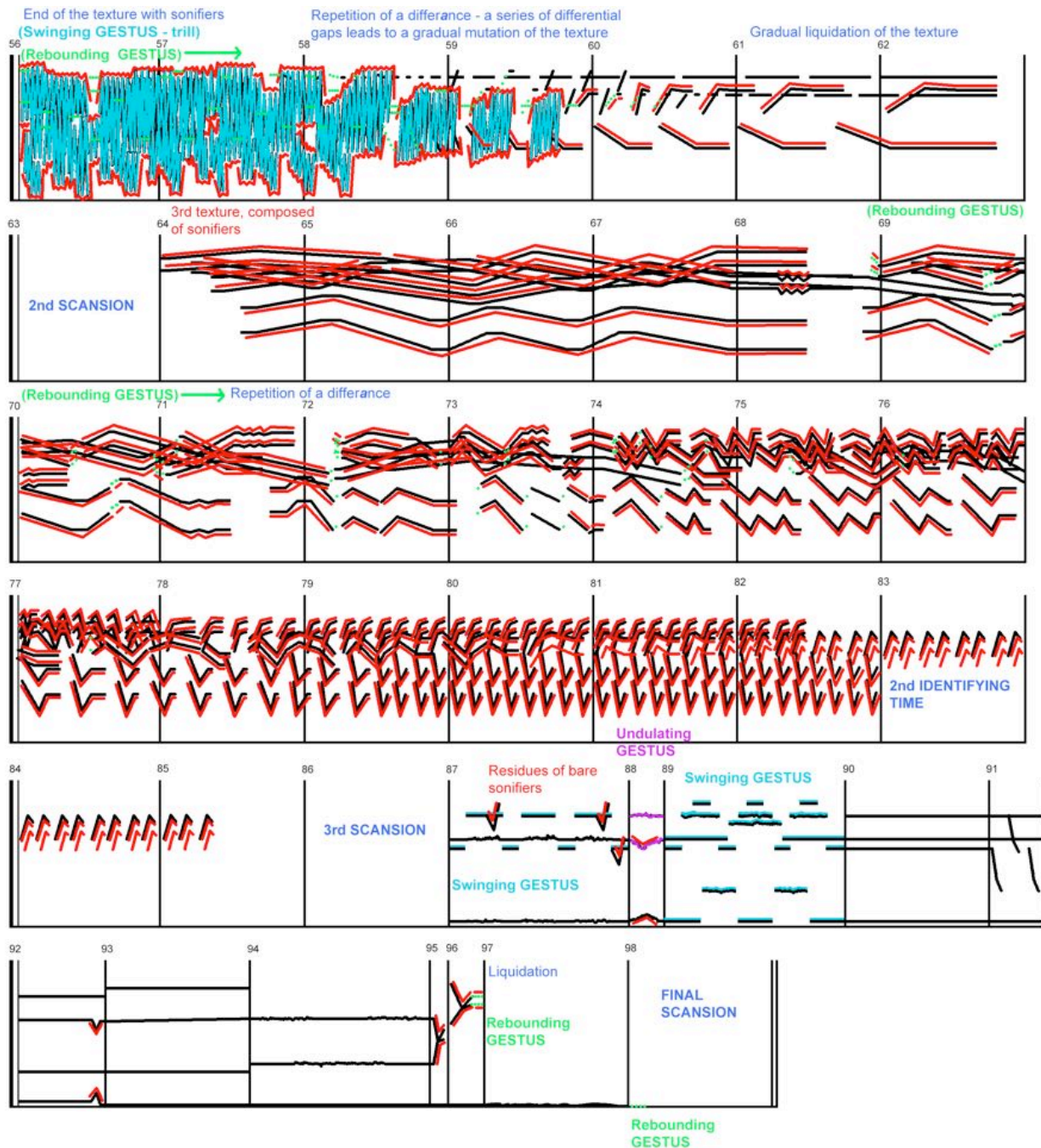


Figure 16b - ...who holds the strings... - Cartography of "sonifiers" - Page 2 (continuation)



Several sound traces return in different sequences and cross through the instrumental field. The most persistent trace is the ascending/descending curve (or vice versa) which finally metamorphoses twice into the "sonifying" pendular figure.

Here, in reference to Deleuze (1985), I introduce a new term. These "sonifiers" can actually also be named *gestus* because they are really categories of corporeal gestures travelling through the different instrumental layers.⁶⁹ Deleuze restated Brecht's notion of *gestus* which referred to

⁶⁹ Deleuze, G. (1985), *L'image-temps. Cinéma 2*, Les Editions de Minuit, Coll. "Critique", Paris, p. 250
English translation: Deleuze, G. (1997), *The Time-Image. Cinema 2*, translated by Tomlinson, H. and Habberjam, B., University of Minnesota Press, Minneapolis, p. 192: "What we call gest in general is the link or knot of attitudes between themselves, their co-ordination with each other, in so far as they do not depend on a previous story, a pre-existing plot or an action-image. On the contrary, the gest is the development of attitudes themselves [...]."
The American translation uses the term "gest". I prefer to keep Deleuze's term of *gestus*.

socially codified behaviours and to the body as a social sign. For the philosopher, it rather indicates a chain of behaviours which pass from one individual to the next.

On the graphic, these sound *gestus* are shown by a specific colour - a *rebounding gestus* (*saltando, gettato*, in green), an *undulatory gestus* (ascending/descending curves with tremolos, in pink), a *swinging gestus* (swinging between fundamental pitches and harmonics, in turquoise), and a *pivoting gestus* (the three-pitch pendulum, in red). They criss-cross through the musical matter, opening a plural time whether one concentrates on the paths of one *gestus* or the other.

Figure 17 - Two photographs: Clara Maïda - New York City, 2012



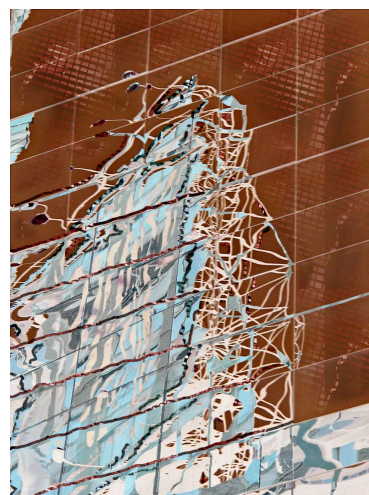
Entangled metallic threads

An entangling *gestus*

Photographs related to the series

www

for string quartet



In *Shel(l)ter - seither... () ...Splitter & hinter... () ...Eiter* (2010), I developed further this possibility of a "compound of splinters" in a more complex way. Referring again to the notion of *fragmented time* (Green), I organized a musical time in which the *associative irradiation* permeates all the situations, all the sound *gestus* which spread through the instrumental fabric of the piece. They eventually merge and then form composite elements. They weave a network of virtual threads which doubles the more audible fluxes between events. The *time's arrow* of the musical speech is broken by another logic, that of a connection between traces whose resonance irradiates both the past and the future of the work, keeps oscillating between *beforeness* and *afterwardsness*. What becomes significant, thanks to the recurrence, is not the traces themselves, but their articulations. The form is therefore organized according to a network of associations whose logic is polyvocal since the listeners can focus on one chain of *gestus* or another.

I can sometimes use different terms for the same phenomena - "sonifiers", "pulsounds", *gestus* - according to their most prominent functionality. The sound elements are "pulsounds" if the energy which circulates between them, their trajectories, are considered. They are *gestus* if their corporeal dimension (the way of playing, the timbre) is favoured. They are "sonifiers" when they become significant and clearly recognizable, which generally requires the listening of successive situations.

The complexity of the musical events induces a polyfunctionality and a plural perception (hence a plural naming). The notions of sound *Prägung* and *afterwardsness* are also more ambiguous in this piece since every *gestus* can be at the same time the striking, the *beforeness* of an event to come, and be perceptible in *afterwardsness*, in relation to an event previously enounced.

Figure 18 - *Shel(l)ter - seither... () ...Splitter*
Table of the entanglements of sound *gestus*

This table attempts to list the multiple echoes between the categories of *gestus* in the piece. It is obviously very difficult to make one grasp the complexity of all the rebounds or resonances for they keep intersecting. Therefore, I have only selected the ways of playing or the timbres, and a few clearly recognizable gestures which regularly return (the glissandi of harmonics, for instance), leaving out the harmonic or rhythmical dimensions of the piece.

| Bar 1 | 2 | 3 | 4 | 5 | 6 |
|---|--|---|---|---|---|
| WINDS: Pizz/Slaps Pitch & No Pitch + Fall | FL/HORN: Gliss of Harmonics OBOE: Multiphonic + Multi Flatt BASS CL: Attack Slap + Split Sound + Gliss Harm | WINDS: Pizz & Blow + Key Perc | SILENCE | WINDS: Sustained aggregate | SILENCE |
| PERC: Tam-tam Knock | PERC: Metal Pl. | Simile | SILENCE | PERC: T-T Repeat Scraping | SILENCE |
| STRINGS: Bartók Pizz + Slaps & Struck Col Legno + Fall | STR: Gettato & St Col Legno + Fall & Bartók Pizz + Slaps | STR: StCL + Fall | SILENCE | STR: Sust aggregate | SILENCE |
| 7 | 8 | 9 | 10 | 11 | 12 |
| HRN: Slap + Flatt + Trill Mute | B CL: Att. Slap HRN: Gliss Harm | FL: Pizz + Flatt OB: Pizz + Multi TPT/HRN: Split Sd | OB: Multi TPT/HRN: Sp Sd | OB: Multi HRN: Sp Sd | |
| PERC: Sim. | Sim. | Sim. | Sim. | Sim. | Sim. |
| DB: StCL + Trem + Microint Variations | C: Bartók Pizz DB: Microint Var | C: Bartók Pizz + Pizz DB: Microint Var | | STR: Trem + Gett DB: Repeat + Crushed bow | STR: Sust + Dyn Var |
| 13 | 14 | 15 | 16 | 17 | 18 |
| | B CL: Sp Sd + Gliss Harm HRN: Gliss Harm + Repeat | FL/B CL: Tr + Flatt OB: Multi Flatt + Vibrato TPT/HRN: Tr Mute | OB: Multi TPT/HRN: Sp Sd | OB: Multi HRN: Sp Sd | |
| PERC: Metal Pl. | Simile | Sim. | Sim. | Sim. | Sim. |
| DB: StCL + Trem + Microint Var | STR: TEXT Asc/Desc GLISS 1 + Saltando VL1/C: Cr bow | STR: Cr bow | STR: StCL | | STR: OBJECT 1 |
| 19 | 20/21 | 22/23 | 24 | 25 | 26 |
| | WINDS: OBJECT 1 | OB: Sust + Micro-Int Var + Vowels TPT/HRN: Sust + Microint Var + Tr Mute | OB/TPT/HRN: Arrival Microint Var & Micro-Melody | FL/B CL: Micro-Mel & Sust + Microint Var HRN: Gliss Harm | FL/B CL /HRN: Sust + Microint Var |
| PERC: Sim. | Sim. | Sim. | Sim. | Sim. | Sim. |
| STR: OBJECT 1 (end) | STR: Cr bow | STR: Bartók Pizz + Slaps & TEXT Asc/Desc GLISS 2 + Saltando | STR: Cr bow | STR: Bartók Pizz + Slaps & Gett | STR: Bartók Pizz + Pizz & Struck |
| 27 | 28 | 29 | 30 | 31 | 32/33 |
| FL/B CL: Micro-Mel & Sust + Microint Var HRN: Tr Mute | FL/B CL: Trem HRN: Gliss Harm | | WOODS: Overblow No Pitch + K. Perc + Asc/Desc Gliss | WOODS: Pizz TPT: Obl + Flatt HRN: Gliss Harm | |
| PERC: Sim. | Sim. | Sim. | Sim. | Sim. | Sim. |
| | STR: TEXT PIZZ Plectrum Fall 1 | STR: TEXT PIZZ Pic Fall 1 | STR: TEXT PIZZ Pic Fall 1 | | |

| | | | | | |
|---|---|--|--|--|--|
| 34 | 35 | 36/37 | 38 | 39 | 40 |
| WINDS: OBJECT 2 | WINDS: OBJECT 2 (end) | | FL/OB/TPT: Obl + Trem B CL: Sp Sd + Gliss Harm HRN: Gliss Harm | WOODS: Jerky Obl TPT/HRN: Obl | WOODS: Obl + Tr TPT/HRN: Jerky Obl |
| PERC: Sim. | Sim. | Sim. | Sim. | Sim. | Sim. |
| STR: Cr | VL1/VL2: Cr | STR: OBJECT 2 | STR: Gett & Bartók Pizz + Slaps | STR: TEXT Asc/Desc GLISS 3 + Salt | STR: TEXT Asc/Desc GLISS 3 |
| 41 | 42 | 43 | 44 | 45 | 46 |
| | | WINDS: Obl | WOODS: Obl + K. Perc + Fall TPT/HRN: Gliss Harm | WOODS: Obl + K. Perc + Asc/Desc Gliss FL/B CL: Pizz OB: Sust B5 + Microint Var TPT: Obl + Tr Mute | FL/B CL: Obl + K. Perc OB: Sust B5 + Microint Var TPT/HRN: Obl + Gliss Harm |
| PERC: Sim. | Sim. | Sim. | Sim. | Sim. | Sim. |
| STR: TEXT Asc/Desc GLISS 3 + Salt + Cr | STR: TEXT Asc/Desc GLISS 3 + Cr + Gett | STR: TEXT Asc/Desc GLISS 3 + Cr & Bartók Pizz + Slaps | STR: Gett & Bartók Pizz + Slaps | STR: StCL DB: Bartók Pizz + Slaps | |
| 47 | 48 | 49 | 50 | 51 | 52 |
| FL/B CL: Obl + K. Perc OB: Sust B5 + Microint Var TPT/HRN: Tr Mute | TPT: Sust B5 + Microint Var | B CL: Sust B5 + Microint Var | WOODS: Tr + Microint Var TPT/HRN: Tr Mute + Micro-Int Var | WINDS: Sust + Microint Var + Flatt | |
| PERC: Sim. | Sim. | Sim. | Sim. | Sim. | Sim. |
| | STR: TEXT PIZZ Pic + Fall 2 | STR: TEXT PIZZ Pic + Fall 2 | STR: TEXT PIZZ Pic + Fall 2 & Bartók Pizz | STR: Bartók Pizz + Pizz & TEXT PIZZ Pic + Fall 3 | STR: TEXT PIZZ Pic + Fall 3 |
| 53 | 54 | 55 | 56 | 57 | 58 |
| FL/B CL: Obl + K. Perc OB: Sust + Microint Var TPT/HRN: Tr Mute | FL: Obl + K. Perc TPT: Sust + Microint Var | WINDS: Sust + Microint Var | WOODS: Sust + Vibr TPT/HRN: Sust + Tr Mute | WINDS: Micro-Mel | SILENCE |
| PERC: Sim. | Sim. | Sim. | Sim. | Cymb Knock | SILENCE |
| STR: TEXT PIZZ Pic + Fall 3 | STR: TEXT PIZZ Pic + Fall 3 C/DB: Microint Var | C/DB: Microint Var + Cr | C/DB: Cr | | STR: Bartók Pizz + Pizz |
| 59 | 60 | 61 | 62/63 | 64 | 65 |
| WINDS: OBJECT 3 | WINDS: OBJECT 3 (end) | B CL: Sp Sd + Gliss Harm TPT/HRN: Gliss Harm | B CL: Sp Sd + Gliss Harm TPT/HRN: Gliss Harm | B CL: Obl + Tr TPT/HRN: Tr Mute | FL/B CL/HRN: Microint Var |
| PERC: Toms Rbd | Sim. & Cymb Roll | Toms Rbd & Metal Pl. | Metal Pl. | Cymb Knock | SILENCE & Metal Pl. |
| STR: Bartók Pizz + Slaps | STR: Bartók Pizz + Pizz | STR: Bartók Pizz | | STR: Cr + Microint Var | STR: StCL & TEXT Asc/Desc GLISS 4 Salt |
| 66 | 67 | 68 | 69 | 70 | 71 |
| FL/B CL/HRN: Sust + Microint Var | FL/B CL/HRN: Sust + Microint Var + Obl | B CL: Sp Sd FL/TPT: Repeat HRN: Gliss Harm | FL/TPT: Repeat B CL: Sp Sd OB: Multi HRN: Gliss Harm | FL/OB/TPT: Repeat B CL: Sp Sd + Gliss Harm OB: Multi HRN: Gliss Harm | FL: Gliss Harm |
| Sim. | Sim. | Guero Scrapping & Metal Pl. | Metal Pl. | Guero Scrapping | Cymb Roll |
| STR: TEXT Asc/Desc GLISS 4 Salt | STR: TEXT Asc/Desc GLISS 4 Salt + Cr | STR: TEXT Asc/Desc GLISS 4 Salt + Cr | STR: TEXT GLISS Asc/Desc 4 Salt | STR: Cr + Asc Gliss | STR: Cr |

| | | | | | |
|---|--|--|--|-------------------------------|---|
| 72 | 73 | 74 | 75 | 76 | 77 |
| FL/OB/TPT: Repeat B CL: Sp Sd + Gliss Harm OB: Multi HRN: Gliss Harm | FL: Gliss Harm | OB: Multi B CL: Sp Sd | FL/TPT: Repeat B CL: Sp Sd + Gliss Harm OB: Multi HRN: Gliss Harm | FL: Gliss Harm | |
| SILENCE | Guero | Guero Scraping & Metal Pl. | Metal Pl. | Sim. | |
| STR: Asc Gliss | STR: Cr | STR: Cr + Vibr | STR: Asc Gliss | STR: Repeat + Cr | |
| 78 | 79 | 80 | 81 | 82 | 83 |
| B CL: Sp Sd OB: Multi TPT/HRN: Sp Sd | B CL: Sp Sd + Gliss Harm TPT: Sp Sd TPT/HRN: Sust | B CL: Sp Sd + Gliss Harm | SILENCE | CLB/TPT/HRN: Sp Sd | CL B: Sp Sd + Gliss Harm TPT: Sp Sd HRN: Microint Var |
| SILENCE | Guero | Guero Scrap. & Met. Pl. | SILENCE | Sim. | |
| STR: Sust | STR: Sust | STR: Sust | STR: Repeat | STR: Sust | STR: Repeat + Microint Var |
| 84 | 85/86 | 87 | 88 | 89 | 89 |
| B CL: Sp Sd + Gliss Harm HRN: Gliss Harm | OB: Multi + Flatt B CL: Sp Sd + Gliss Harm HRN: Gliss Harm | FL/OB: Obl + Flatt B CL/DB: DUO 1 Sp Sd /Cr + Flatt/Trem HRN: Gliss Harm | OB: Flatt B CL: Sp Sd + Gliss Harm HRN: Gliss Harm + Flatt | B CL: Sp Sd TPT/HRN: Sp Sd | FL/OB/B CL: Obl + Flatt TPT/HRN: Obl |
| SILENCE | Guero | Tam-tam Roll | T-T Roll | T-T Roll | |
| STR: Repeat + Microint Var | STR: Sust DB: Repeat + Cr | STR: Bartók Pizz + Pizz + Microint Var | STR: OBJECT 3 | STR: Sust | STR: Microint Var + Cr |
| 90 | 91 | 92 | 93 | 94 | 95 |
| FL/OB/B CL/TPT: Stacc | WINDS: Micro-Mel | FL/B CL/TPT/HRN: Pizz Pitch & No Pitch HRN: Blow No Pitch + K. Perc | WINDS: Staccato 4 16th + Microint Var | | WINDS: Micro-Mel B CL: Sp Sd + Gliss Harm HRN: Gliss Harm |
| Tam-tam Roll | T-T Roll | | T-T Roll | | T-T Roll |
| STR: Repeat + Microint Var | STR: Gett & Martellato 4 16th | | STR: TEXT Asc/Desc GLISS + Cr | STR: StCL | STR: Mart 4 16th |
| 96 | 97/100 | 101 | 102 | 103/14 | 105 |
| WINDS: Pizz & Slaps & Tongue Ram & Blow No Pitch + K. Perc | WINDS: Blow + Blow No Pitch + Flatt | | | | FL/B CL/TPT/HRN: Tr |
| | Tam-tam Roll | T-T Roll | T-T Roll | T-T Roll | |
| | STR: Bartók Pizz & TEXT Asc/Desc GLISS 5 + Salt + Cr | STR: Cr | STR: Bartók Pizz | | STR: Text Pizz Pic + Fall 4 |

The different colours refer to the different categories of *gestus*.

I/ Percussive events - 1/ STRINGS: a/ Pizzicati with a very quick there and back movement of the plectrum + a falling movement; b/ Bartók Pizzicato; c/ Ordinary Pizzicato; d/ Struck or Struck *Col Legno*; e/ *Gettato*; f/ *Saltando*; g/ *Martellato* (four 16th); 2/ WINDS: a/ Pizzicati and Slaps + a falling movement (pitch or no pitch); b/ Overblow (pitch or no pitch); c/ Key Percussions; d/ Tongue-Rams; e/ *Staccato* (four 16th); 3/ PERCUSSION: Rebound - **II/ Sustain or repetition of the same pitch + dynamic variations** - STRINGS & WINDS - **III/ Curves** - 1/ STRINGS: Texture with ascending and descending movements; 2/ WINDS: Glissando of harmonics (flute, horn); 3/ PERCUSSION: Scraping (continuous, with a crescendo) - **IV/ Trembling events** - 1/ STRINGS: Tremolo; 2/ WINDS: a/ Flatterzunge; b/ Trill and Trill with mute; c/ Tremolo; d/ Vibrato; 3/ PERCUSSION: Rolling on a Cymbal or a Tam-tam - **V/ Slight fluctuations** - WINDS: Microintervallic variations of a pitch or with vowels - **VI/ Distorted sounds** - 1/ STRINGS: Crushed bow; 2/ WINDS: a/ Multiphonic or Split Sound; b/ Distorted Overblow - **VII/ Repeated pitches** - PERCUSSION: Scraping on Tam-tam or Guero - **VIII/ Rhythmical OBJECTS** - Condensates of traces - **IX/ DUOS** - STRINGS & WINDS: Helical formulae.

It would be too long to list the different *gestus* and bar 105 seems an interesting time to stop this table for the descending texture of the *pizzicati* of the strings (a very quick there and back movement with a plectrum) returns here for the last time. It is a junction between the trajectories of splinters and remnants which had been travelling everywhere from the beginning of the piece and the more pronounced utterance of another *gestus* - a repeated pitch - which occurred from time to time (flute/trumpet, bars 68, 69, 70 and 75; flute/oboe/trumpet, bar 72). It will gradually spread to the whole instrumental group, stabilized on one aggregate (bars 111-138) and will emerge mostly in the second part (bars 154-160, 163-171, the harmonics of the flute and the clarinet, with the addition of the punctuations of the trumpet and the horn).

In these assemblages of *gestus*, which can be considered here as *gestus-timbres* and *gestus-outlines* for their timbre (and the way of playing) or their contours favour their identification within a very complex texture, some a little more perceptible events give anticipating traces of the second part of the piece.

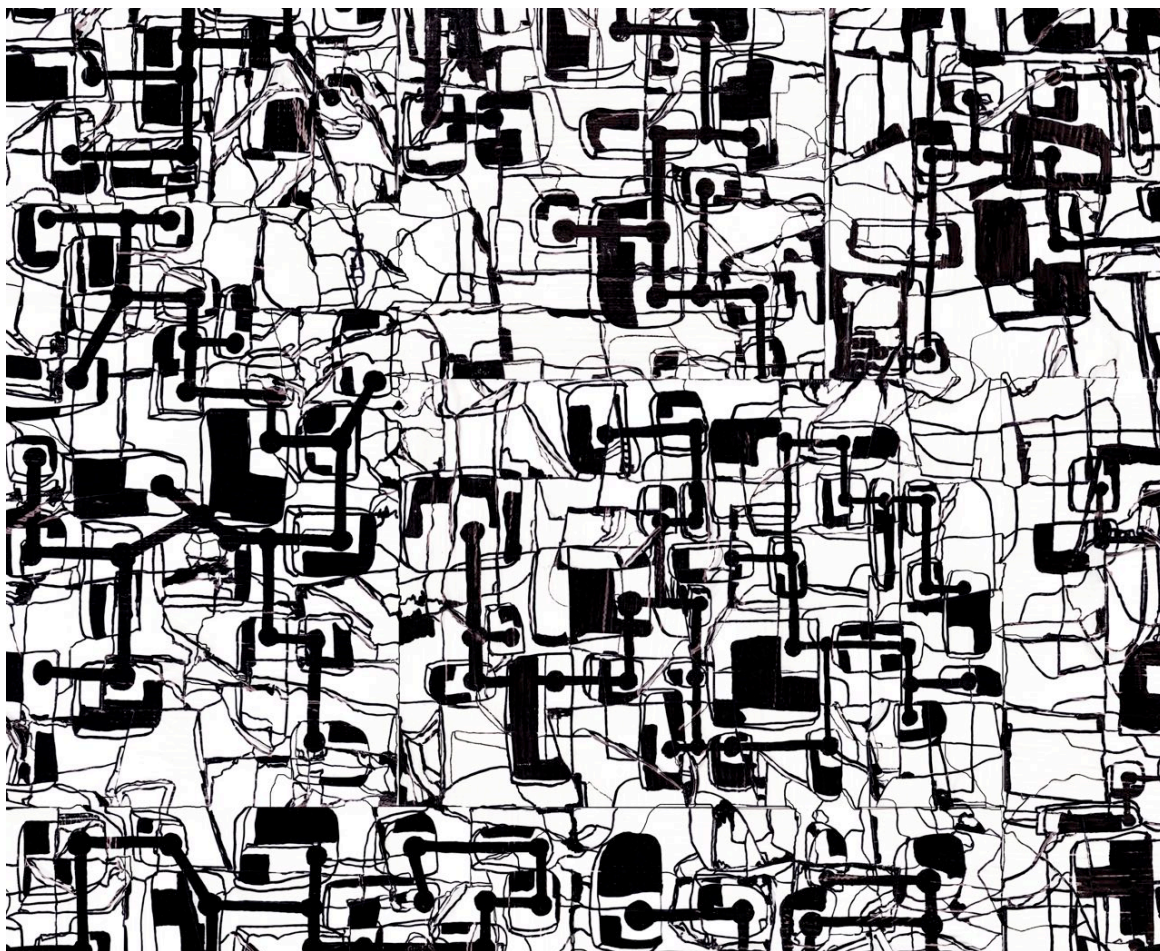
This concept of *gestus* might evoke Lachenmann's notion of sonic typology. However, a *gestus* concerns a virtual and potential quality of sound. It is a kind of corporeal yet abstract behaviour (trembling, rebounding, etc.) which can affect any sound event and can be fleetingly embodied in it. If one refers to a human behaviour, a smile, for instance, can be considered as a corporeal behaviour. The lips move. It is a movement of the face which can be described without being related to any particular individual. It is thereby an abstract and virtual category since it is not embodied yet. It is a *gestus*. That is somehow what Lewis Carroll shows in *Alice's adventures in Wonderland* when the smile of the cat persists after the disappearance of the animal. But this abstract category of movement, this *gestus*, can be embodied when someone smiles. And this embodiment can spread among a group of persons if this person's smile makes the others smile in turn.

On a musical level, it is important to note that all the *gestus* described in *Shel(l)ter's* table are actually "pulsounds". Pushed by constant forces close to the *driving forces* conceptualized by Freud, with processes such as combination, *condensation*, *displacement*, they keep travelling through space and they associate with one another in ever changing configurations.⁷⁰ Each time these "pulsounds" appear in a different constellation, they get a gradual clearer "sonifying" value, giving indications for the understanding of the whole form of the piece.

This is a sound machinery and it could be endless.

⁷⁰ Freud, S. (1905; 1968), "Pulsions et destins des pulsions" ("Drive and The Destiny of the Drive"), in *Métapsychologie* (*Metapsychology*), Editions Gallimard, Paris, p. 14. English translation (Maïda): "Drive [...] never acts as a *momentaneous force of impact* but always as a *constant force*."

Chapter 2 - SOUND *DESIRING* MACHINES
AND
SOUND NANOMACHINES



Drawing: Clara Maïda, 2012

Ce n'est pas le désir qui est dans le sujet, mais la machine dans le désir [...].

Deleuze, G. and Guattari, F. (1972), *L'Anti-Œdipe*⁷¹

[...] l'inconscient machinique, à la différence de l'inconscient psychanalytique, n'est pas un inconscient représentatif [...]; il est à construire à la manière d'une carte; [...] la carte, comme dernier caractère du rhizome, sera démontable, connectable, renversable, susceptible de recevoir constamment des modifications.

Guattari, F. (1979), *L'inconscient machinique*⁷²

The human body is a living, breathing example of the power of nanotechnology. Almost everything happens at the atomic level. Individual molecules are captured and sorted, and individual atoms in these molecules are shuffled from place to place, building entirely new molecules. Individual photons of light are captured and used to direct the motion of individual electrons through electrical circuits. Molecules are packaged and transported expertly over distances of a few nanometers. Tiny molecular machines [...] orchestrate all of these nanoscale processes of life. Like the machines of our modern world, these machines are built to perform specific tasks efficiently and accurately. These tasks, however, are molecule-sized tasks and the molecular machines in cells have been perfected to operate at the level of atoms.

Goodsell, D. S. (2009), *The Machinery of Life*⁷³

This research at the intersection of psychoanalysis and musical writing led me to elaborate a distortable and elastic sound topography. The minimal units which form the parts of this sound machinery are upset by all kinds of forces: sliding, displacement, condensation, accumulation, proliferation, crystallization, stratification, revolving, pulverization, disappearance. However, as already evoked, three forces predominate: oscillation, repetition and mutation. The constant rocking of these small three-pitch pendulums attempts at a precarious balance between two antagonistic tendencies: to repeat and to metamorphose.

2.1- DELEUZE AND GUATTARI: from a structural to a *machinic* unconscious

The abstraction of these elementary and modular sound figures, the conceptualization of "sonifiers" that I described as fragmentary traces which keep circulating through a network but which are distinct from the Lacanian *signifiers* because of their single sound value, have progressively made me turn from the psychoanalytical unconscious to the *machinic unconscious* theorized by philosophers Deleuze and Guattari, from sound networks to *rhizomatic* sound topographies.

⁷¹ Deleuze, G. and Guattari, F. (1972), *L'Anti-Œdipe. Capitalisme et schizophrénie 1*, Les Editions de Minuit, Coll. "Critique", Paris, p. 339

English translation: Deleuze, G. and Guattari, F. (1983; 2000), *Anti-Oedipus. Capitalism and Schizophrenia 1*, translated from the French by Hurley, R., Seem, M. and Lane, H.R., University of Minnesota Press, Minneapolis, p. 285: "Desire is not in the subject, but the machine in desire [...]."

⁷² Guattari, F. (1979), *L'inconscient machinique. Essais de schizo-analyse*, Editions Recherches, Paris, p. 17.

English translation: Guattari, F. (2011), *The machinic unconscious: Essays in schizoanalysis*, translated by Adkins, T., Editions Semiotext(e), Los Angeles, p. 19: "[...] unlike the psychoanalytic unconscious, the machinic unconscious is not a representational unconscious [...]; it is to be built like a map; [...] the map, as a last characteristic of the rhizome will be detachable, connectable, reversal, and modifiable."

⁷³ Goodsell, D. S. (2009; 2010), *The Machinery of Life*, Copernicus Books, Springer Science+Business Media, New York, p. 9

French translation: Goodsell, D. S. (2009), *La Machinerie de la vie*, translated from the American by Fourmentin, E., Larivière, D., Schwarz, N. and Molino, F., EDP Sciences, France, p. 21

2.1.1 - The machinic unconscious, desiring machines and rhizomes

In *Anti-Oedipus* (1972), Deleuze and Guattari dispute the overinterpretative drift of psychoanalysis, the importance given to a representative content of the unconscious. They oppose to the latter the notion of a *machinic unconscious*, i.e. a molecular unconscious, animated by microprocesses, micro-machinisms.⁷⁴ It is a space of pure sensation, emptied of significance or figuration, since the *assemblages* traced by *asignifying particles* (Guattari)⁷⁵ reveal diagrammatic modalities, a field of force, what both philosophers describe as "intensive quantities in their pure state".⁷⁶ The *desiring machines* are the operators of the unconscious whose symbolic content is no longer to analyse, but whose driving forces are to catalyse.⁷⁷ Flux must be liberated, the production of *becomings*⁷⁸ must be stimulated, on a particulate or *microphysical*⁷⁹ level of this unconscious considered as "[...] an acentered system, in other words, as a machinic network of finite automata (a rhizome) [...]".⁸⁰

In *A Thousand Plateaus* (1980), Deleuze and Guattari describe the different principles of a *rhizome*: multiplicity, moving directions, heteronomy of the assembled elements, microconnections and micro-ruptures.⁸¹ The ceaseless machinisms of this rhizomatic cartography are the vectors of an eventual *territorialization*, i.e. a convergence towards a more consistent zone, a condensation of particles and lines, as well as processes of *detrterritorialization*, pluridirectional migrations.⁸²

2.1.2 - Territorialization, detrterritorialization and becoming

This movement of *territorialization/detrterritorialization* is not only related to flows brought together, but also to the relativity of the speeds of stratification and destratification, the latter being eventually pushed towards a whole pulverization of the forms, a *becoming-imperceptible*, pure

⁷⁴ Deleuze, G. and Guattari, F. (1972), "Les machines désirantes", in *L'Anti-Œdipe. Capitalisme et schizophrénie 1*, Les Editions de Minuit, Coll. "Critique", Paris, p. 62.

English translation: Deleuze, G. and Guattari, F. (1983), "The Desiring Machines", in *Anti-Oedipus. Capitalism and schizophrenia 1*, translated from the French by Hurley, R., Seem, M. and Lane, H. R., University of Minnesota Press, Minneapolis, p. 53: "For the unconscious itself is no more structural than personal, it does not symbolize any more than it imagines or represents; it engineers, it is machinic."

⁷⁵ According to Guattari, *asignifying particles* are semiotic constituents. They have no semantic value.

Guattari, F. (1979), *L'inconscient machinique. Essais de schizo-analyse*, Editions Recherches, Paris
English translation: Guattari, F. (2011), *The Machinic Unconscious: Essays in Schizoanalysis*, translated by Adkins, T., Semiotext(e), Los Angeles

⁷⁶ Deleuze, G. and Guattari, F., *Ibid.*, p. 25 (original text), p. 18 (English translation)

⁷⁷ Deleuze, G. and Guattari, F. (1972), "Sauvages, barbares, civilisés", in *Ibid.*, pp. 213-214

English translation: Deleuze, G. and Guattari, F. (1983), "Savages, Barbarians, Civilized Men", in *Ibid.*, p. 181: "Only desiring-machines produce connections according to which they function, and function by improvising and forming the connections. A molar functionalism is therefore a functionalism that did not go far enough, that did not reach those regions where desire engineers, independently of the macroscopic nature of what it is engineering: organic, social, linguistic, etc. [...]"

⁷⁸ Deleuze, G. (1993), "Ce que les enfants disent", in *Critique et clinique*, Les Editions de Minuit, Paris, p. 84

English translation: Deleuze, G. (1998), "What Children Say", in *Essays: Critical and Clinical*, translated by Smith, D. W., p. 63: "[...] the unconscious no longer deals with persons and objects, but with trajectories and becomings."

⁷⁹ Deleuze, G. and Guattari, F. (1972), *Ibid.*, p. 216

English translation: Deleuze, G. and Guattari, F. (1983), *Ibid.*, p. 183: "For desiring machines are precisely that: the microphysics of the unconscious, the elements of the microunconscious."

⁸⁰ Deleuze, G. and Guattari, F. (1980), "Rhizomes", in *Mille plateaux. Capitalisme et schizophrénie 2*, Les Editions de Minuit, Coll. "Critique", Paris, p. 27

English translation: Deleuze, G. and Guattari, F. (1985; 2007), "Rhizomes", in *A Thousand Plateaus. Capitalism and Schizophrenia 2*, translated by Massumi, B., University of Minnesota Press, Minneapolis/London, p. 18

⁸¹ *Ibid.*, p. 16 (original text)

English translation, p. 9: "Every rhizome contains lines of segmentarity according to which it is stratified, territorialized, organized, signified, attributed, etc. As well as lines of detrterritorialization down which it constantly flees. There is a rupture in the rhizome whenever segmentary lines explode into a line of flight, but the line of flight is part of the rhizome. These lines always tie back to one another."

⁸² Deleuze, G. and Guattari, F. (1980), "De la ritournelle", in *Ibid.*, p. 387

English translation: Deleuze, G. and Guattari, F. (1987; 2005), "Of the Refrain", in *Ibid.*, p. 315: "There is a territory precisely when milieu components cease to be directional, becoming dimensional instead [...]"

vibration.⁸³ Two planes of writing are mentioned: a plane related to the global forms and a plane related to the movement of particles.⁸⁴ Whatever domain is considered, both planes account for the relationships between macro- and micro-structure and can be also related to musical writing. Ligeti's music expresses this multitude of a *rhizome*. Numerous micro-*becomings* occur in all the interstices of his sound textures.⁸⁵ Conceiving music as a "becoming of sound" (Grisey)⁸⁶ and favouring processes rather than figures (Dufourt),⁸⁷ spectral composers also coincide with a few Deleuzian concepts. For my part, with these concepts of *rhizome*, *becoming*, *territorialization/deterritorialization*, my thinking about sound networks in relation to psychoanalysis turned to more hybrid sound *becomings*.

Psyché-Cité/Transversales superimposes two maps: that of the neuronal network and that of the subway. The processes of rhythmic interpolation, the complex textures which merge instrumental sounds and noises of the subway, the electronic treatments, evoke a *deterritorialized* zone at the border of the effervescence of the suburban world and the cerebral activity. *Mutatis mutandis* and *Shel(l)ter* continue the journey towards an other *becoming*: the "infinitely small".

2.2 - NEUROBIOLOGY AND NANOSCIENCES

Contemporaneous with the expansion of neurosciences and nanosciences, Deleuze and Guattari were interested in the microscopic forces which cross through the social field in its different dimensions: socio-political, psychic, artistic. From the *rhizome* to the neuronal network, from the molecular and *machinic unconscious* to the *molecular machines* observed by the microbiologists, there is only one step that both philosophers have crossed by proposing a kind of "nanometric cartography" of human phenomena. Their tendency to erase boundaries between definite identities and forms, and between separate disciplines, their concept of *becoming-molecule* or *becoming-imperceptible*, converge towards my attempt to reach ever more abstraction, to plunge into ever more microscopic components of matter: first neurons, then genetic phenomena, and finally atoms and nanoparticles.

2.2.1 - The neuronal network

The notion of network is at the heart of our century's thinking and concerns many fields of research: psychoanalysis, neurobiology, cybernetics, artificial intelligence, to name only a few.

⁸³ Deleuze, G. and Guattari, F. (1980), "Rhizomes", in *Ibid.*, pp. 9-10

English translation: Deleuze, G. and Guattari, F. (1985; 2007), "Of the Refrain", in *Ibid.*, pp. 3-4: "[...] there are lines of articulation or segmentarity, strata and territories; but also lines of flight, movements of deterritorialization and destratification. Comparative rates of flow on these lines produce phenomena of relative slowness and viscosity, or, on the contrary, of acceleration and rupture. All this, lines and measurable speeds, constitutes an *assemblage*."

⁸⁴ Deleuze, G. and Guattari, F. (1980), "Devenir intense, devenir-animal, devenir-imperceptible", in *Ibid.*, p. 327

English translation: Deleuze, G. and Guattari, F. (1985; 2007), "Becoming-intense, becoming-animal, becoming-imperceptible", in *Ibid.*, p. 267: "[...] a transcendent plan(e) that organizes and develops forms (genres, themes, motifs) and assigns and develops subjects (personages, characters, feelings); and an altogether different plane that liberates the particles of an anonymous matter [...], retaining between them only relations of movement and rest, speed and slowness, floating affects, so that the plane itself is perceived at the same time as it allows us to perceive the imperceptible (the microplane, the molecular plane)."

⁸⁵ The heterophonic and metamorphic properties of Ligeti's music particularly impressed me even if I opted for a different harmonic language. *Ramifications* (1968), for instance, is a succession of *territorializations* (harmonic, rhythmical or metrical stabilizations) and *deterritorializations* (migratory paths of all the instrumental layers toward other zones).

⁸⁶ Grisey, G. (1982), "La musique: le devenir des sons" ("Music: The Becoming of Sounds"), *Darmstädter Beiträge zur Neuen Musik*, XIX, pp. 16-23

⁸⁷ Dufourt, H. (1991), "Timbre et espace" ("Timbre and Space"), in *Le timbre, métaphore pour la composition* (*Timbre, a Metaphor for Composition*), IRCAM/Christian Bourgois, Coll. "Musique/Passé/Présent", Paris, p. 279: "Such music [...] does not attempt to describe the delimitation of figures, but to produce the becoming of qualities."

That is why I decided to make the network a focal point of my musical writing.⁸⁸

Neurobiology has shown that the brain is composed of an entanglement of more than one hundred billions of neurons. They are characterized by their excitability and conductivity, with about a billion synapses (interneuronal connections) through which electrochemical signals circulate.⁸⁹ The neuronal network is a *rhizome*. Its extremely numerous ramifications proliferate towards the horizontal level as well as in the depth of the different cortical layers involved in specific tasks (vision, audition, language, etc.).

[...] any behaviour, any sensation can be explained by the *internal mobilization* of a topologically definite ensemble of nervous cells, a singular graph. The "geography" of this network determines in a critical way the specificity of the function.⁹⁰

Figure 19

The neuronal network⁹¹

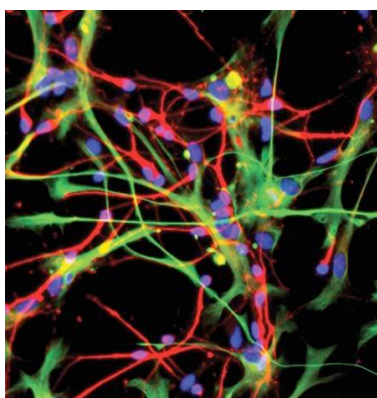
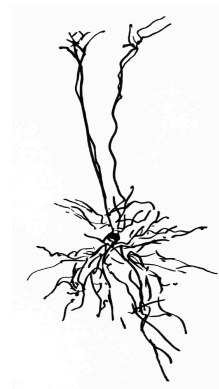


Figure 20

Drawing: Clara Maïda, 2007

A pyramidal neuron of the cerebral cortex



But more recent observations have demonstrated a neuronal plasticity. In the case of cerebral lesions, a function can eventually be recovered thanks to the reorganization of the neuronal circuits, the creation of new connections investing another cerebral zone, or even, as more recently shown, the generation of neurons.⁹²

Additionally, the neurons have oscillating properties. Electrical influx propagates along the nerve fibres. And each mental state (attention, rest, sleep, etc.) has specific cerebral waves, cerebral rhythms.

⁸⁸ See: Maïda, C. (March-April 2011), "Für eine Nanomusik", *Neue Zeitschrift für Musik. Das Magazin für neue Töne. Klangzeitort*, Universität der Künste and Hochschule für Musik Hanns Eisler, Berlin, pp. 60-63 (English title: "For a nanomusic")

⁸⁹ Changeux, J.-P. (1983), *L'Homme neuronal (Neuronal Man: The Biology of Mind)*, Hachette Littératures, Coll. "Pluriel", Paris, p. 160. English translation (Maïda): "Human encephalon appears to us as a huge assembling of tens of billion neuronal "cobwebs" entangled with one another and in which myriads of electrical impulses, here and there in relay thanks to a rich range of chemical signals, "crackle" and propagate. The anatomic and chemical organization of this machine is formidably complex [...]."

See also: Coget, J. (March 2009), "Physiologie du neurone" ("The Physiology of the Neuron"), CUEEP-Université Lille 1, Sciences et Technologies, Département de Sciences, France, available at: http://passeport.univ-lille1.fr/site/biologie/scbio/Neurone/Neurone_web.publi/web/co/Neurone_web.html (accessed August 20, 2015)

⁹⁰ Changeux, J.-P. (1983), *Ibid.*, p. 157

⁹¹ Anonymous (Last Updated January 28, 2015), "Neuron. Anatomy", *Encyclopaedia Britannica* (online), available at: <http://global.britannica.com/science/neuron> (accessed September 2, 2015): "Neurons (red), which are supported by glial cells such as astrocytes (green), retain the ability to deviate from their usual functions and to reorganize themselves in response to new information."

⁹² Lefebvre, L. (2006), "La réorganisation fonctionnelle des aires cérébrales du langage et de l'organisation visuospatiale. Influence des régularités environnementales lors d'un entraînement non verbal: études en fMRI" ("The Functional Reorganization of The Cerebral Areas of Language and of Visuospatial Organization. Influence of The Environmental Regularities During a Non-Verbal Training: Studies in fMRI"), Linguistics, Université de Mons-Hainaut, Canada, <tel- 00134711>, Thesis

These three properties play an important part in my musical writing: 1/ a topology with varying activated zones; 2/ a modular dimension with connections between separate entities; 3/ the passage of influx at the intersection of these modules and an undulatory activity.

2.2.2 - Nanosciences and nanotechnologies

But if the physicochemical phenomena of the nervous system are observed, it is interesting to note that animate and inanimate matter are made of the same constituents.⁹³

Nanosciences, which include microbiology, genetics, chemistry or quantum physics, have demonstrated that, from bacteria to the human body, molecular machines and the genome are built with the same components. Geneticists have made it possible to join DNA molecules from different species thus creating transgenic organisms.⁹⁴

Nanotechnology's *bottom-up* approach mimics the molecular structures.⁹⁵ Thanks to new tools, it becomes possible to observe and manipulate matter on a nanoscale⁹⁶ and to create ever more complex microsystems and objects, assembling the atoms, in order to get composites (both organic and inorganic molecules) and to cross one more barrier than that of the species: the barrier between living and non-living matter.⁹⁷

2.3 - TOWARDS A "NANOMUSIC"

In *Psyché-Cité/Transversales*, *Mutatis mutandis* and *Shel(l)ter*, the transversal approach to composition initiated in my previous pieces coincided with the interdisciplinarity that has been spreading ever more since the 1980s. Deleuze and Guattari's philosophy refers to various areas such as psychoanalysis, sociology, politics, linguistics, genetics, art and literature, etc. The different fields involved in nanosciences share their discoveries in order to understand more precisely the structure of matter and the functioning of the human body. Therefore new spheres of research have appeared or are emerging: bioinformatics, nanobiotechnology, nanoacoustics, molecular electronics, spintronics, etc.

In the musical works mentioned above, I question the interaction between humans and their environment, how the increasing presence of science and technology in our lives can condition a modification of our self-perception as well as our perception and experience of the world, or of creation.

⁹³ Changeux, J.-P. (1983), *L'Homme neuronal (Neuronal Man: The Biology of Mind)*, Hachette Littératures, Coll. "Pluriel", Paris, p. 123. English translation (Maïda): "The sodium and potassium ions which cross over the canals of the axon or of the postsynaptic membrane are the same in sea water or inside the neuron. The molecules of neurotransmitters and of their receptors are composed of carbon, hydrogen, oxygen and azote which are not characteristic of living beings. The nervous system is composed of - and uses in order to function - the same "matter" as the inanimate world. The latter is organized in "molecular" edifices which intervene in nervous communication just as others regulate the cellular breathing or the replication of the chromosomes."

⁹⁴ Winchester, A. M. (Last Updated April 29, 2014), "Genetics", *Encyclopaedia Britannica* (online), available at: <http://global.britannica.com/technology/nanotechnology> (accessed September 2, 2015)

⁹⁵ The *bottom-up* approach, still in progress, is used in nanofabrication in order to assemble basic individual components into larger structures thanks to the chemical or physical forces that operate on a nanoscale.

⁹⁶ One nanometre is one billionth of a metre.

⁹⁷ Picraux, S. T. (Last Updated May 5, 2015), "Nanotechnology", *Encyclopaedia Britannica* (online), available at: <http://global.britannica.com/technology/nanotechnology> (accessed September 1, 2015): "In contrast to recent engineering efforts, nature developed "nanotechnologies" over billions of years, employing enzymes and catalysts to organize with exquisite precision different kinds of atoms and molecules into complex microscopic structures that make life possible. These natural products are built with great efficiency and have impressive capabilities, such as the power to harvest solar energy, to convert minerals and water into living cells, to store and process massive amounts of data using large arrays of nerve cells, and to replicate perfectly billions of bits of information stored in molecules of deoxyribonucleic acid (DNA)."

See also: Weissbuch, C., "Nanotechnologies", *Encyclopædia Universalis* (online), available at: <http://www.universalis.fr/encyclopedie/nanotechnologies/> (accessed August 30, 2015)

2.3.1 - PSYCHE-CITE/TRANSVERSALES - Sound hybridization and *sound rhizomes*

A rhizome [...] is always in the middle, between things, interbeing [...].⁹⁸

That is exactly the starting point of *Via rupta*, the first piece composed for *Psyché-Cité/Transversales* (2005-07) although it finally became the last part of the triptych.

The sound *becoming* of my previous pieces, their mutative textures passing from stratification to destratification, were exclusively instrumental. But my auditory experience of the sounds in the Paris subway, with its singular acoustics, and the structure of the metropolitan network generated a wish to extend my sound material.

Two aspects have been immediately significant to me. On a perceptive and imaginary level, I was struck by the poetical and musical dimension of the proliferation of timbres, the richness of the rhythms produced by the revolving doors, the trains and their brakes, the escalators, etc., and the sonic ambiguity. The sounds have an organic quality; they seem almost alive, close to animal, human, or even quasi monstrous screams, groans or breathings. On a structural level, the map of the subway and the brain have the same kind of web-like structure (stations/neurons; tracks/axons) and the same rapidity of circulation, whether trains and people or nervous influx.

Figures 21-24 - Structural relationship between the map of the subway and the cerebral organization
Drawings: Clara Maïda, 2007

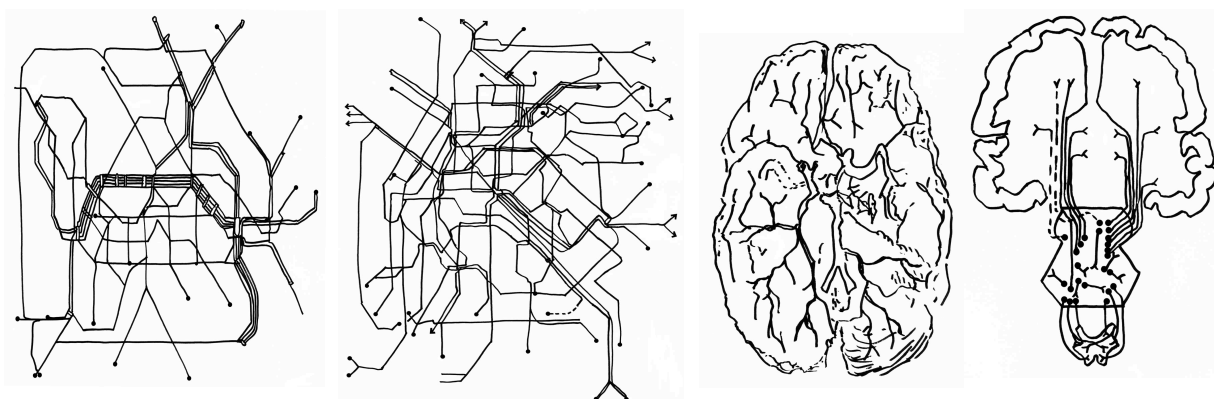


Figure 20, on the left - Map of the Paris subway; **Figure 21, on the left-centre** - Map of the Berlin subway; **Figure 22, on the right-centre** - Section of the brain underlying the nerve fibres; **Figure 23, on the right** - Paths of the nerve fibres.

The series lies at the intersection of three concepts (philosophical, psychoanalytical and sociological): 1/ it is a *zone of indiscernibility* (Deleuze), a kind of hybridization between mind and machine, living and non-living entities, fluid and mechanical devices, sound and noise;⁹⁹ 2/ it is a *transitional space* (Winnicott), an area of sound illusion in which the boundaries between the internal and external worlds seem abolished;¹⁰⁰ 3/ it is a sound materialization of individuals'

⁹⁸ Deleuze, G. and Guattari, F. (1985; 2007), "Rhizomes", in *A Thousand Plateaus. Capitalism and Schizophrenia 2*, translated by Massumi, B., University of Minnesota Press, Minneapolis/London, p. 25

Original text: Deleuze, G. and Guattari, F. (1980), "Rhizomes", in *Mille plateaux. Capitalisme et schizophrénie 2*, Les Editions de Minuit, Coll. "Critique", Paris, p. 36

In his book *Francis Bacon. The Logic of sensation*, Deleuze also uses another term: a *zone of indetermination*.

⁹⁹ Deleuze, G. (1981; 1996), *Francis Bacon. Logique de la sensation*, La Vue le Texte aux Editions de la Différence, Turin
English translation: Deleuze, G. (2003), *Francis Bacon. The Logic of Sensation*, translated from the French by Smith, D. W., Continuum, London

¹⁰⁰ Winnicott, D.W. (1953), "Transitional Objects and Transitional Phenomena. The Study of the First Not-Me Possession", *International Journal of Psychoanalysis* 34, pp. 89-97

ambivalent feeling about their artificial surroundings. The objects and devices built by humans, the *extensions* of our body (Hall), exert two opposite impacts on our psyche.¹⁰¹ On the one hand, they increase our power: flying with aeroplanes, travelling faster with cars or trains, calculating or thinking more rapidly with computers. On the other hand, they condition stereotyped rhythms and pathways; they have unconscious repercussions on our way of behaving, thinking, feeling.¹⁰²

The series of pieces - and particularly its first part, *Fluctuatio (in)animi* - expresses this antagonism, if not a struggle, between evolving instrumental textures and repetitive and fixed electronic sequences. It underlines the difficult balance between the capacity of inventing *machinisms*, possible *becomings*, an expansion of the psychic *rhizome* (freedom) on the one hand, and the crystallization on the same kind of "mechanical" relationships or behaviours induced by our environment (psychic alienation) on the other hand.

Figure 25 - *Via rupta*¹⁰³ - Process of rhythmical interpolation (bars 190-215)

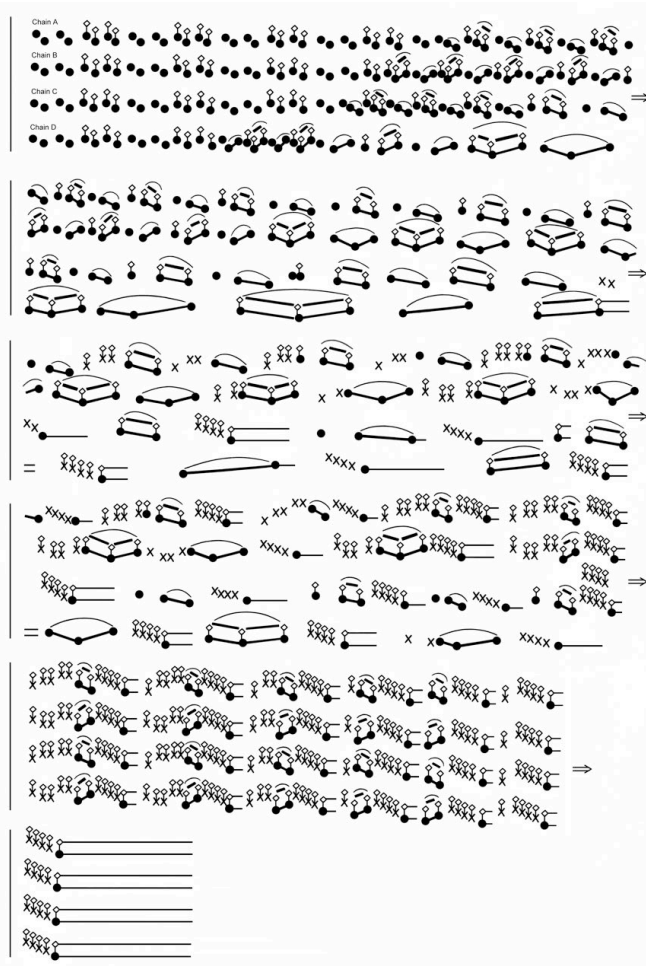


Diagram: Clara Maïda, 2007

In *Via rupta*'s conclusion shown in this diagram, the sequence is based on two rhythms recorded in the Paris subway and then transcribed.

The mutation of the multilayered string texture is more a **process of rhythmic interpolation** than a simple distortion. It starts with a homorhythmic enunciation of the first rhythm: the escalator (first staff system). Each layer has then a specific process of interpolation from the starting rhythm to that of the arrival. **The rhythmical mutation is made more perceptible thanks to the repetition of one modular figure: the three-pitch pendulum.** It is a **differentiating repetition**. Each reiteration gradually leads to the second rhythm, the lift (fifth staff system), which is then liquidated up to a sustained pitch (last staff system) while the electronic part enters and concludes the piece with the return of the former rhythm (the escalator).

This latter rhythm is actually the same as that produced by the wheels on the tracks. Therefore, this conclusion simulates the passage of a train which then disappears in the distance.

¹⁰¹ Hall, E. T. (1966; 1969; 1990), *The Hidden Dimension*, Anchor Books Editions, New York, p. 3: "Man [...] has elaborated [...] extensions of his organism. By developing his extensions, man has been able to improve or specialize various functions. The computer is an extension of part of the brain, the telephone extends the voice, the wheel extends the legs and feet." French translation: Hall, E. T. (1971), *La dimension cachée*, Editions du Seuil, Paris, p. 16

¹⁰² Hall, E. T. (1966; 1969; 1990), *Ibid.*, p. 4: "The relationship between man and the cultural dimension is one in which both *man and his environment participate in molding each other*. Man is now in the position of actually creating the total world in which he lives, what the ethologists refer to as his biotope. In creating this world he is actually determining *what kind of an organism* he will be."

French translation: Hall, E. T. (1971), *Ibid.*, p. 17

¹⁰³ Third piece of the series *Psyché-Cité/Transversales* for instruments and electronics. A piece for flute, clarinet, trombone, violin, viola, cello, double bass and electronics (2005). *Fluctuatio (in)animi*, the first part, is for flute, violin, viola, cello, double bass and electronics (2006).

Figure 26 - *Via rupta* - Visualization of the sound waves (same sequence: bars 190-215)

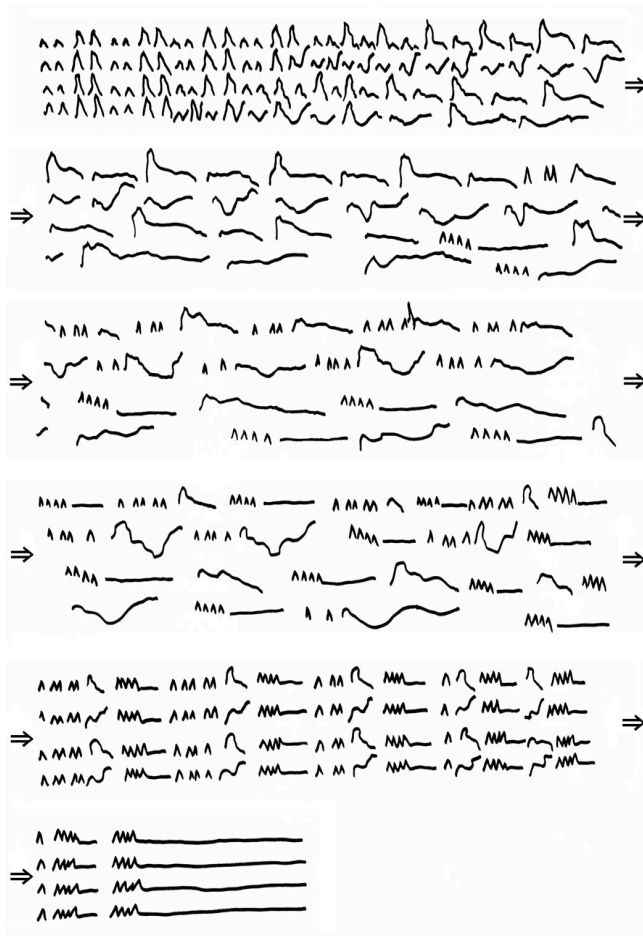


Diagram: Clara Maïda, 2007

The auditory sequence of the conclusion can also be visualized (and perceived) as a flow of sound waves, close to the electrical activity of the brain, its cerebral rhythms. This diagram is a kind of "electromusicogram". I propose this term in reference to the electroencephalogram which visualizes the cerebral waves.

Figure 27 - Two photographs: Clara Maïda - Berlin Hauptbahnhof (subway station), 2005



The intersecting of steel cables in Berlin Hauptbahnhof subway station can be related to the rigid quadrophonic sound structure of the electronic part in *Fluctuatio (in)animi*.

2.3.2 - MUTATIS MUTANDIS - A "musical genetics"

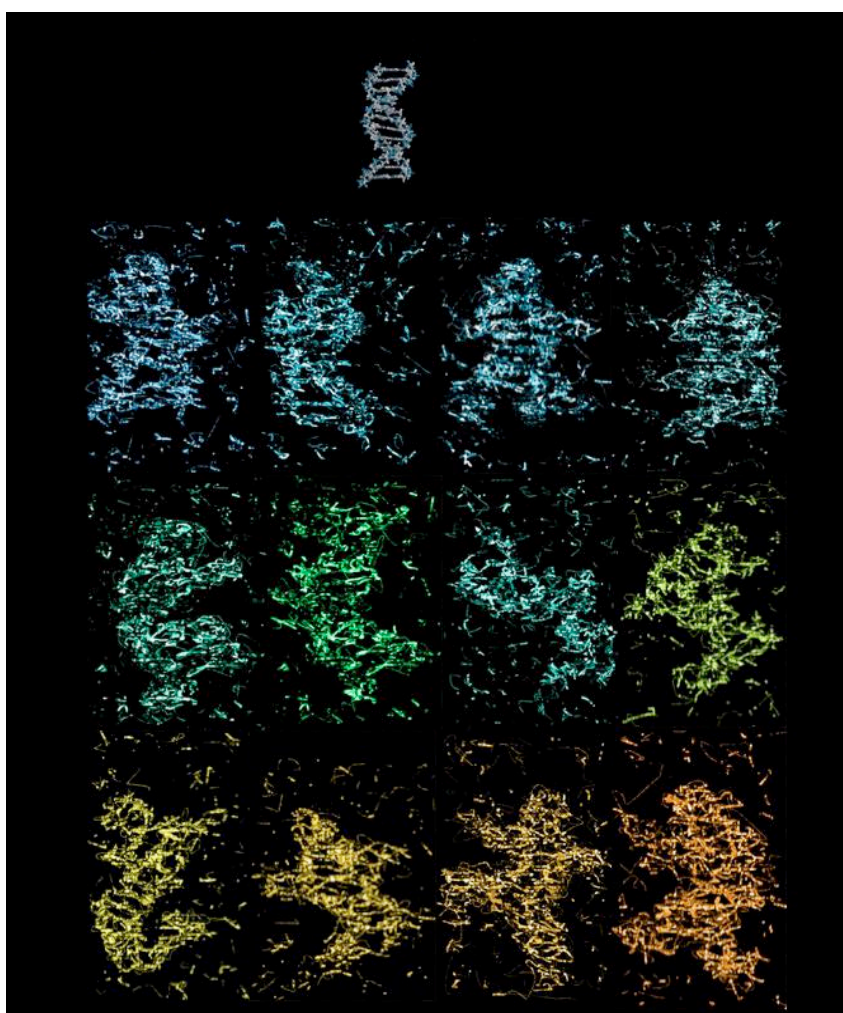
Mutatis mutandis is a further step towards a "molecular" approach to composition. I use the term "molecular" for two reasons. First, it refers to nanofabrication whose attempt is to mimic molecular systems, as already evoked. Secondly, the piece is based on processes of mutation as described in genetics, i.e. an irreversible modification of the genetic and hereditary information which can be

caused by an error of replication of the genetic code during the cell division or by exposure to mutagenic agents (radiations, virus, etc.).¹⁰⁴

Regarding this piece, it is important to note again that the musical material and functionalities in my music can be named in several ways according to the option of observation. In the chapter related to psychoanalysis, I mentioned that the abstract, fleeting, repetitive yet mutative sound figures of my music could be considered as "pulsounds", "sonifiers", or *gestus* (the latter referring to Deleuze's philosophy), whether their dynamic, significant or gestural property is taken into account.

In *Mutatis mutandis*, I had in mind a series of drawings made a few months earlier, twelve interweavings of threads generating a kind of hybrid entity between the DNA molecule and a corporeal attitude.

Figure 28 - *Mutatis mutandis* - Twelve preliminary drawings: Clara Maïda, 2007¹⁰⁵



Above - The DNA double helix.¹⁰⁶

The twelve forms are the result of the interweaving of threads. The corporeal postures evolve according to the variations of weaving, as if the exact replication of the set of connections was missed each time.

The colours also gradually modify, travelling through the spectrum of colours.

The series of drawings also shows how **a genotype**, i.e. the ensemble of genetic constituents of an organism which determines its hereditary potentials and limitations, **can be expressed** (or actualized) **by different possible phenotypes** influenced by the relationships between the genotype and the environment.

¹⁰⁴ Griffiths, A. J. F., "Mutation. Genetics", *Encyclopaedia Britannica* (online), available at: <http://global.britannica.com/science/mutation-genetics> (accessed September 3, 2015): "Mutation: alteration in the genetic material (the genome) of a cell of a living organism or of a virus that is more or less permanent and that can be transmitted to the cell's or the virus's descendants. [...] Mutation in the DNA of a body cell of a multicellular organism (somatic mutation) may be transmitted to descendant cells by DNA replication and hence result in a sector or patch of cells having abnormal function [...]. Mutations in egg or sperm cells (germinal mutations) may result in an individual offspring all of whose cells carry the mutation, which often confers some serious malfunction, as in the case of a human genetic disease."

¹⁰⁵ The drawings can be seen at the page "Others" of my website. Available at: <http://www.claramaida.com/eng/files/others.htm>

¹⁰⁶ Image of the DNA double helix: "DNA", *Wikipedia. The Free Encyclopedia*, available at: <https://en.wikipedia.org/wiki/>

While I was reading articles about genetics, it occurred to me that the pendulums had the same grouping by three as the genetic *codons*.¹⁰⁷ Therefore, these three-pitch modules, particularly persistent all along this musical work, function like "sound codons" (or "sound trinucleotides"). But their duplication (or *replication*, if a genetic vocabulary is used) can comprise micro-shifts or "errors of transcription" that operate on microintervals or micro-durations. Were these tiny disruptions to remain isolated, they might be unheard, but their accumulation can finally make a distortion of the musical matter rise to the surface.

In the piece, I used several kinds of sound mutations derived from genetics: 1/ *micro-shifts* (a quartertone): the duplication of one element is altered during its slight migration across the instrumental group. It concerns a few harmonic sounds (bars 40; 43; 50-51) which finally get more perceptibly stabilized, fixing the "error" (bars 61-70). It also occurs with the three-pitch pendulums - or sound "trinucleotides" (bars 53; 56; more prominently, bars 88-90; then, bars 136-139, and again, bars 176-200) - and in a sequence of pizzicati (bars 112-118, 142-147); 2/ *deletion*: one unit of the sound trinucleotides is suppressed (bars 93; 95); 3/ *insertion*: one or two units are added to the sound trinucleotides (bars 101; 106-108); 4/ *inversion or translocation*: the units of the sound trinucleotides are permuted (bars 136-137, Vln 2; 135 and 137, Vln 3; 137, Vln 5; 131-135, Vla 1 and 2; 137, Vla 3). Two kinds of errors can simultaneously occur. Bars 174-198, for instance, the sound trinucleotides undergo both micro-shifts and permutations.

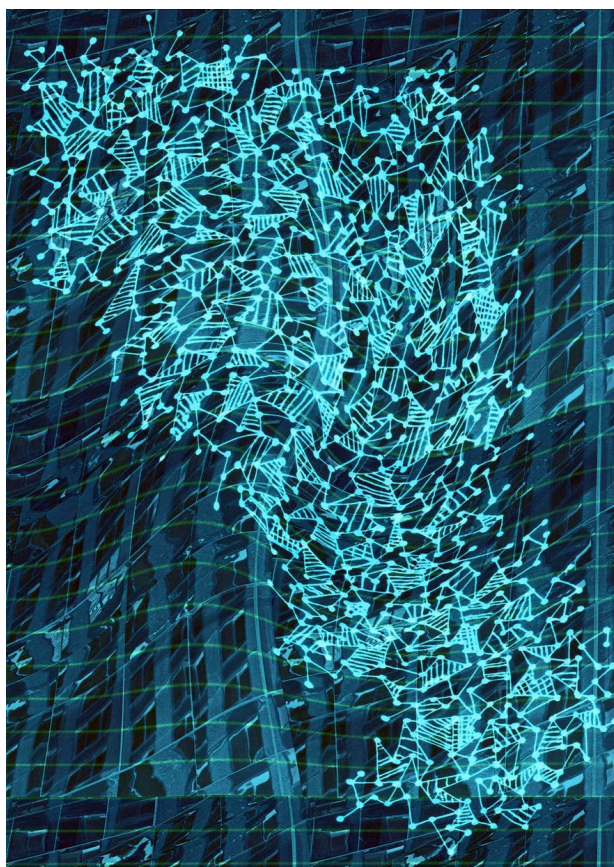
But the piece favours the expression of the potential positive effect of mutation, i.e. the possibility of freeing oneself from rigid frames (and the genetic code is one of them).

Figure 29 - Drawing: Clara Maïda, 2012

This drawing is a variation of **Figure 14**.

It shows how the mutative forces that push the interconnected elementary and mostly triangular figures are capable of disrupting the underlying structural framework and of distorting its sharp angles: the interlinked horizontal and vertical lines of the grid become curves.

It questions the organic *extensions* of the body, its transformations on a molecular level, made possible by genetic research (genic therapy, transgenic organisms, or cloning, for instance).



¹⁰⁷ There are four different nucleotides. Each of them links a sugar, a phosphate group and one of the four bases: adenine, cytosine, guanine or thymine. These nucleotides link together and form a chain, a polynucleotide. The double helix of the DNA is made of two strands (two polynucleotides). Both strands are coiled together by hydrogen bonds, pairing the bases of each strand in a specific way: adenine/cytosine (A/C) and guanine/thymine (GT). The trinucleotides or codons link three bases together on a chain. These three-base chains code for different amino acids: for example, [AAG] gives Lysine amino acid. See: The Editors of Encyclopaedia Britannica (Last Updated July 30, 2015), "DNA", *Encyclopaedia Britannica* (online), available at: <http://global.britannica.com/science/DNA> (accessed September 3, 2015)

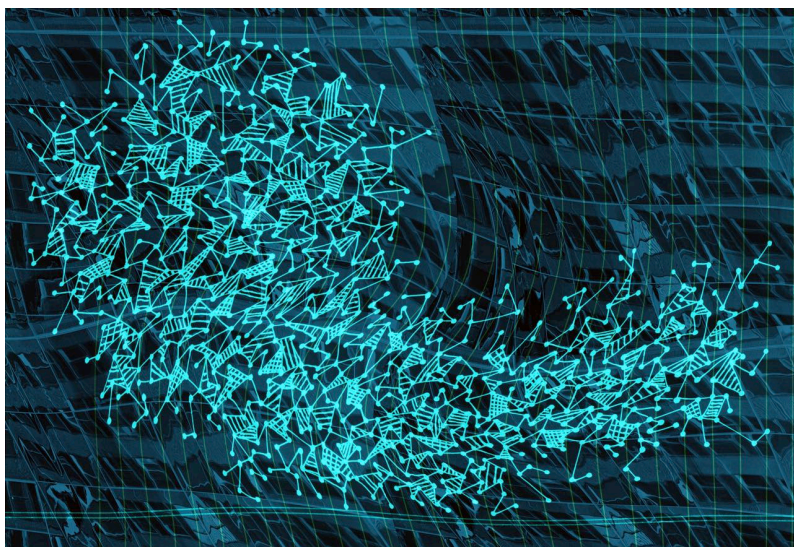


Figure 30 - Drawing: Clara Maïda, 2015

Various actualizations of such a modular structure can be proposed. In this other version of the drawing, the articulation of the same constituents produces a different formal materialization. Again, it shows that a *genotype* can engender different possible *phenotypes*.

After *Psyché-Cité/Transversales*'s psycho-machinism, this piece and *Shel(l)ter* try to highlight the emergence of an *Artificial Man* (Changeux) whose machines are not only external and material *extensions* of the body since, indeed, they might be more and more internal, implanted not only in our psyche, on an imaginary level, but in our organs.¹⁰⁸ In *Shel(l)ter*, I was interested in bringing together the themes broached in *Psyché-Cité/Transversales* and *Mutatis mutandis*. On the one hand, relating this series to a suburban space again, I chose a really peculiar one: an atomic bunker. On the other hand, I looked for other "nanoprocesses" and I added to genetics a few phenomena described by nuclear physics.

2.3.3 - SHEL(L)TER - Nanoprocesses

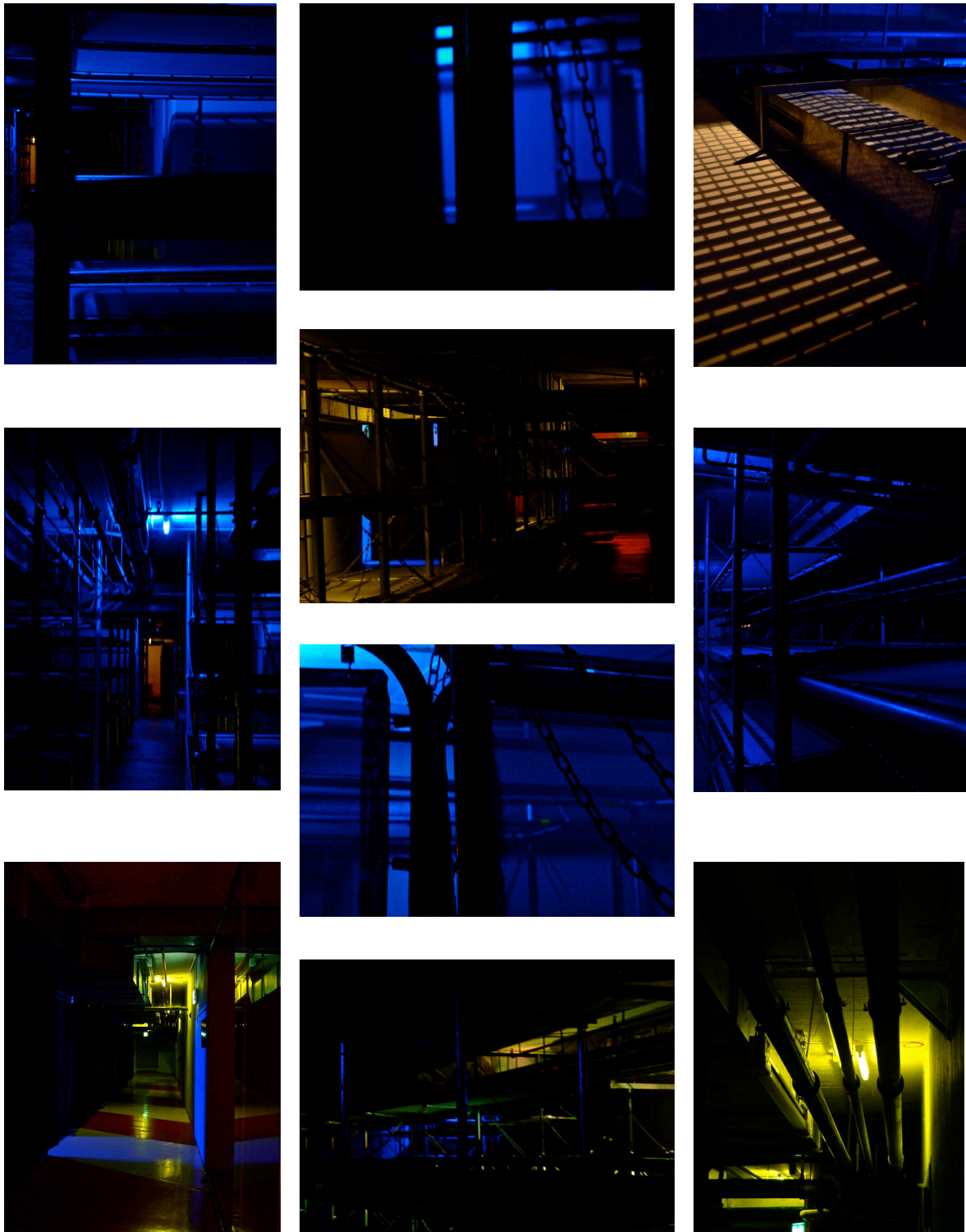
When I first went to Berlin, I visited an atomic bunker in Kurfürstendamm that left a vivid impression on me. This series of pieces proposes different perspectives. It tries to recreate the oppressive sensation induced by this underground space, totally isolated from the outside world and thereby very silent and opaque. It refers to the particular function of such a place, built in case of a nuclear war. A questioning of humans' violence lies in the background of the composition. The title, with the reduplication of the "l", condenses the words "shell" and "shelter" and underlines the absurdity which consists in building weapons of mass destruction and architectures of "mass protection".

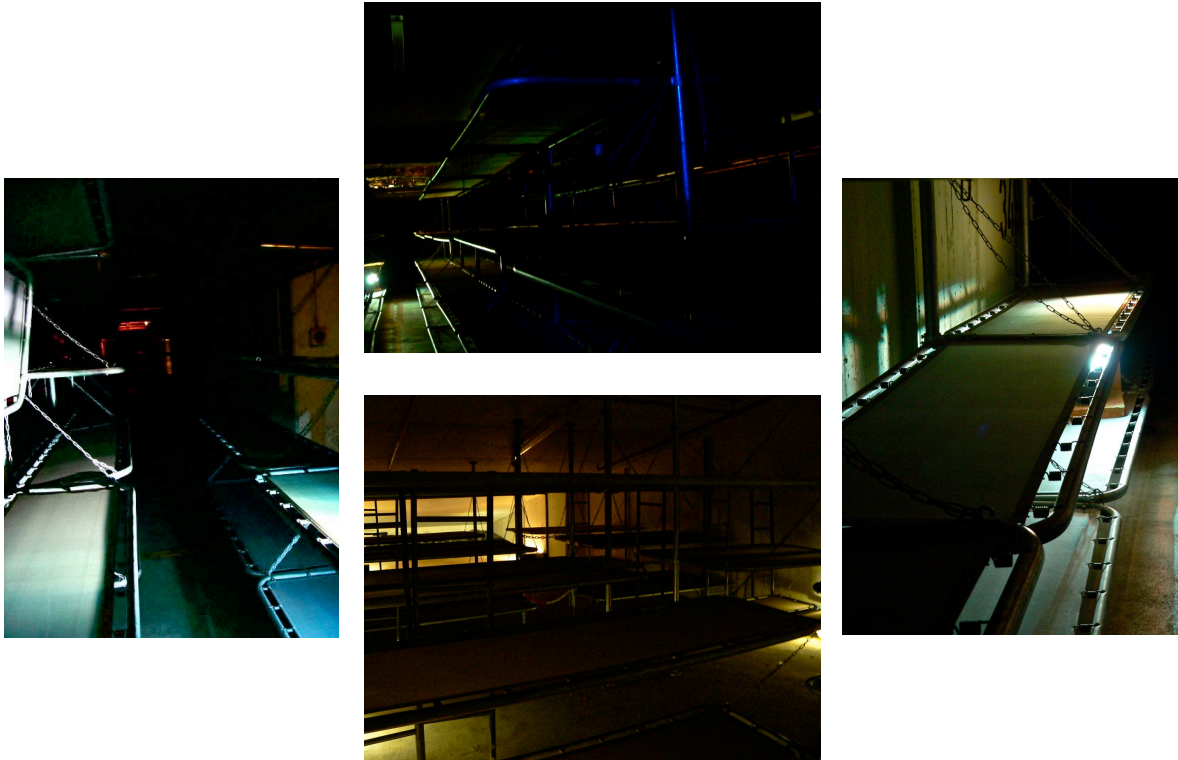
The writing oscillates between two poles: one is "objective" and tries to simulate the nuclear phenomena, the explosion, the fragmentation, some sound processes being also derived from nuclear physics; the other is "subjective", focused on the psychological and physical effects of a nuclear war, people's injuries and suffering, the genetic mutations due to radiations, generating diseases and transmittable to further generations. In this regard, a few genetic structures were inspiring, such as the chromosomes or the coiled form of the double helix of the DNA.

¹⁰⁸ Spitz, E. and Edelin, G. (2007), "Des machines et des hommes" ("Machines and Humans"), Changeux, J.-P. (ed.), *L'homme artificiel (Artificial Man)*, Editions Odile Jacob, Coll. "Collège de France", Paris, p. 277. English translation (Maïda): "Since time out of mind, Man has used tools and machines to survive and make his life easier. Those machines have most of the time been well designed and well adapted to their uses. They were - and still are - almost part of Man himself, to the extent that, so integrated as they are in the extension of the action, they disappear in their users' mind." Beyond cars, escalators, aeroplanes, etc., which extend the body but remain experienced as separated from it, glasses, contact lenses, hearing aids, pacemakers, can be more easily psychically integrated as "extra-organs" of the body. The current scientific efforts concentrate on more sophisticated devices: "thinking caps" to control prostheses, or body implants (artificial retina or cochlear implants, for instance), etc. They will be internal artificial organs.

As mentioned above, the claustrophobic space of the bunker itself and the feeling of confinement that I had experienced while I was taking photographs of the place were a source of inspiration. The contrast between the absence of people and the multiplication of identical objects (the series of bunks and urinals, for instance) was generating the impression to be in a dehumanized world. The dark atmosphere of the series expresses the repercussions that such a catastrophic event would have both on our physical and psychic life.

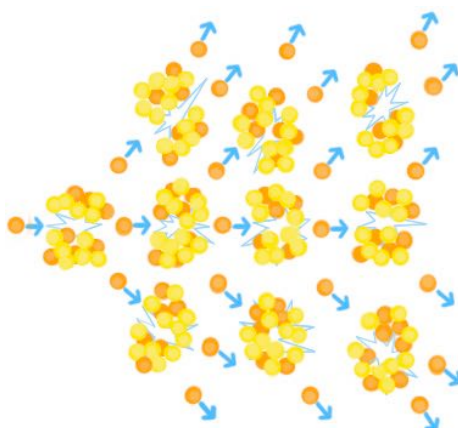
Figure 31 - *Shel(l)ter*
Fourteen photographs of the atomic bunker - Photographs: Clara Maïda, 2008





Two examples will illustrate how nuclear physics and genetic phenomena are suggested in some sequences of the pieces through the following excerpts from *Shel(l)ter* - *später... () ...Winter*: 1/ a three-layer process (metal-wood-skin) inspired by the nuclear chain reaction and played by the trio of percussions, punctuated by short "explosions" of the instrumental trio (bars 77-140); 2/ a sequence for Bb clarinet, with a coiled three-pitch architecture around which other units gravitate (bars 215-228), and duplicated by the cello.

Figure 32 - Nuclear chain reaction¹⁰⁹



Graphic: Clara Maïda, 2015

Nuclear fission consists in the subdivision of the nucleus of one heavy atom into two or more lighter nuclei. This division is accompanied by the release of a high amount of energy and the emission of neutrons.

Nuclear chain reaction is the repetition of nuclear fissions. The neutrons emitted during the splitting of the nucleus produce in turn the splitting of a nearby nucleus, with, again, the emission of neutrons likely to divide a next nucleus. This phenomenon is used for nuclear reactors and for A-bombs.

In bars 77-140, each of the three percussionists plays a three-layer evolving texture (metal, wood and skin instruments). At the beginning of the sequence, the skin and wood instruments

¹⁰⁹ Steinberg, E. P. (Last Updated January 7, 2015), "Nuclear fission", *Encyclopaedia Britannica* (online), available at: <http://global.britannica.com/science/nuclear-chain-reaction> (Accessed September 2, 2015)

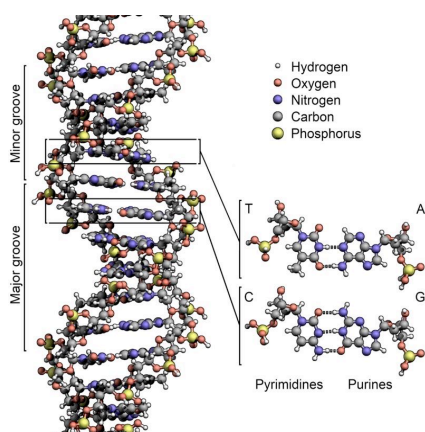
predominate in the textures of Percussion 1 and 3. But Percussion 2 (located at the centre of the stage) is a kind of generator. Its quick accumulation of metallic timbres spreads to Percussion 1 (on the left) and 3 (on the right), inducing thereby an increasing resonance, and activates a sudden short kaleidoscopic object played by the instrumental trio (clarinet-bassoon-cello), presented in **Figure 7**. All along this sequence, the same phenomenon returns, more and more agitated, and the three percussionists finally conclude, playing exclusively one repeated pitch on the metal plates, followed by the entrance of the electronic part (a metallic texture as well).

Figure 33 - *Shel(l)ter - später... () ...Winter*¹¹⁰

Excerpt from the three-layer process of the percussions (bars 76-84)

Percussions - Colours of the instrumental strata: skins (red); wood (green); metal (blue)

Figures 34 and 35 - Structure of the double helix of the DNA



Vertical view¹¹¹



Horizontal view

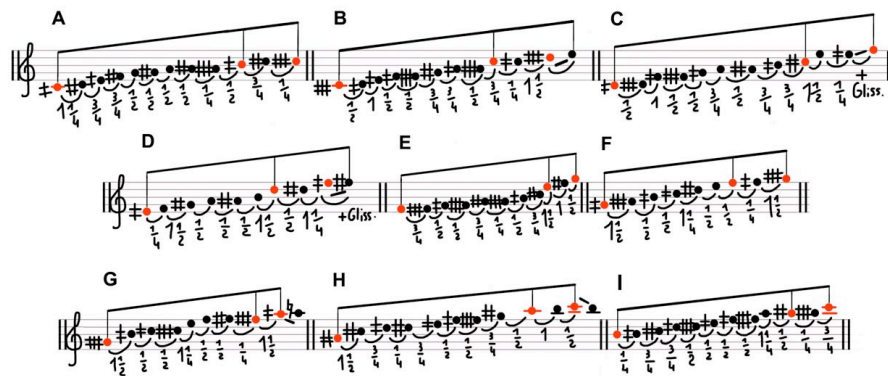
Graphic: Clara Maïda, 2015

¹¹⁰ First part of *Shel(l)ter* for ensemble and electronics. A piece for clarinet, bassoon, cello, three percussions and electronics (2009).

¹¹¹ **Figure 34** - "DNA", *Wikipedia. The Free Encyclopedia*, available at: "DNA Structure+Key+Labelled.pn NoBB" by Zephyris - Own work. Licensed under CC BY-SA 3.0 via Commons - https://commons.wikimedia.org/wiki/File:DNA_Structure%2BKey%2BLabelled.pn_NoBB.png#/media/File:DNA_Structure%2BKey%2BLabelled.pn_NoBB.png

Figure 36 - *Shel(I)ter - später... () ...Winter*

Process of the helical solo of the clarinet - A nine-pitch microintervallic scale (from A to I)



The solo of the clarinet has a two-layer architecture: 1/ a triplet of pitches is selected in a microintervallic scale (shown in red) and functions as a gravitational pole during the enunciation of a rhythmic formula. Its rotary movement gives a coiled envelope to the formula which is a kind of sound helix; 2/ the other units of the scale (shown in black) randomly gravitate around the triplet. They are grouped in fragments from other rhythms and transplanted onto the main rhythm.

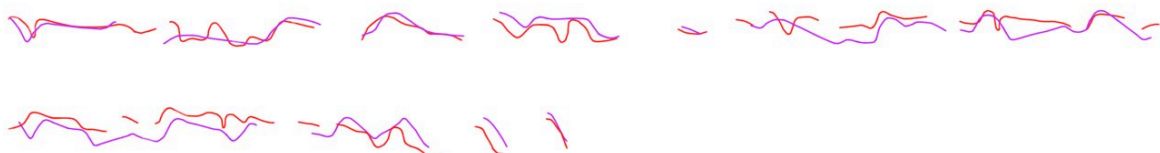
The whole helical formula (the triplet and the gravitating units) mutates, following nine steps of another scale (the first red pitch of each sequence, from A to I).

Figure 37 - *Shel(I)ter - später... () ...Winter*

Sequence with the mutative helical solo of the clarinet duplicated by the cello (bars 215-228)

Figure 38 - *Shel(I)ter - später... () ...Winter*

Interlinked strands of the clarinet and the cello (bars 215-228) - Graphic: Clara Maïda, 2015



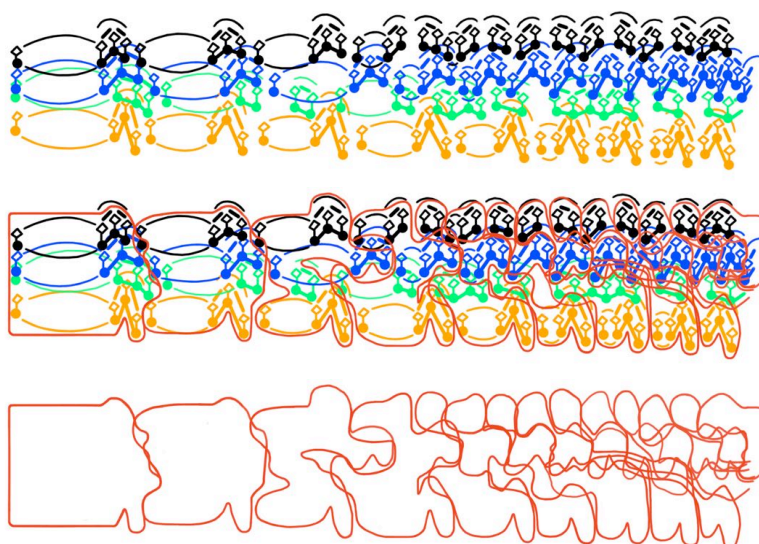
The cello (shown in violet) is a kind of shadow of the clarinet (shown in red); it duplicates its contours. Both melodic "strands" are coiled around one another in one helical formula and they follow the same steps of the scale. But the replication of the cello comprises a few "errors", leaving out some units played by the clarinet. Therefore, compared to the original strand, the copied one has slightly mutated. Two mutations are added, that of the original path and that of its copy.

2.3.4 - Relationships between micro- (or nano-) and macro-form

Three important characteristics of the musical matter in my pieces illustrate the relationships between micro- or nano-processes (the movement of the sound particles and their web-like articulations) and the audible macro-structure (the variations of more global forms traced by the trajectories of sound units): 1/ the elasticity of the sound fabric; 2/ a variation in density towards a convergence of units (a sound "territory") or their dissemination (sound "deterritorialization"); 3/ the couple virtuality/actualization which is useful to understand why, despite the quasi permanent flux of the sound particles, bifurcations and ruptures frequently occur in the musical form.

The elasticity of the musical fabric is mainly based on temporal processes and is particularly audible in the sequences with the superimposed chains of pendulums. The variability of these pendular figures becomes perceptible thanks to their *differentiating repetition*. No matter if these pendulums are reiterated in the same harmonic field (connected in horizontal chains), eventually travel through different harmonic areas (bound in ascending or descending chains), or rock between two registers (fundamental pitches and harmonic sounds), the persistence of their pivoting *gestus* allows the listeners to recognize their contour and thereby its eventual temporal distortion. These chains of pendulums organized in different layers are autonomous yet not entirely independently determined since their processes can be sometimes narrowly interconnected. According to the global direction of the network of chains (or *rhizome*), each chain's specific course is influenced by the trajectories of the other chains and influences them in turn. The contractions or dilations of the different strata generate torsions in the whole musical tissue.

Figures 39, 40 and 41 - *Fluctuatio (in)animi* - An example of elasticity of the sound fabric
First line of the four-string process of rhythmical distortion presented in Figure 9 (bars 138-141)



Graphics: Clara Maïda, 2015

Figure 39 - In this graphic, the harmonic proportions between the four layers are respected. Each chain formed by the links between the repeated yet mutative pendulums follows a specific course even though this course can vary according to the other trajectories. The intense dynamics and the glissandi generate the perception of a global sound envelope.

Figure 40 - The different metrical schemes of the four layers induce a gradual distortion of the global envelope of the first vertical enunciation. The grouping of the four superimposed repeated pendulums becomes ever more elastic.

Figure 41 - A visualization of the envelope (the musical tissue) shows the evolving elasticity of the global sound matter. The perception of this mutation is favoured by the *differentiating repetition* (Deleuze) of the pendulums.

Figures 42 and 43 - *Via rupta* - Elasticity, territorialisation and deterritorialization
Four-string process of rhythmical interpolation presented in Figure 25 (bars 190-215)
Graphics: Clara Maïda, 2015

These graphics illustrate the relationships between micro- and macro-structure. They visualize different levels of organization of the sound matter. Like in biology, micro-constituents linked together (**Figure 42**, on the left) produce more consistency: sound masses or tissues (**Figure 43**, on the right). But the dilations and contractions of the numerous micro-articulations between sound particles, their variations in density and speed, form a malleable envelope. From the first to the last rectilinear sound envelopes, the assemblages of the four superimposed pendulums cross through intermediary stages, a process of *deterritorialization* (Deleuze). Two registers are alternated: a medium one (fundamental pitches) and a high one (artificial harmonic sounds: the fifth is slightly touched).

Strings - Colours of the instruments: violin (black), viola (dark blue); cello (light green); double bass (orange)
 Colours of the envelopes which surround four assembled pendulums in two alternated registers: medium register (red); high register (violet)

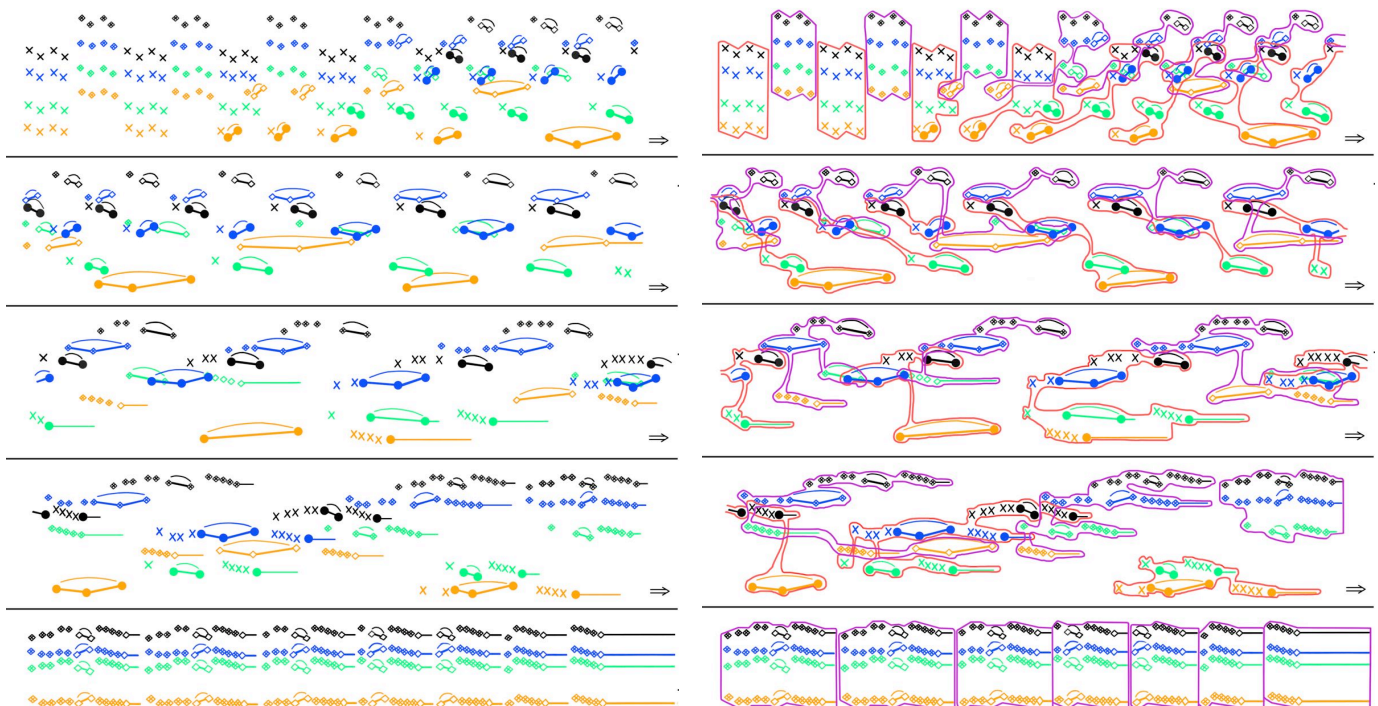


Figure 42, on the left - This conclusive sequence of the piece starts with a two-unit percussive formula (*col legno battuto*) alternated between two registers. Then, a third unit is added and the three-pitch pendulums rock repeatedly between a medium and a high register, losing the percussive dimension thanks to the glissandi which bind their units. Each layer has a different speed (various metrical schemes). The addition of units and the gradually modified durations of their bounds distort the contours of the pendulums. The meeting points between the layers are continually shifted. The sequence passes from one homorhythmic territory to a next. Between both territories, the interpolation process can be considered as a *deterritorialization* since the clearly defined identity of the former territory is destroyed while the latter territory has not appeared yet.

Figure 43, on the right - Two factors generate the cohesion of the musical fabric: 1/ the glissandi between the units (a kind of "glue"); 2/ the permanent intense dynamics. Both characteristics generate the perception of a global musical tissue. But the variability of the layers distorts the first rectilinear block made of the percussive homorhythmic formula. The sound matter is ever more malleable and the superimposed pendulums cross through a *zone of indetermination* (Deleuze) before they form a new rectilinear block (a new territory) at the end of the sequence (another homorhythmic formula).

Figures 44 and 45 - *Via rupta* - Visualization of the intermediary malleable envelopes
A zone of indiscernibility between two sound "territories" (bars 190-215) - Graphics: Clara Maïda, 2015

The visualization on the left (**Figure 44**) shows the intermediary envelopes of the alternated assemblages of four pendulums. This graphic underlines the gradual distortion of the former sound territory and its transition towards the latter territory. The visualization on the right (**Figure 45**) adds a global envelope (in blue). It does not show only the malleable masses of pendulums in each alternated register but a more global level of organization, the whole elasticity of the sound fabric which crosses through various stages of *indetermination* (see **Figure 46**).

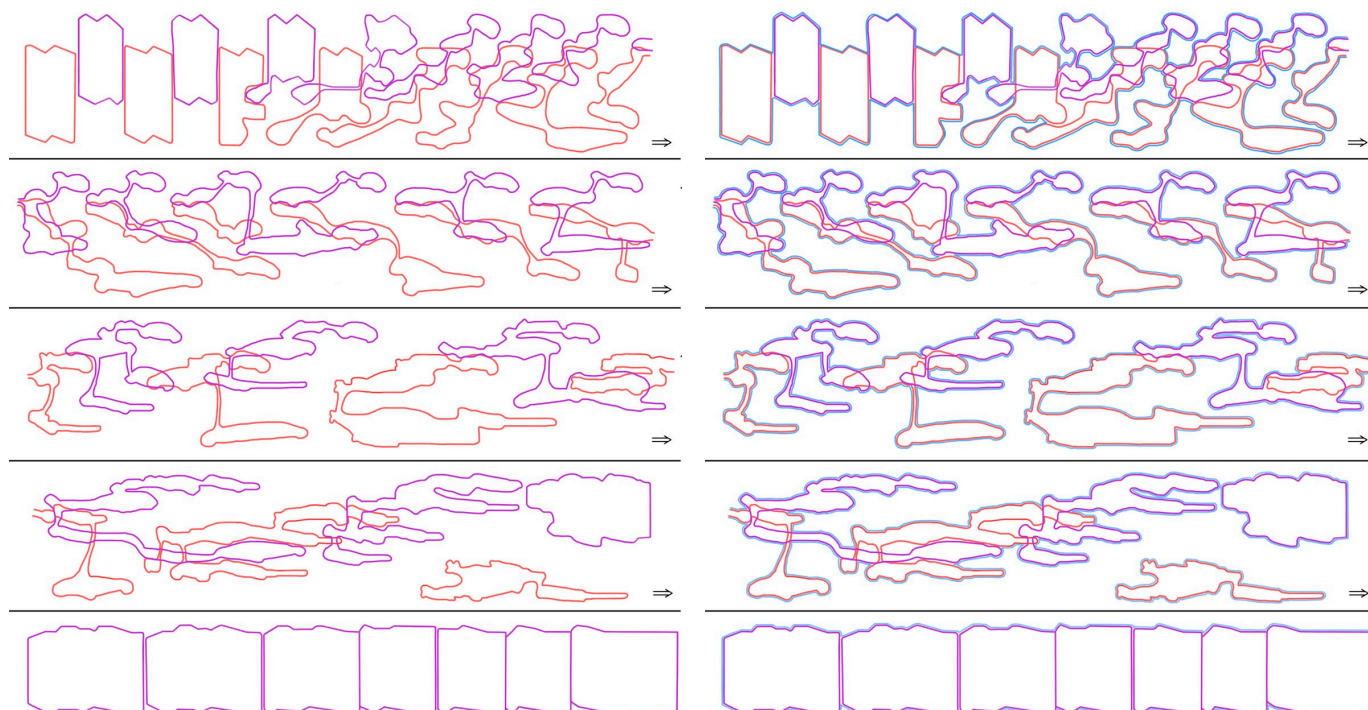
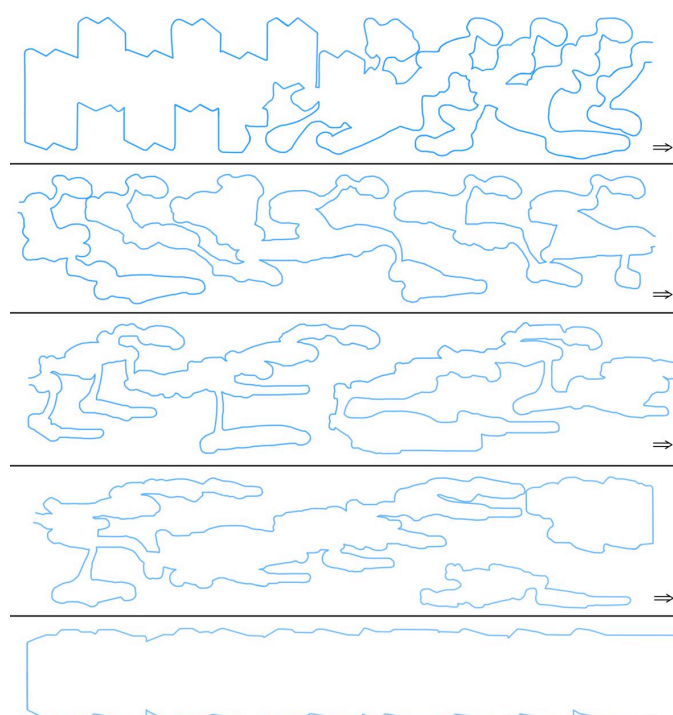


Figure 46 - *Via rupta* - Visualization of the whole elastic and evolving sound fabric (bars 190-215)
Graphic: Clara Maïda, 2015



The antagonism between identifiable consistencies (territories) and their metamorphosis or dissolution is an important characteristic of my music. Its function is to reveal the different levels of organization of sound and the different stages of the possible assemblages of particles: poly-stratification as well as polarization and concentration, on the one hand, or rarefaction and pulverization, on the other hand. This disintegration of forms would not be audible if some discernible yet ephemeral figures had not been traced beforehand. *Mutatis mutandis* for instance ends on a very high ethereal sustained harmonic sound: it is the last remain of a migration towards ever higher registers, after a gradual dislocation of the pendulums and a dispersion of the sound particles. This sudden fragility would not have such a striking effect if the piece had not been previously constantly traversed by an extreme agitation. This suspended line expresses that beyond perceptible forms, "the formless being of all differences, the formless power of the ground" (Deleuze) can be foreseen.¹¹² The conclusion of the piece is a space-time close to pure virtuality, at the border of any potential form or no form at all: both an opening and a closure. Deleuze's couple of concepts *virtuality/actualization* is useful to understand why a dialectics between flux and ruptures influences the temporal form in my music. In *The Fold*, the philosopher proposed an original definition of the object.

The object is no longer defined by an essential form, but reaches a pure functionality, as if declining a family of curves, framed by parameters, inseparable from a series of possible declensions or from a surface of variable curvature that it is itself describing. This new object we can call *objectile*.¹¹³

From Deleuze's perspective, the rotary and fleeting objects in my music can be defined as *objectiles*. They appear and vanish, repeat and mutate at the same time. They form a curvature of space-time, an elastic space-time whose topology is perpetually distorted by the mobility of the sound units. They have a paradoxical property: their endeavour to create all the possible links between sound particles inexorably engenders ruptures if the infinity of potential assemblages has to be continually activated. The sound fabric is a series of variations and expresses a multiplicity of *declensions* of the *degrees of power*.¹¹⁴ It can be considered as the ensemble of the possible trajectories which keep interfering with one another, producing connections and intertwinings or interruptions and *lines of flight*.¹¹⁵ The bifurcations have a specific function: they show that *latent* paths can suddenly become *manifest* and arise on the surface of sound if one of their elements meets other paths.

¹¹² Deleuze, G. (1994), *Difference and repetition*, translated by Patton, P., The Athlone Press, London, Columbia University Press, New York, p. 57

Original text: Deleuze, G. (1968), *Différence et répétition*, PUF/Epiméthée, Paris, p. 80
That is how Deleuze defines repetition.

¹¹³ Deleuze, G. (1993), *The Fold. Leibniz and the baroque*, translated by Conley, T., The Athlone Press, London, University of Minnesota Press, Minneapolis, p. 19

Original text: Deleuze, G. (1988), *Le pli*, Les Editions de Minuit, Coll. "Critique", Paris, p. 2

It is to note that there is a mistranslation in the English translation of the text. The French word "objet" is translated into "goal". But here, Deleuze is not referring to an objective or a goal but to an object as an entity. That is why I modified the translation and replaced the word "goal" by the word "object".

¹¹⁴ Deleuze, G. (1990), *The Logic of Sense*, translated by Lester, M. with Stivale, C., edited by Boundas, C. V., The Athlone Press, London, Columbia University Press, New York, p. 40

Degré de puissance, in French. See the original text: Deleuze, G. (1969), *Logique du sens*, Les Editions de Minuit, Coll. "Critique", Paris, p. 59

¹¹⁵ See footnote n°83 (in "Rhizomes").

Deleuze, G. and Guattari, F. (1980), "Rhizomes", in *Mille plateaux. Capitalisme et schizophrénie 2*, Les Editions de Minuit, Coll. "Critique", Paris, pp. 9-10

English translation: Deleuze, G. and Guattari, F. (1985; 2007), "Rhizomes", in *A Thousand Plateaus. Capitalism and Schizophrenia 2*, translated by Massumi, B., University of Minnesota Press, Minneapolis/London, pp. 3-4

This sound system can be related again to the psychic unconscious and its complex weaving of associative threads. During a psychoanalytical session, the *free association* technique favours the emergence of multiple ramifications. The numerous junctions in the speech of the analysand reveal this multi-layered unconscious network.

In my pieces, sonic and temporal fragmentations indicate that what is heard is only one of the possible actualizations of a virtuality whose other potential manifestations might occur at any point of intersection between different layers or fragments. In some situations, when silence results from an extreme accumulation of matter (a saturation of space), it evokes Deleuze and Guattari's *microplane* or *molecular plane*: a liberation of particles, with both an opening on the infinity of potential sound materializations and a musical impossibility to express this infinity.

The following series of drawings visualizes how the passage from one actualization to another induces possible junctions and ruptures in the musical discourse.

Figures 47-52 - A section of Figure 29 (*Mutatis mutandis*) - Six drawings: Clara Maïda, 2015
Figures 47-49 - A series of actualizations of a virtual ground of particles: three possible *declensions*
Figures 50-52 - Sound tissue formed by the accumulation of connections (zones of higher density)

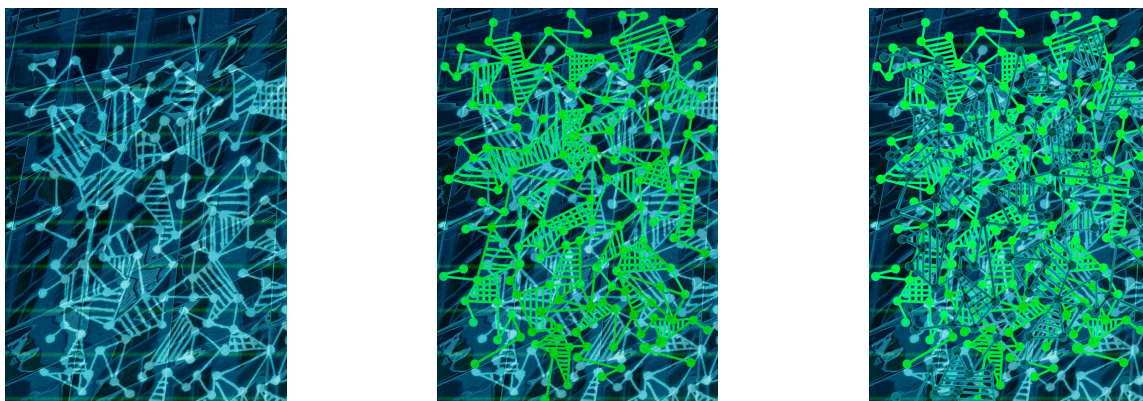
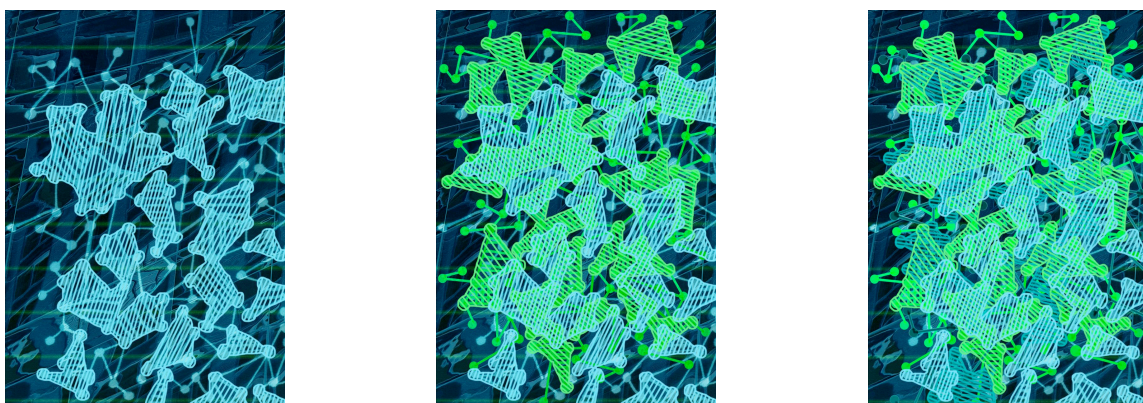


Figure 47, on the left - One possible actualization of the connections between dots; **Figure 48, at the centre** - Two superimposed possible actualizations; **Figure 49, on the right** - Three superimposed possible actualizations.



A passage from one plane of actualization to another might occur. In a musical sequence comprising different planes of actualization (shown here with different colours), a sound trajectory might start on the blue ramified network and change its course at a point of intersection with the light green network (especially if the superimposition creates more condensed zones, sound tissue). The trajectory might then meet another point of intersection, with the dark green network, and change its course again. This travel through different planes of actualization generates temporal breaches in the sound surface even if the flux is not interrupted on a particulate level.

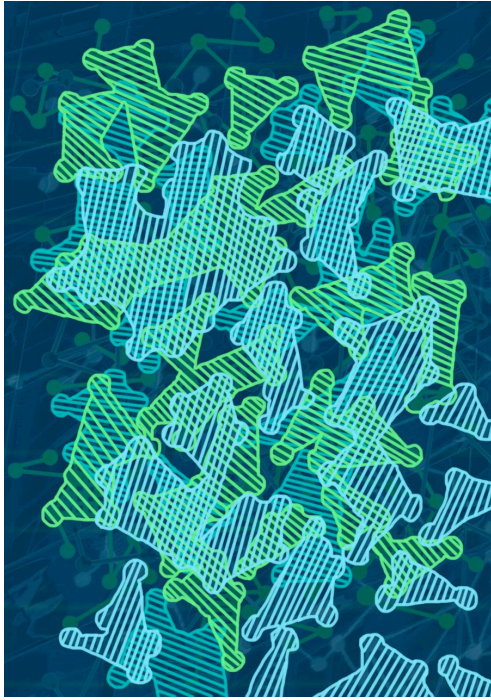
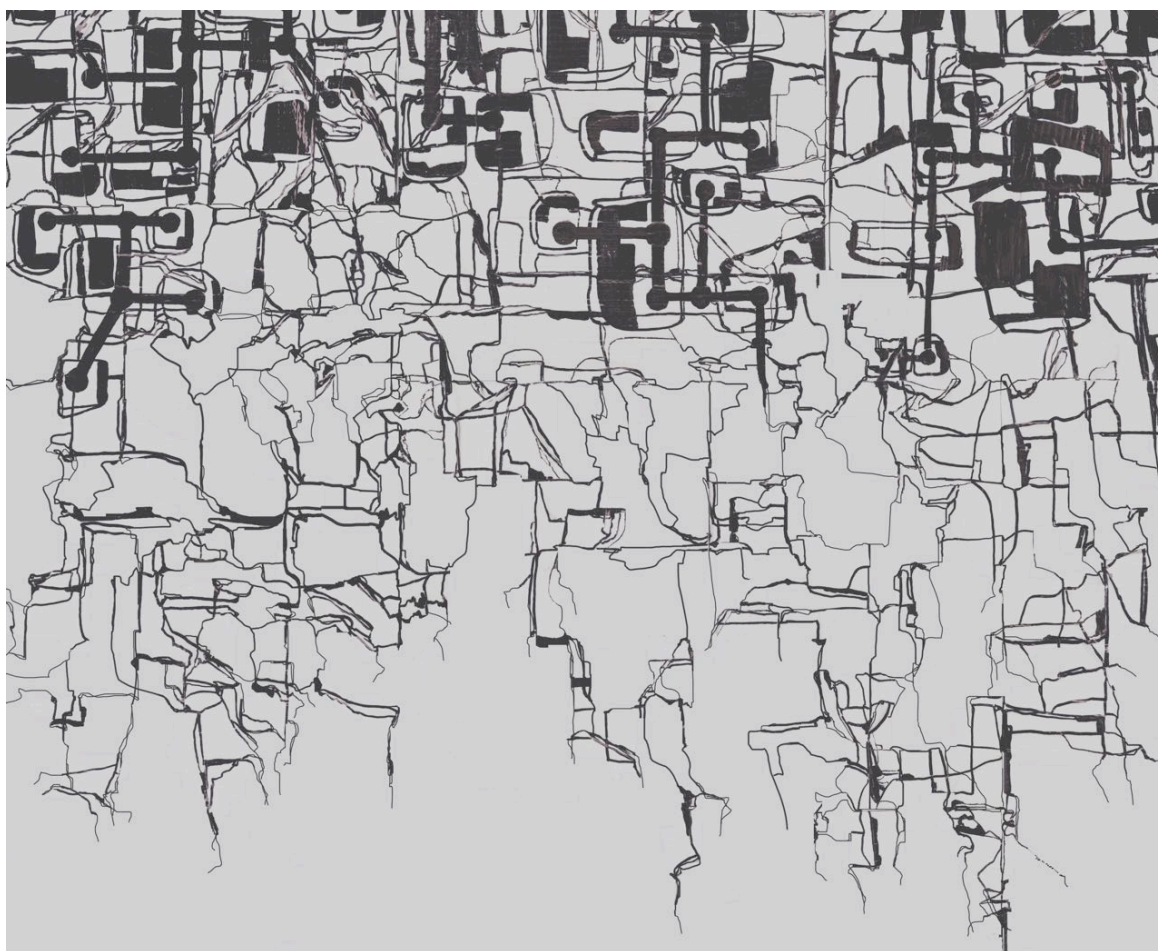


Figure 53 - Three possible planes of actualizations of the tissue

This drawing does not visualize the particulate level anymore. It shows only the possible intersection of the three different planes of actualization in the tissue formed by zones of higher density (shown in blue, light green and dark green). In a musical sequence, each plane of sound tissue might potentially alternately remain either audible or become momentarily inhibited and mute.

These different examples show that the temporal processes work in a different way whether the particulate level (a nano-level) or a more global level (a macro-level) is considered. According to the density of the sound particles, the speed and the dynamics of their multi-layered temporal micro-variations (or micro-modulations), agglutinations or fluidity and breakaways can potentially appear. The movement of matter constantly oscillates between elastic fluctuations and blocks of time (resulting from convergent motions), between "liquid" and "solid" sound textures, accumulation and dissolution, saturation and void.

CONCLUSION



Drawing: Clara Maïda, 2012

All that is needed to create a cell is a few hundred elementary components built on the chemistry of six atoms: carbon, hydrogen, azote, oxygen, phosphorus and sulphur. Among those, the five nucleotides, which link together in the nucleic acids, RNA and DNA, and the twenty amino acids which link together in the proteins, are universal. Laws that define life [...] are abstract, and do not require a specific chemical nature.

Danchin, A. (2007), "De la biologie symplectique à la biologie synthétique"¹¹⁶

Can one dare to add? All that is needed to create a musical cell is a few pitches. And laws that define music are abstract, and do not require a specific musical nature. But the question that biologists and composers cannot answer is this: why does an ensemble of cells become a whole, a consistent entity, an organism or a body, whether a biological one or a sound one? How does inanimate matter make up a living tissue, then a living being? Why do micro-units of sound bound together and give the sensation of one musical work with its singular envelope?

It is not only a scientific question; it is also an existential one and therefore an artistic one. And it is not only related to matter and to the occupation of space. It also concerns time: how can a succession of instants, a series of temporal passages, be perceived as connected together and part of one single continuous experience of duration even though there might sometimes be interruptions to the flow.

Two dimensions of this questioning about the body, about any kind of body, occur here: that of consistency on the one hand, and that of persistence on the other hand. What is particularly interesting for me is that a necessary constant retroactive perspective between micro-articulations and the resulting forms is involved. Moreover, the balance between forces of cohesion and forces of dissolution is as precarious in a musical work as in a living organism.

This phenomenon is a continuous source of surprise for me and my compositional challenge is to play with this precariousness, introducing some kind of "experimentation" in the sound situations: what happens if a few units are added in an assembling, if some others are withdrawn from it, if they move in different directions? How does matter react to micro-torsions? How is time distorted by contrary micro-movements? What is an entity (a being)? What is a becoming?

Two assertions, one from Freud, the other from Deleuze, are particularly significant to me and can sum up my attitude towards creation.

According to Freud: "A dream is [...] a projection, the externalization of an internal process."¹¹⁷

Dream and art are both projections of the psyche. A work of art is also the "externalization of an internal process". That is why psychoanalysis was so interested in artistic productions. Regarding music, the score and then the sound performance, are the planes of projection. As mentioned in the introduction, my artistic research mainly tries to get as close as possible to what is hardly perceptible in daily life, whether it concerns the human psyche and body or the world which surrounds us. It consists in delving beyond the surface of things, revealing their structure and their field of forces, to make these audible to the listener.

¹¹⁶ Danchin, A. (2007), "De la biologie symplectique à la biologie synthétique" ("From Symplectic Biology to Synthetic Biology"), in *L'homme artificiel (Artificial Man)*, Changeux, J.-P. (ed.), Editions Odile Jacob, Coll. "Collège de France", Paris, p. 69. English translation (Maïda)

¹¹⁷ Freud, S. (1915; 1968), "Complément métapsychologique à la théorie du rêve" ("Metapsychological Supplement to the Theory of Dreams"), in *Métapsychologie (Metapsychology)*, Editions Gallimard, Paris, p. 126

The other assertion, by Deleuze, converges towards my attempt at a constant potential psychic and thereby sound flexibility.

Writing is a question of becoming, always incomplete, always in the midst of being formed, and goes beyond the matter of any livable or lived experience. It is a process, that is a passage of Life which traverses both the livable and the lived.¹¹⁸

Writing is a *becoming*; it makes one become. And writing sound *becomings* might make one become a *becoming of becomings*. This is a fundamental dimension of my process of creation.

More than simple transformations of predefined *sonic entities* (Xenakis), the mutative processes that I often mentioned in this thesis are working in an opposite way.¹¹⁹ The trajectories of sound particles, the multitude of sound micro-*becomings*, temporarily converge to a zone where they create a condensed entity, the latter being dissolved as far as the fleeting particles follow their course. When some objects appear, they do not only result from an extreme temporal contraction, a *contracted process* (Grisey).¹²⁰ They are also composite and kaleidoscopic agglomerates made of the transitory coagulation of heterogeneous fragments. Besides, the sound *gestus* described in the chapter related to associative time cannot be simply grouped in a typology of sonorities (*Klangtypen*, Lachenmann).¹²¹ Rather, they are more akin to virtual properties of events that can be momentarily embodied in a succession of ways of playing and timbres (a trembling, for instance) and that keep criss-crossing through the instrumental layers and sound space.

Following in these composers' wake, "picking up their arrow" and "shooting it elsewhere" (Deleuze),¹²² as mentioned in the introduction of this thesis, I try to bring my contribution to this questioning about sound structure and tissue, time and *becoming*.¹²³ This "elsewhere" concerns more particularly the psychic unconscious and its singular temporal modes which have not been musically formalized by composers until now.

Boulez asserted that: "There is a deep organization which remains in you, even unconsciously, even if you do not constantly think of it. This work is done in the unconscious." (Boulez and Jameux, 2010).¹²⁴

Granted, any artist and any composer may feel that the creative act is driven by unconscious forces. However, my decision to attempt at a new formalization of musical time, form and structure

¹¹⁸ Deleuze, G. (1993), "La littérature et la vie", in *Critique et clinique*, Editions de Minuit, Paris, p. 11

English translation: Deleuze, G. (1998), "Literature and Life", in *Essays: Critical and Clinical*, translated by Smith, D. W., p. 1

¹¹⁹ Xenakis, I. (1963; 1981), "Musiques stochastiques libres", in *Musiques formelles*, Editions Stock/Musique, p. 33

English translation: Xenakis, I. (1992), "Free Stochastic Music", in *Formalized Music. Thoughts and Mathematics in Composition*, revised edition, Pendragon Press, New York, p. 22

¹²⁰ Grisey, G. (September 1989), "Tempus ex machina, réflexion d'un compositeur sur le temps musical" ("Tempus ex Machina: A Composer's Reflections on Musical Time"), *Entretiens* n°8, Paris: "Since sound is transitory, the object and the process are analogous. The sound object is only a contracted process, the process is only a dilated object."

¹²¹ Lachenmann describes these different types of sonorities in his article "Klangtypen der neuen Musik" (1966).

Lachenmann, H. (1966-1993), "Typologie sonore de la musique contemporaine" ("Sound Typology in Contemporary Music"), in *Ecrits et entretiens (Writings and Interviews)*, translated by Pozmanter, M. and Kaltenecker, M., Editions Contrechamps, Geneva, pp. 37-59

¹²² Putting into perspective Nietzsche's text, *The Antichrist*, and D. H. Lawrence's text, *Apocalypse*, Deleuze shows how Lawrence would not have written this text without reading Nietzsche's text. Deleuze uses the metaphor of an arrow that Lawrence caught and shot further.

Deleuze, G. (1993), "Nietzsche et Saint Paul, Lawrence et Jean de Patmos", in *Critique et clinique*, Editions de Minuit, Paris, p. 60
English translation: Deleuze, G. (1998), "Nietzsche and Saint Paul, Lawrence and John of Patmos", in *Essays: Critical and Clinical*, translated by Smith, D. W., p. 37: "It is not that Lawrence simply imitates Nietzsche. Rather, he picks up an arrow [...], and shoots it elsewhere [...]."

¹²³ In the 1950s, scientific theories came to play an ever more important part in music composition. Some composers such as Xenakis used scientific tools in order to elaborate a new approach to composition (probabilities, kinetic theory of gases, Markov chains, etc.). The spectral composers continued this path (astrophysics, for Grisey, for instance).

¹²⁴ Boulez, P. and Jameux, D. (2010), "Pierre Boulez. Ecriture musicale et accident" ("Pierre Boulez. Musical Writing and Accident"), *Genesis*, 30 (put online on May 17, 2013), available at: <http://genesis.revues.org/85> (accessed June 29, 2013)

in the light of psychoanalytical concepts is a step forward and is my most singular contribution to compositional thinking. With this perspective, the musical work becomes both a meta-artistic and meta-psychic work in the ways it makes diagrams between the process of creation (the subject being composing), the created process (the procedures of composition) and the resulting object (the musical production once it has been composed). A retroactive loop between these different stages generates an ever deeper research into the nature of *becoming*.

Is it a *becoming* of music? Is it a *becoming-music*? Is it a *becoming-other* thanks to music? Is it a *becoming* of a musical body: the *Body without Organs* (Deleuze and Guattari),¹²⁵ pure vibration, that might be named an "organum-body" (or an "organon-body")?¹²⁶ The question remains open. Therefore, being aware that the act of creation might consist in asking questions rather more than in giving answers, I will conclude with Lacan's assertion (1953):

What constitutes me as a subject is my question.¹²⁷

¹²⁵ A *Body without Organs* is experienced as a body of pure sensation, without any definite parts, but with gradients of intensity. It is opposed to the organism, divided in specific zones and organs.

Deleuze, G. and Guattari, F. (1980), "28 novembre 1947 - Comment se faire un Corps sans Organes?", in *Mille plateaux. Capitalisme et schizophrénie 2*, Les Editions de Minuit, Coll. "Critique", Paris, pp. 185-204

English translation: Deleuze, G. and Guattari, F. (1985; 2007), "November 28, 1947 - How Do You Make Yourself a Body without Organs?", in *A Thousand Plateaus. Capitalism and Schizophrenia 2*, translated by Massumi, B., University of Minnesota Press, Minneapolis/London, pp. 149-166

¹²⁶ An "organum-body" (or a "organon-body") might be a vibrating body, like a music instrument. The term *organum* refers here to the plainchant melody developed in the Middle Ages. But it can also evoke the organ (both the music instrument and the part of the body) since the Latin and Greek etymologies of this word are respectively *organum* and *organon*.

¹²⁷ Lacan, J. (1953; 1999), "Fonction et champ de la parole et du langage", in *Ecrits I*, Editions du Seuil, Paris, p. 297

English translation: Lacan, J. (2002; 2002), "The Function and Field of Speech and Language in Psychoanalysis", in *Ecrits*, translated by Fink, B., in collaboration with Fink, H. and Grigg, R., W. W. Norton and Company, New York/London, p. 247

ARTICLES - ENGLISH TRANSLATION

The order of the articles is not chronological. It is in accordance with the most significant key-themes in my music. The first article (2007) is directly focused on psychoanalysis which had a permanent impact on my way of apprehending musical creation from the very beginning. The second article (2011) opens the reflection and puts music in perspective with psychoanalysis, neuroscience and nanoscience. The third article (2010) questions artistic and musical creation. The last article (2000) shows that some of my key-themes were already in germination even though my musical language was not precisely determined yet (it concerns a piece which is no longer part of my catalogue of works).

Article 1 - ...it writes id writes it writes id... (2007)

Filigranes n°6, "Musique et inconscient", Musique, Esthétique, Sciences, Société, Delaplace, J., and Moll, O. (ed.), Editions Delatour, France, pp. 145-160

Original title: **...ça écrit ça écrit ça écrit ça...**

Article 2 - For a nanomusic (2011)

Neue Zeitschrift für Musik. Das Magazin für neue Töne. Klangzeitort, Universität der Künste and Hochschule für Musik Hanns Eisler, Berlin, pp. 60-63

Original title: **Für eine Nanomusik**

Article 3 - Worstsaid Ho, worstheard Ho (2010, *Positionen*, 85. *Texte zur aktuellen Musik*, "Schreibkrise?", Nauck, G. (ed.), Verlag Positionen, Berlin, pp. 37-39

Article 4 - Instants-passages (2000, *Cahiers Bleus* n°13. *Actes du Colloque de Cerisy: Henri Michaux est-il seul?*, Editions Les Cahiers Bleus, Troyes, pp. 89-93

Article 1 - ...ça écrit ça écrit ça écrit ça... (2007)

Filigranes n°6, "Musique et inconscient", Musique, Esthétique, Sciences, Société
Delaplace, J., and Moll, O. (ed.), Editions Delatour, France, pp. 145-160

English title: **...it writes id writes it writes id...** - Translation: **C. Maïda**¹²⁸

How can one understand this title, a first rough sketch of a chain where what is at work in the unconscious would already be repeated? Does the "it" ("id") imply that the Ego is not where the process was triggered, and does it ceaselessly return to renew it? Is what is written, at each arrangement of letters, an attempt to make what is the most inaccessible in us emerge, and would it tirelessly start this activity again?

Where is the chain initiated? Is "it/id" its first link? What is writing or who is writing in me when I am writing? Which parts of the psyche are involved in the writing process, in the "it writes"? And what do they write?

Is the unconscious woven by what is written or does it generate the desire to write?

Would this "it writes id" indicate that, from its origin, "this timeless moment, indiscernible, which exceeds any beginning", both terms mutually diffract one another in an infinite movement?¹²⁹

If the fragment of the chain is read or heard as "write it" ("write id"?), can it be envisaged as a kind of injunction, continually present, which would inflect composition towards an attempt to allow it/id to write it/id?

Or if the iterative "it writes" lays down its ceasura, does it lead us to a pure *becoming* or would a residue, an "id", always persist?

The repetition of the items - a quasi-incantatory formula, an obsessional ritual of writing, or writing itself, at work, without the ego? - immediately shows the precariousness of the system and all the ambiguities that an attempt at interpretation raises.

The reduplication underlines the difficulty to define the part and the place - if there is one - of the Subject (of the unconscious that Lacan names \$) and the object during creative work. It introduces a functional mobility of each element as well as a very open polyvocality, indicating that the unconscious arises in all the interstices of writing.

Writing would express the desire to find again the origin of music, the origin of sound, by returning, for each new work, to the point where the first difference is marked in an undifferentiated sound field.

If a primeval sound space is imagined - a matter made of a multitude of dots, an infinite field of particles, beyond the human ear - within which no group, no vectorization, no organization are sketched yet, to write would consist in carving an inscription onto this matter or breaking in it.

In this space where the "finger" (the choice) of writing is placed, a limit to the sound infinite will be delineated (a discrimination of the partials of a sound spectrum, for instance).¹³⁰

¹²⁸ The French word "ça" means both "it" and "id" (one of the three psychic instances in Freud's *second topic*). That is why I opted for the alternation between "it" and "id" in the English translation of the French title "...ça écrit ça écrit ça écrit ça...".

¹²⁹ Le Poulichet, S. (1994), *L'œuvre du temps en psychanalyse* (*The Work of Time in Psychoanalysis*), Editions Payot & Rivages, Paris, p. 93

¹³⁰ Here, in the French version of the article, there is a play on the sonic proximity between "doigt" ("finger") and "choix" ("choice").

Can one consider this infinite field as the Real, this irreducible nucleus of the unconscious, out of any symbolization, which cannot be defined by words?

From this trace, a whole sound chain can start to be articulated, a whole series of movements can be set in motion, and it is perhaps finally the point where gestures appear, trying to occupy a space, taking it over, building the body of the work.

The body of the work (incidentally, the title of one of Anzieu's books)¹³¹ would retrace what can be apprehended of the psychic body, i.e. "the body defined not as an organism but as pure enjoyment, pure psychic energy, whose organic body would only be the resonance chamber." (Nasio).¹³²

To what extent might not the composition of a musical piece consist in building a new body, which would be at the same time the reflection of the bonds which tie it (signs frozen in agglomerates settled once and for all), but also the attempt to break free from this rigidity, by inventing a moving body, defying any classification, any definite shape?

Various sound areas start fleetingly vibrating. Some are circumscribed in a more intensive way when particles (frequencies, for instance) are distributed inside them, with a bigger density, when the amplitude or the speed of their paths are multiplied. Then, the activity - the activation - successively spreads to other surfaces.

One causes the paths of the drive to be heard in the persistence of its passages. But the possibility of a body is also asserted, whose erogenous zones, these *black holes* (to use again Guattari's term) around which the intensity of energy is maximal, would continually move on the sound surface.¹³³

This sound body is the real medium of the projection of a fantasy to return to the primeval body evoked above, since the mobility of these zones paradoxically entails their negation, and allows us to foresee a pure energy in a virtual state. A real ambiguity nevertheless occurs, for this migratory increase of intensity shows us that it is potentially everywhere, and yet perceptible only in the different places in which it is located.

This corporeal experience is complex. How does one acquire the sensation of a whole? From the image reflected by the mirror, Lacan says. But this image is only a reconstruction, quantum physicists tell us and psychoanalysis says nothing else. Beyond the abstraction of this psychic energy, more or less archaic body images, more or less mutating reconstructions or constructions, can also be embodied and underlie the composition work (such as the strange and modulable figurations often noticed in dreams).

To illustrate the presence of this imaginary dimension, one can evoke the example according to which the journey of the work towards the listener would be unconsciously felt, as a crossing through a quasi-visceral medium, where "a stomach's mouth", musical talk, and no longer only

¹³¹ Anzieu, D. (1981), *Le corps de l'œuvre* (*The Body of the Work*), Editions Gallimard, Paris

¹³² Nasio, J.-D. (1994), *Cinq leçons sur la théorie de Jacques Lacan* (*Fives Lessons About Jacques Lacan's Theory*), Petite Bibliothèque Payot, Paris, p. 51

¹³³ Guattari, F. (1979), *L'inconscient machinique. Essais de Schizo-analyse* (*The Machinic Unconscious: Essays in Schizoanalysis*), Editions Recherches, Paris

In astrophysics, a *black hole* is a massive object whose gravitational field is so intense that it prevents any form of matter or ray to escape from it. No particle can escape, for nothing, not even light, can overcome their gravitational force. What Félix Guattari names a *black hole* is a place of semiotic abolition. One can relate this definition to that of *jouissance* (extreme enjoyment) given by psychoanalysis, a place where there is no signifier.

language, would speak to "a stomach's ear" (and a joke comes to mind: might not these mice which scientific research takes into all kinds of mutations - an ear on the stomach, precisely! - be the best listeners of such music...?).

Here, the sound movements should be heard like the muscular contraction waves of a tubular organ, connecting the work - the composer's imaginary body - to the listener. Besides, supported by the physical investment of the performer, to write such a "sound peristalsis" also underlines one of the obviously very important aspects in the elaboration of musical language: that of the relationship to the performer's gesture and body.

One thus notices that several entrance doors towards sound are at work. It can be either apprehended as a quasi-abstract element which carries along the interwoven lines of an ensemble, at the crossroads of forces, or approached in its whole corporality, in relation to its acoustic properties. But the choice to favour either approach, according to the sequences of the work, is always determined by the aim of laying bare a truth masked until now.

Starting from the libidinal or imaginary body, we can see that we get to the real body which is invoked, in the performance, only better to unveil this other body.

These dimensions of the body are narrowly connected and in crisis situations, the movements of the psyche are sometimes immediately acted with movements of the body. Thus, a mental collapse can coincide with a fall. And this fall will be the pivot of an artistic process, which is also an attempt to find a hold.

Moreover, through this encounter - whose place is the score -, the other desired encounter is the one which expresses that something has moved from one unconscious to another, and that a fabric is woven between gestures and sounds, meant to spread up to the listener. The movements of the performer's real body, the energy committed to it, are summoned to materialize psychic movements. Is not music also a Body Art (in the sense that it generates a sensory corporeal modification) and does it not leave its vivid yet invisible marks on the body?

Therefore, in such an approach, desire and the origin of desire are questioned, as well as the relationship to body(ies) and to the other - the other who is inside us, but also the other with whom an intersubjective relationship is built around the work, and the other's other...

It is also a movement of inscription in language, The absence of language. A scream or a fall into silence, and music articulates signs which throw a bridge between scream and words.

To go and meet this psychic body, the unconscious, to try to investigate it and to make it a model for the processes of musical writing, is to choose to make the structure arise at any moment of the work, with the constant will to get rid of all the constructions which represent it (figures, objects, sound situations). A network of encounters can be articulated; it is not a network of words or of movements of the body, as happens during an analysis (*a literal or signifying network*); it is rather more a network of sounds and sound movements which produce linkages of ephemeral and indiscernible entities (Guattari's *asignifying particles*).

Anyone who is involved in a psychoanalytical experience quickly notices how the words uttered can dislocate (by following the paths of the plays on sonorities of phonemes or the occurrence of fragments of memories, for instance) according to a logic quite distinct from a will to mean or to name, characteristic of the conscious system. The words disseminate a certain number of minimal elements along the speech to make another wording emerge, that of the unconscious.

This wording - the *One*, according to Lacan, i.e. the signifier which occurs in speech - and its multiple substitutions and shifts along the verbal sequence, are somehow breaches which make us foresee the infinity of the potential permutations and assemblings.

Retracing psychic writing in musical writing, the composition will try to reveal the relationship between what has been said and the whole set of wordings which have already been uttered or will be (*S1* and *S2*, according to Lacan), this whole set in which the actual and the virtual are the twofold axes of the signifiers.

To compose sound chains in becoming is to consider that each level of articulation of these chains is perpetually unsteady. The duration of the action, and the coordinates that the particles occupy in space, do not remain identical and cannot be only envisaged as the emergence of one of the countless possibilities of appearance.

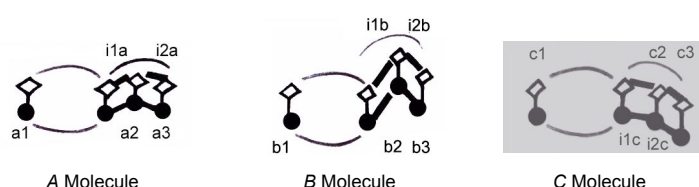
These "desiring musical machines", which function like the *desiring machines* described by Deleuze and Guattari in *Anti-Oedipus*, generate endless associations and ever new assemblages, sound configurations in constant transformation.¹³⁴

Let us take a very simple example in which only the duration parameter will be varied for each sound molecule.

In Example 1, three particles - here, the artificial harmonic sounds of the strings - are assembled to form a small molecule (*a1*, *a2* and *a3* form *A*), whose behaviour is modulated in relation to the intervals located between the three particles (*i1a* and *i2a*).

Another interval, *i3a*, is added and is located at the junction point between *A* and its return. Other molecules (*B* and *C*) can adopt the same kind of connections between three elements.

Example 1 - Three molecules, each being formed of three particles



The movement of this molecule (or module) can be assimilated to a micro-movement of the body and is besides effectuated by a corporeal gesture of the performer.

In Example 2, the intervals are modified and inflect the shape of this *A* molecule (the temporal dimension of *i1a* is tightened, and a caesura is finally introduced on the level of the *i2a* interval, knitting together again further on, when the molecule is compressed).

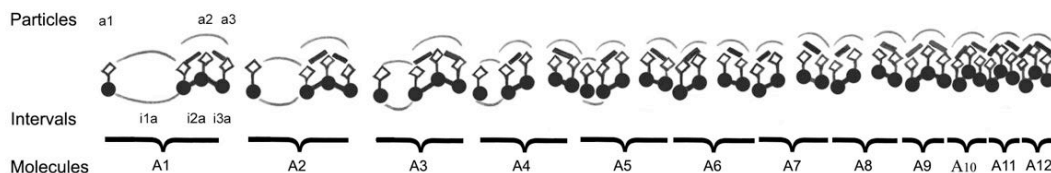
At each of its repetitions, *A* is each time different, and each of its utterances could be named *A1*,

¹³⁴ Deleuze, G. and Guattari, F. (1972), *L'Anti-Œdipe. Capitalisme et schizophrénie 1*, Editions de Minuit, Coll. "Critique", Paris, p. 216

English translation: Deleuze, G. and Guattari, F. (1983; 2000), *Anti-Oedipus. Capitalism and Schizophrenia 1*, translated from the French by Hurley, R., Seem, M. and Lane, H.R., University of Minnesota Press, Minneapolis, p. 183: "[...] one goes beyond these large aggregates [...] toward the molecular elements that form the parts and wheels of desiring-machines. [...] the regions of a productive, molecular, micro-logical, or micropsychical unconscious that no longer means or represents anything."

A2, etc. Here, there is a first A_n chain (or a repetitive series) which unfolds a series of differences, or of differences, to use Derrida's term since he defines difference as "the moment of a difference".¹³⁵

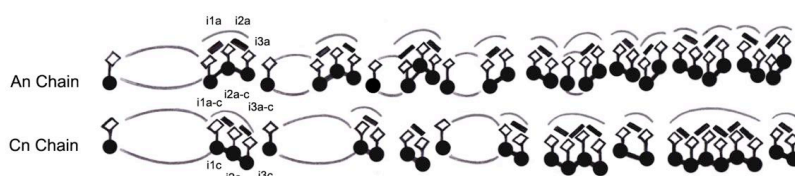
Example 2 - A_n chain, made of a different repetition of the same molecule



But while the different repetitions of A produce a chain of events, the $i1b, i2b$ and $i3b$ intervals of the B molecule described above are also altered at each repetition. The path of a B_n chain ($B_1 + B_2 + B_3$, etc.) is thereby superimposed to that of A_n . It is the same for a C_n chain (Example 3).

Example 3 - Processing of the A_n and C_n chains, excerpted from the piece *Fluctuatio (in)animi*

(for the process which superimposes four chains, see the end of the article)



The number of superimposed chains can be multiplied. Therefore, in such a musical situation, one can elaborate a more complex and mobile network than that revealed by language, for the limit exceeds here that of words which cut the verbal matter in order to produce phonemes, morphemes. The incisions that musical language makes in the sound matter are infinitely more subtle. They are multiplied on numerous axes and almost act like missiles, incising the surface as they strike.

An unsteady fabric can be woven thanks to the intervention on various parameters - a quantity of linked particles, pitches and durations of these particles and intervals, accelerations and decelerations, cuts and seals in the chain, convergences or divergences with the other chains, the number of ramifications, etc.

Multiple gaps are located at all the levels of junction, inside a molecule, between a particle of the A molecule and a particle of the B molecule, between an interval of A and an interval of B , between a particle of A and an interval of B , etc.

If the gestural accentuation of these micro-differences is favoured, by adding glissandi between the pitches, as is the case in this example, if it is specified that the performers should play these gestures with a maximal dynamic intensity, if the network builds an extremely dense and saturated space, we finally perceive an insistent sound surplus.

The latter is not supported by any substrate. A kind of evanescent, abstract matter which cannot be located, expresses a presence heterogeneous to the network which makes it emerge, and

¹³⁵ Derrida, J. (1967), *L'écriture et la différence* (Writing and Difference), Editions du Seuil, Paris, p. 300

results from each gap dug between the written elements, from each vacillation at all the levels of articulation, in the interval between the elements and in the interval between the intervals.

A virtual object whose ghostly dance haunts space: the object *a* conceptualized by Lacan?

This audible effect appears because of the accumulation of gestures, their rapidity, their amplitude, their extreme dynamics. It is not generated by the signs written on the score but by a hold of the body on these signs.

While elaborating this kind of sequences, the question of the Subject's position, that of the unconscious, particularly arises. A splitting up, a dissolution is induced during the act of writing, and it can be grasped only later on.

The subject (of the unconscious) who writes, who allows himself to be written, overcome or upset by what is written, is disintegrated in this plunge into the heart of sound fluxes. He is at the same time each dot carried away on the innumerable paths crossed through and a fleeting and pulverized presence in each interstice that the shifts of dots keep opening and discovering within this moving architecture.

To cut a space is to stand out, and to stand out is to be multiplied.¹³⁶

It is both what is experienced in the time of composition and what is perceived, or sensed - perhaps unconsciously - while listening to the work. It is a state which is aimed at, like a horizon of the creative moment, and one really knows that seeking a non-knowledge of writing paradoxically favours the occurrence of our barest truth, and thereby, the truth of the work. The quest for this sound effect also causes the desire to write such sequences.

At the time when the Subject appears like an absent presence, and meets at his vanishing point what cannot be said or written, what is acted, creative ecstasy (psychic *Jouissance*), is sometimes to be understood more as pain than as pleasure in the transfer effectuated towards the performer's body, for a limit is carried further with a jolt, a forced movement.

Since what is indicated is not a representation but a function, this oscillation of the Subject, cancelled by *Jouissance*, is underlined - if not represented in its purest elementary form - by the choice of sound formulae which overturn around an axis. This swinging movement is that of a dismissal.

Here, another fantasy of musical writing leads to not only give a sound to this enjoyment thanks to which we are carried away (outside ourselves) during creative work, but also to feed the illusion that the resulting score, then the performance, will restore some trace of what was traversed.

I evoked these inscriptions, the marks of a gap in psychic matter, or in musical matter, which can be isolated from the place in which they left an imprint and become a specifically significant material, as bearing chromosomes - which Deleuze envisages as *loci*, "i.e. not simply as places in space, but as complexes of relations of proximity".¹³⁷

As a matter of fact, this work of matter being created is governed by rules of contiguity and attraction. These tiny aggregates group and are duplicated. Their mutations proliferate in the

¹³⁶ In French, there is an interesting consonance between the words "découper" ("to cut"), "se découper" (with two possible meanings - "to be cut" and "to stand out") and "se découpler" ("to be multiplied") -, but this sonic dimension cannot be transferred to the English translation.

¹³⁷ Deleuze, G. (1994), *Difference and Repetition*, translated by Patton, P., Columbia University Press, New York, p. 185
Original text: Deleuze, G. (1968), *Différence et répétition*, PUF, Paris, p. 240

cracks of an extremely labile sound space where one can sense the alternative palpitation between the Subject and *Jouissance* or the shimmering of a virtual object. There, not there, "nobody" when there is only a body and overflowing of drive; "no body" when there is some Subject.

Within this framework, certain parts acquire a bigger consistency in certain places. Small objects are detached, as if expelled, are residues of what made them.

I adopted this approach in two of my pieces, *Le livre des trous* and *Holes and bones*.

From the elaboration of a very dense reticular structure, which can be either audible (in *Le Livre des trous*) or latent (in *Holes and bones*) and within which series of minimal elements weave horizontal and vertical links in a repeated falling movement, certain fragments of this fabric are torn up, removed; they build objects (scraps) which are reused, not without distortions, and travel through the whole architecture of the piece. They are dilated until they become a texture, contracted up to a minimal gesture or a vanishing point. There is a play with the screen they raise against gaps, with the breaches to fill in or to surround.

The musical language of the piece thus underlines the polyfunctionality of its components (and those of the unconscious): a literal or signifying function for the evolving sound chains, an objectal function for the extracted materials which form compact conglomerates; and the passage from one to the other, and still many others.

What Lacan names *letters* or *signifiers* and objects, what Guattari names a *molecular formation* or a *molar formation*, has to be designated on the musical level by the terms chains of minimal units or sound objects, yet keeping in mind that the functions are not established once and for all.

The particles can either establish sequential linkages just as well as agglutinate to build objects, or else recover their autonomy and the shapes which appeared are fragmented into a multitude of "sound quanta" which then follow various trajectories.

This writing can cast its nets through all the pieces. As a matter of fact, it also seems interesting to determine connections between them, not by gathering them in simple series, but by assigning them a place - however relative - at one of the junctions of the structure.

A piece can thus be the second of a series (or a chain) and the first of another one. It is the case of the string quartet *...who holds the strings...* which is the second part of the series of pieces *Order or release, border of relish*, but the first of the series *www*.

Likewise, the notion of object can be extended to the work in general, this remnant of the creative work, a part detached from the psyche of the Subject who created it and which is now heterogeneous to him (if not sometimes perceived as monstrous), coming back from outside. In this movement of projection outside of the psyche, one can identify with these successive works, these objects, each new form of which is substituted to the previous one; one can repeat oneself in them, and gets rid of them, perhaps... (I retraced this process in one of my pieces, *Repeats, defeats*).

[...] we must distinguish these discrete elements, these repeated objects, and a secret subject, the real subject of repetition, which repeats itself through them.¹³⁸

¹³⁸ Deleuze, G. (1994), *Difference and Repetition*, translated by Patton, P., Columbia University Press, New York, p. 23
Original text: Deleuze, G. (1968), *Différence et répétition*, PUF, Paris, p. 36

In this constant movement of forces, repetition which characterizes the work of the unconscious can behave in two different ways: they can be qualified as *machinic* - a term used by Guattari to account for this unconscious which keeps producing - or as mechanical. And both sides of repetition are to be related to a different destiny of the subject who repeats.

The first one does not concern a shape or a content, but the reiteration of a process. Nothing is to be represented. Only dynamic forces matter, those that propagate step by step. Each new repetition renews the element uttered and never identical to itself, slightly diverts it in relation to the point where it has returned. It thereby ensures a creative mobility of the chain, as indicated in the examples quoted above, in which the envelope of the sound molecules is affected by the multiple variations of the minimal units. Therefore, even if some strata are punctually identified according to the superimpositions of these repetitive series, the sediments which compose them and their contact points between the layers undergo a constant rearrangement, which gives a great fluidity to the whole.

In the second kind of repetition, the mechanical one, the process does not introduce any variation of the elements. The mobility is no longer dynamic but static, in the sense that the sound signifier - or gesture - always returns identical to itself, like these motor stereotypies of psychotic individuals.¹³⁹ The obturated alternation of the molecules *A1* and *A2*, into *A1-A2-A1-A2...* (or of the particles *a1* and *a2*, into *a1-a2-a1-a2...*), and no longer the "differentiating" series *A1+A2+A3... An*.

Instead of unfolding a spiral, either the circuit is coiled on itself in a dead end, or the components of a stratum are crystallized, caught on a pole of fixation, and are no longer likely to slide towards other layers or to generate new arrangements. Enslaved to the shapes and places where they got frozen, they show the implacable logic which alienates them.

Both repetitions are not always compartmentalized and can mutually lead to each other. I worked on both aspects in the piece for five instruments and electronics, *Fluctuatio (in)animi*, in which the musical processes are trapped several times in sound sequences which use electronic sounds evoking a machine.

But this notion of repetition also questions an unfolding of time in the musical work.

In the unconscious, the temporal dimension is really specific.

On the musical level, the most immediate temporal perception is that which makes us hear successive sound events, as the words of a speech respect a syntactic order.

Even within the framework of a psychoanalytic session, the structure of language is preserved. One word after another, one sound after another. This required condition certainly sets up a common code for the individuals engaged into an intersubjective situation. But we have seen how this other logic of the unconscious (a preeminence of the signifiers) affects the utterances. Rebounds, echoes, reverberations run in all directions on the thread of the discourse. Junctions, abrupt shifts, returns, breaks, mark the recurrence of these minimal traits which slide according to criteria of phonetic or semantic contiguity, and jump from one word to the next. "Chute", "chut!" (in French), "shut" and "cut", "cutter", "taire", "muet comme une tombe" (in French),¹⁴⁰ silence and

¹³⁹ The stereotypies consist in a persistent repetition of meaningless acts or gestures. They can be observed in some cases of schizophrenia.

¹⁴⁰ The sonic quality of language builds connections between words with different meanings and leads to a crossroads of lines which induce an emergence of sense. Having a same consonance, the French words "chute" and "chut!" mean a "fall" and

death, and suddenly, three trajectories are condensed into this formula: the fall which reappears at this connection point between "tombe" ("grave") and "tomber" ("to fall down") and the vanishing of the words ("chut!") which echoes that of the being, death ("tombe": the "grave").

But "muet" (the French word for "mute") ramifies into "muer" ("to moults"), mutation or birth, a slough and a chrysalis, when "terre" ("earth"), "père" ("father") and the recollection of a past situation are linked on another line.¹⁴¹ And therefore, with the unveiling of these hidden bounds, elements which seemed isolated will join at crossroads where sense emerges.

Such series have been previously evoked in the detailed description of successive deviations of A, B, or C sound chains (a local level and a reduced scale). One word with another, one word with a current event, one event with a shred of memory, respond to one another in multiplied resonances through various times of our experience. One sound with another, one timbre with another, one object with another, are the signals of this temporal reverberation.

This approach can be applied to more global musical situations, whose enraged outburst, unpredictable interruption, breathlessness for instance, will be identified to be found again further on, as if they were appearing thanks to the encounter with another situation which had followed its singular trajectory.

The listeners are thereby immersed into interwoven times. If they try to cling to the representations of the sound objects that they discerned, they have the sensation that the latter are slashed under the violence of the torsions produced by these breaches and about-turns. The listeners hear these representations as remnants or vestiges and experience a "*fragmented time*" (the title of one of Green's books) in which an object or a portion of object which returns and insists will however be sometimes recognized.¹⁴²

If the listeners give up this fatally partial recognition of the roughly sketched figures which break up, they allow themselves to be carried away by the fluxes, in a time experienced as a pure process, when what matters does not concern the elements swept away by the course, but the course itself, an "empty form of time".¹⁴³

This movement in which only some passage persists is what Le Poulichet names the *catastrophic instant* (but is it not the ecstatic instant as well?) which "would be this temporal mode in which the ego is reduced to the tip of another instant which is the same and yet quite different: the bare, uninhabitable time."¹⁴⁴

To invoke another science of the Real, quantum physics teaches us that the objects, as we perceive them with our human eyes, have actually quite another materiality. Their shapes which we freeze in definite dimensions and places, present an amount of uncertainty which results from

"shush!". "Muet comme une tombe" means "silent as a grave". The French word "muet" means "mute" and has the same consonance as "muer" ("to moults") while "tombe" ("a grave") also means "(he/she) falls".

¹⁴¹ In French, "taire" ("to keep something secret") and "terre" ("earth") are sonically similar. The same sound leads to two meanings and thereby, two possible ramifications thanks to the *free association* method.

¹⁴² Green, A. (2000), *Le Temps éclaté (Fragmented Time)*, Editions de Minuit, Paris

¹⁴³ Deleuze, G. (1969), *Logique du sens*, Editions de Minuit, Coll. "Critique", Paris, p. 79

English translation: Deleuze, G. (1969), *The Logic of Sense*, translated by Lester, M., with Stivale, edited by C., Constantin V. Boundas, The Athlone Press, London, p. 62: "[...] there are two times, one of which is composed only of interlocking presents; the other is constantly decomposed into elongated pasts and futures. There are two times, one of which is always definite, active or passive, the other eternally infinitive and eternally neutral. One is cyclical, measures the movement of bodies and depends on the matter which limits and fills it out; the other is a pure straight line at the surface, incorporeal, unlimited, an empty form of time, independent of all matter."

¹⁴⁴ Le Poulichet, S. (1992), *L'œuvre du temps en psychanalyse (The Work of Time in Psychoanalysis)*, Editions Payot & Rivages, Paris, p. 121

the constant motion of *quanta* whose either localization or trajectory cannot exactly be determined. Here, there is another reality which exceeds that of our perceptive capacities.

Regarding the temporal perception, does not the same thing happen? And might not musical writing reveal these "sound quanta"?

To approach the unconscious is to transgress, or to "trance-gress", for we have seen that musical or gestural repetition (whose part is important in experiences of trance, with Sufi mystics, for instance) is a process of opening to this other psychic reality, inaccessible or partially accessible, when representations are undone along a psychoanalytical path. Regarding this other reality, this space which is neither figurable nor namable, this *Real* that Leclair invites us to unmask¹⁴⁵ and about which Lacan says that it is "at the limit of our experience", the musical work tries to make it tangible, to delineate its contours, to capture its forces, to catch it in the nets of an extreme rigorous writing, with however the certainty that this endeavour is already a betrayal.¹⁴⁶

The Invisible Man and his bandages: *they* indicate that there is some being.

To write is the double attempt to weave these bandages which tighten an invisible consistency as closely as possible, and to undo them in order to hold directly this force that they simultaneously hide and underline. It consists in standing at the border, where the evocation of the possibility of a pure shapeless presence makes us sense it, but paradoxically introduces the impurity that writing gives.

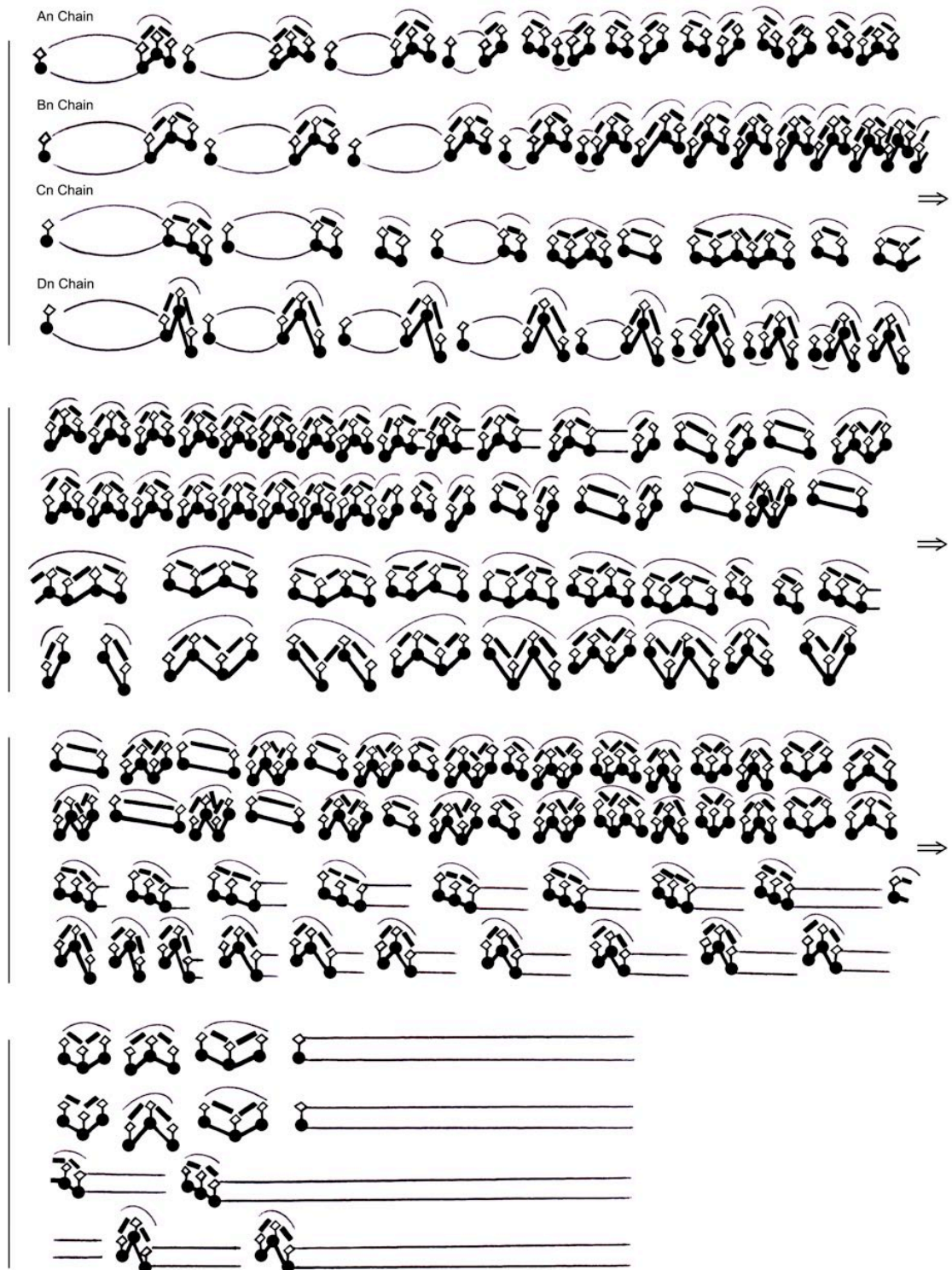
The limit of the experience is always to be extended, being the germ of desire to start again the creative work experienced as a plunge into what implacably escapes us.

¹⁴⁵ Leclair, S. (1971), *Démasquer le réel (Unmasking the Real)*, Editions du Seuil, Paris

¹⁴⁶ Lacan, J. (1956-57; 1994), *Le Séminaire. Livre IV. La relation d'objet (The Seminar of Jacques Lacan. Book IV. The Object Relation)*, edited by Miller, J.-A., Seuil, Paris, p. 31

Example 4 - *Fluctuatio (in)animi* for five instruments and electronics

Process for four strings (violin, viola, violoncello and double bass): superimposition of *An*, *Bn*, *Cn*, and *Dn* chains



Article 2 - Für eine Nanomusik (2011)

Neue Zeitschrift für Musik. Das Magazin für neue Töne. Klangzeitort
Universität der Künste, Berlin, pp. 60-63

English title: **For a nanomusic** - French title: **Pour une nanomusique** - Translation: **C. Maïda**

Can thirty-four entangled spears compose a being? Yes, a Meidosem.¹⁴⁷

The Meidosem is this being that Henri Michaux imagined, composed of a fragile and moving fabric of intertwined threads, crisscrossed with spasms and electrical quivering.

More than thirty-four tangles are obviously needed to compose a living being, and quite particularly a human being... But it is really the entanglement of connections of all kinds which is at the origin of any organism.

At the beginning of the 20th century, three major discoveries deeply modified the way we look upon humanity.

Psychoanalysis operated a revolution in the notions of subject and psyche. In 1900, Freud published *The Interpretation of Dreams* and presented the theory of the unconscious, demonstrating that it can be accessed thanks to dreams and to the *free association* technique. Numerous psychoanalytical research followed Freud's writings, mainly with the English school (Klein, Bion, Winnicott) and Lacan, in post-war France, who proposed new concepts, under the influence of linguistics, structuralism and cybernetics.

In this same year 1900, after Mendel's works about the laws of heredity were rediscovered, genetic knowledge developed by revealing genes located on chromosomes and on the DNA molecule or by studying mutations. The contribution of physicists and biochemists paved the way to the emergence of molecular biology which, in the early 21st century, went through an extraordinary upheaval. It is known that genes code for proteins that have specific functions in the organism. This genetic material is common to all living beings, from bacteria to Humankind. The human genotype will very likely be fully decoded by the end of our century.

But one must beware of a "fetishism of the gene", for geneticists themselves are aware of all the remaining lacunae. It is known that genes do not correspond to specific abilities but act mostly in interdependence (there is no gene for intelligence or artistic creativity...).

In the early 20th century, brain research had developed for already a half-century. After 1950, the knowledge of the organization of the nervous system took shape thanks to the electronic microscope. The electrical activity of the brain and chemical transmissions between neurons were discovered. The encephalon presents a very complex assembling of more than ten billion neuronal connections entangled to one another and in which electrical impulses and chemical signals propagate.

Despite the ever deeper study of cerebral faculties, one cannot consider that one individual's thought or affects are reducible to the assembly of neurons being activated. It really seems that no

¹⁴⁷ Michaux, H. (1949), *La vie dans les plis*, Editions Poésie/Gallimard, Paris, p. 118

science is in a position to account for all the complexity and the subjective dimension of the human being.

The different cerebral waves that appear according to one individual's changes of state (wakefulness, attention, rest, sleep, dream...) have been identified. It is known that perceptions or behaviours also correspond to the release of certain neurotransmitters and to an activity more specifically visible in precise areas of the brain (visual, auditory, motor areas...). However, the observed phenomena do not concentrate exclusively in it and a large number of neuronal connections and transmissions are also present throughout the whole cortex. Neuronal plasticity has been demonstrated thanks to the study of patients suffering from cerebral lesions.

But this information teaches us nothing about the specificity of a subject. In dreams, for example, the cerebral waves that an EEG measures do not indicate why some signifiers assemble according to such or such configuration in the dream content.¹⁴⁸ Psychoanalysis attempts to decipher this side, focusing on the individual's dimension of *drive*, and art brings its light to this enterprise by elaborating its imaginary figures.

Why should models derived from these three disciplines be used in order to develop musical processes? They have in common to try to throw light on corporeal mechanisms, in an anatomical and functional dimension and on a microscopic level (genes, neurons), or in a drive, fantasmatic and imaginary dimension (the body of desire).

Genetics (which accounts for the constituent material of all living being), neuropsychology (which studies cerebral structures and functions) and psychoanalysis (rather more preoccupied with each individuals' singularity, with their specific experience and psychic architecture) thus bring us precious complementary data to try to understand the human being.

Moreover, on a structural level, if one temporarily gives up the field to which these three disciplines apply, each of them accounts for a connective system, a network. One can thus start from this observation to define which characteristics will be developed in musical works: connectivity, circulation of sound flux, formal mobility, to name only a few.

According to the System Theory (von Bertalanffy) converging on cybernetics which was developed at the same time, systems are everywhere and have an open nature.¹⁴⁹ A complex system is an ensemble composed of a great number of entities in dynamic, local and simultaneous interaction, and it presents a large variability of states.

The systemic approach and cybernetics take into account so various complex systems that they can be only transdisciplinary. In the second half of the 20th century, the cybernetic revolution brought a whole set of modellings within different fields such as artificial intelligence (notably the Internet), psychology, psychoanalysis, sociology, neurophysiology and neurobiology.

This definition of a dynamic and complex system can be at the same time applied to genetic phenomena (chains of nucleotides that form amino acids then proteins and an ensemble of macromolecules making up the organism), to cerebral processes (circulation of information between neurons within a very dense and stratified network of connections), or psychic and

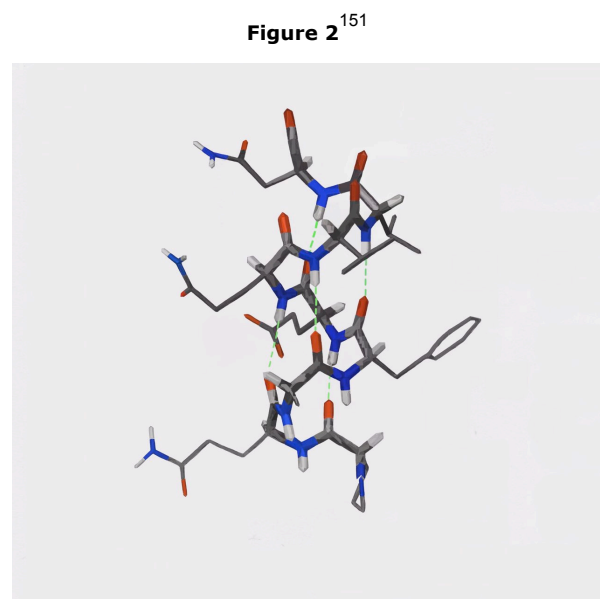
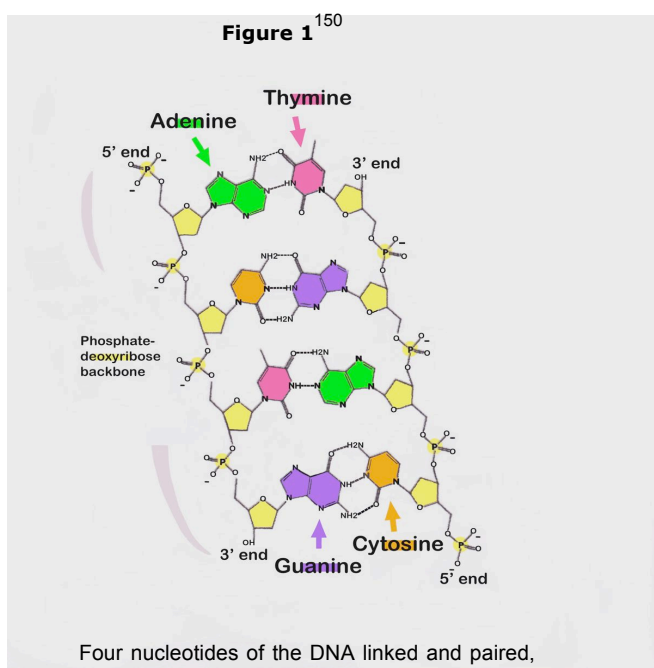
¹⁴⁸ EEG: Electroencephalogram

¹⁴⁹ Bertalanffy (von), L. (2001), *General System Theory*, George Braziller, New York

unconscious processes (link of the signifiers within an associative network) as well as to music (an ensemble of minimal units with relations of pitches and durations, in space and time). Therefore, there is no contradiction in considering music as a set of systemic potentialities just like living, cerebral or psychic systems. Like those, it consists of evolving graphs of signs and diagrams of flux.

On the genetic level, the DNA, an elastic macromolecule which comprises two strands (a double helix), is present in the nucleus of all living cells. It stores the genetic information necessary to the development and to the functioning of an organism and transmits it from one generation to the next. Each strand is formed by binding nucleotides which assemble three parts only one of which varies, the azoted base (four possible bases) and which linearly follow each other pairing with their complementary base on the other strand. They group by three (codons) with various combinations in order to form amino acids, thereby making up a coding message for the synthesis of proteins (through the RNAm). For instance, a chain of Guanine, Cytosine and Thymine nucleotides (GCT) will give Alanine amino acid.

The observed phenomena are extremely dynamic (interactions, transfers of energy, fixations, separations, reassemblings...) and this activity takes place at a minimal level (a nanometre scale).

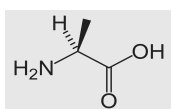


Using these intracellular mechanisms as models, it is possible to elaborate "sound nucleotides", composed of either one pitch, if the genetic nucleotide is considered as an entity in itself, or of three pitches if its three-part structure is adopted. The connections between these sound elements can reproduce the same configurations as these small figures traced on the genetic level. For instance, some motives close to those of codons can be built.

¹⁵⁰ **Figure 1** - "DNA", *Wikipédia. L'encyclopédie libre*, available at: https://en.wikipedia.org/wiki/DNA#/media/File:DNA_chemical_structure.svg (accessed March 10, 2011)

¹⁵¹ **Figure 2** - "Structure des protéines" ("Protein Structure"), *Wikipedia. The Free Encyclopedia*, available at: https://fr.wikipedia.org/wiki/Structure_des_prot%C3%A9ines#/media/File:Alphahelix.png (accessed March 10, 2011)

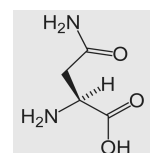
Figure 3¹⁵²



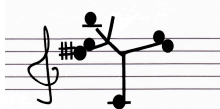
Alanine (chemical formula).
Four kinds of possible
codons: GCT, GCC, GCA
or GCG.

Asparagine (chemical
formula). Two kinds of
possible codons: AAT
or AAC.

Figure 4¹⁵³



Figures 5 and 6



Two examples of (timeless) modules of pitches imitating the
configurations of amino acids. The lines which link the
pitches can be glissandi.

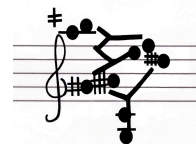
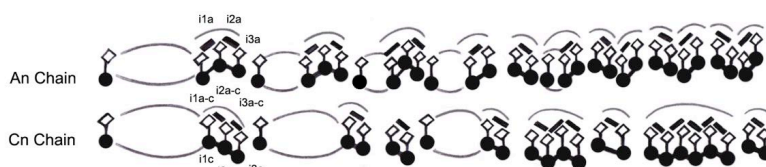


Figure 7 - Examples of chains of "sound codons"



Evolving towards ever more sophisticated levels of musical elaboration, these modules which mimic the configurations of amino acids can articulate together, their interlocking creating "sound molecules". With a pivoting system within the field of frequencies, they travel throughout the whole space of the spectrum and build up increasingly complex assemblings.

I am currently developing a project with the bioinformatics Department of Strasbourg University. From very precise chromosomal data (sub-regions with various functions, probabilities of appearance, the order of succession and the number of nucleotides per sub-region, observable motives...), a conversion into acoustic data can be proposed. Here are a few of them: the length of each sub-region can correspond to a frequency (Hz) and the ensemble of regions (with different lengths) to a sound spectrum, the number of repeats of the bases to a duration (aaaaa = a5, ccc = c3), etc.

But genes code for proteins responsible for the development and the regulation of the neuronal circuits which are involved in various aspects of the cerebral functioning. Neurons differ from other types of cells. They express genes which are specific to them. But they are in much larger number than those. Each neuron is connected to thousands of other neurons.¹⁵⁴ The level of organization is therefore much more complex. Innervations are multiple and wave-shaped signals propagate along axons. The internal coding of the cerebral machine is both a topological coding of the connections (Changeux's *neuronal graphs*) and a coding of electrical impulses or of chemical signals.¹⁵⁵

Musical writing is close to these characteristics. The processes are both particulate (connections between units, figures drawn by the various densities of grouping, fields of forces) and undulatory

¹⁵² **Figure 3** - Alanine (amino acid), "Protéine" ("Protein"), *Wikipedia. The Free Encyclopedia*, available at: <https://fr.wikipedia.org/wiki/Prot%C3%A9ine#/media/File:L-alanine-skeletal.png>

¹⁵³ **Figure 4** - Asparagine (amino acid), "Protéine" ("Protein"), *Wikipedia. The Free Encyclopedia*, available at: <https://fr.wikipedia.org/wiki/Prot%C3%A9ine#/media/File:L-asparagine-2D-skeletal.png>

¹⁵⁴ See the graphic, last page.

¹⁵⁵ Changeux, J.-P. (1983), *L'Homme neuronal (Neuronal Man: The Biology of Mind)*, Hachette Littératures, Coll. "Pluriel", Paris

(just like nervous impulses, sound waves propagate). Moreover, the stratified arrangement in the cerebral cortex (six superimposed layers) allows ramifications on a horizontal level as well as on a vertical one. In musical elaboration, this double dimension occurs in the relationships established between the various sound strata and in a temporality.

Beyond the ideological fights between neuropsychology and psychoanalysis, a *rhizomatic* structure common to the brain and the psyche can be noticed.¹⁵⁶ Sensorial organs and the whole body are projected onto the cortex (tactile receptors), and a representation of the world gets organized in territories. Additionally, some regions of the body occupy a disproportionate surface in it (the hand and the mouth, for humans). It is therefore obvious that the more or less important function of an organ conditions the extent of the projection. Moreover, no sensorial experience is neutral. The body is both a transmitter-receiver of biological signals and a surface on which mnemonic traces get unconsciously imprinted all the more deeply and durably since their affective coloration will have been intense (pain, pleasure). During childhood, the innervations of neurons multiply prodigiously and the combinations of signifiers (fragments of events, of memories) joint and agglomerate to constitute the singular psychic architecture of an individual.¹⁵⁷

At the intersection of these three disciplines, a nanomusic can be imagined.

In whatever way the elements are considered (an articulation of nucleotides, neurons or signifiers; conglomerates of macromolecules, mental objects or drive objects; transfers of energy in the cell, nervous influx or path of the drive), their structural characteristics are so close that they make the writing converge onto the elaboration of nanoprocesses. These processes exert on very mobile elementary units with varying combinations. All kinds of forces act on these particles and sweep them away in irrepressible movements. Their trajectories run along dynamic circuits that are endlessly rearranged. Small mobiles appear, oscillate, hold onto one another and create linear chains or compact coagulations. But these small constructions are undone by the circulation of dots which travel and condensate in other zones.

Atoms, molecules, the nanoworld makes us discover objects invisible to the naked eye, with essentially quantum behaviours. It leads us to a conceptual scientific revolution. Historically, the fabrication of objects used to consist of the arrangement of great aggregates of matter. Today, nanotechnologies are based on the opposite method, going from the smallest to the biggest. Music seems to be particularly appropriate to exploit this reversal of perspective. Its kinetic properties and its capacity for a proliferating quasi self-generation afford a manipulation of sound components on an increasing level of abstraction.

And what is more abstract and impalpable than the psychic unconscious, mobilized in any artistic production...?

¹⁵⁶ Deleuze, G. and Guattari, F. (1980), *Mille plateaux. Capitalisme et schizophrénie 2*, Editions de Minuit, Coll. "Critique", Paris
English translation: Deleuze, G. and Guattari, F. (1980; 1987), *A Thousand Plateaus. Capitalism and Schizophrenia 2*, translated by Massumi, B., University of Minnesota Press, Minneapolis/London

¹⁵⁷ For more details concerning the relationships between musical writing and the psychic unconscious, see the article "...ça écrit ça écrit ça écrit ça..." published in *Filigranes* n°6 in 2007.

Maida, C. (2007), "...ça écrit ça écrit ça écrit ça..." *Filigranes* n°6, "Musique et inconscient" ("Music and unconscious"), Musique, Esthétique, Sciences, Société (Music, Aesthetics, Sciences, Society), Delaplace, J. and Moll, O. (ed.), Editions Delatour, Paris

Figure 8 - Neurons, pyramidal and star shaped cells, and layers of the cortex

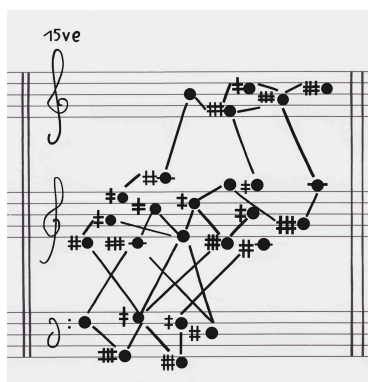
Graphic excerpted from:

Changeux, J.-P., *L'Homme neuronal (Neuronal Man: The Biology of Mind)*¹⁵⁸



Figure 9 - Field of frequencies and entangled modules of pitches

Mutatis mutandis for twelve amplified strings (2008) - Graphic of the conclusion



¹⁵⁸ Changeux, J.-P. (1983), *L'Homme neuronal (Neuronal Man: The Biology of Mind)*, Hachette Littératures, Coll. "Pluriel", Paris

Figure 10 - Excerpt from *Mutatis mutandis* for twelve amplified strings

49

Article 3 - Worstsaid Ho, worstheard Ho (2010)

Positionen, 85, *Texte zur Aktuellen Musik*, "Schreibkrise?"

Nauck, G. (ed.), Verlag Positionen, Berlin, pp. 37-39

French title: **Cap au dire, cap au ouïr** - Translation: **C. Maïda**

Samuel Beckett, *Worstward Ho*:

On. Say on. Be said on. Somehow on. Till nohow on. Said nohow on.

Say for be said. Missaid. From now say for missaid.

Say a body. Where none. No mind. Where none. That at least. A place. Where none. For the body. To be in. Move in. Out of. Back into. No. No out. No back. Only in. Stay in. On in. Still.¹⁵⁹

In his fascinating world, closed on itself, through an extreme effort of rarefaction of words - in a language stripped to a minimum -, Beckett attempts at the conquest of the secluded, unspeakable, impalpable zone of the psyche that can be imagined as immersed in an immense and immobile elsewhere or, inversely, as tenuous as the slight palpitation of a point. The being in its most inaccessible nudity.

Paradoxical as it may appear, and for all its volubility, my music hinges on this search.

Beckett went to the extreme limit of the impossible to say: where no word is spoken, how can it be said? From this limit, the music weaves its journey. To this imprecise border where symbolization has no more hold, where something is irreducibly beyond the capture that language would like to attempt at, where the rough cuts of the words cannot evoke the opacity of so fragile yet so powerful a presence, music spreads out its world of signs, its web of vibrations. How can one describe or make the voice audible, the voice of absence or the absence of voice, the voice of what is experienced before the acquisition of language, nestling in an embryonic state in the most private nucleus of the psyche (the autistic nucleus)?

"Say a body", Beckett writes.

But which body? The biological body, a complex and surprising assembling? The psychic body, a body of sensation? The primeval experience of the body on which marks, invisible scarifications get imprinted as early as birth. Traces of pleasure and suffering delineate this body which is halfway biological and psychic, the body of desire, the pulsional body. Can both these approaches of the body overlap? One knows that it is not so simple. The drive does not run along the axons of neurons... but sound might run like the drive.

What is the body? How is the unity of the biological body possible? How is this body experienced, perceived? How is the unity of a person possible? Are they at one with their body or are they separated from it? How can they feel that this body, made of a multiplicity of buried imprints and carnal recollections, carrying an unconscious and fragmentary memory, is one and only one, their own, in space and time? And one can feel the proximity of psychic collapse or disintegration always possible to experience, this ever permanent splitting of the being full of inner multiple voices, some of which are inaccessible (the unconscious).

¹⁵⁹ Beckett, S. (1983), *Worstward Ho*, John Calder Publishing, London

On a biomolecular level, the DNA molecule is made of pairs of nucleotides - minimal chemical units - that code for proteins. How do these interactions induce more and more refined elaborations, developing on ever more complex levels to constitute organs and an organism? How is this cohesion of matter possible?

On the psychoanalytical level, how are perceptions, sensations, affects, as archaic as they may be, gradually structured into the literal order (a combinatory of signifiers), i.e. the framework of all the representative constructions for an individual? These unconscious mnemonic traces are indelible inscriptions and are characterized by the singular architecture of their psyche. What keeps the permanence of an *I*, despite the various psychic instances of the person, through the succession of experienced space and time?

These questions cross through all my pieces, whatever the angle selected, whether genetic or neuropsychologic, i.e. at the heart of matter and its laws, or psychoanalytical, referring to psychic organization.

It is the enigma of the Being (the origin of the world, of the living), and it is also the enigma of the being (the origin of thought, of affects, of the Ego).

This question haunts the child and Art tries to give an answer to this "Why?", to this encounter with the incomprehensible.

Why do we receive music as a whole, as a sound entity, in spite of its disintegrated matter? How do those frameworks of points and waves shape coherence of sound?

To be the closest to one's truth is an attempt to let the little mutistic girl speak as she comes up against the world.¹⁶⁰ Music was born of her silence, of an impossibility of words. And musical writing provides a possibility of meaning. It is the voice of childhood, with its questions, its anguish, its suffering and its traumas, surrounded by the opacity of a psyche being still in the making. How can it be restored to the adult who cannot or does not want to hear it? The artistic quest tries to recall this presence of the child who lives on somewhere within us, and to allow an unexpressed voice to be heard, sometimes a nearly hallucinatory presence. To listen to all the times that are there, in their full presence, so close and so distant, since it is known that all the stages of structuring are stored. Nothing is forgotten, not even the forgotten. Through the creative process, something is called upon, something will be able to occur.

The work of writing, so close to a psychoanalytical process, thus allows to project outside of oneself what was intimately veiled, and to recognize this self in artistic production, to recognize oneself.

The musical work has an ambiguous status. It is a piece of the psyche, a part of the subject fluttering outside of the body, a quasi-substance vibrating into space, for it has materialized, given shape to a psychic reality. It is also a perceptible object which gains its autonomy and which spreads out in space-time, an intra-subjective territory between the creator and him/herself, an inter-subjective territory between the creator and the listener.

This projection of a form combines aesthetic and cathartic functions. The boundaries between inside and outside have disappeared, and the point of passage can then constitute a sound mirror

¹⁶⁰ I chose to translate the French word "mutique" by "mutistic" rather than by "mute" because it refers to a psychological inability to speak in certain situations, with an anxiety which goes beyond shyness.

in which I, a composer, will recognize myself, and will have to accept to reincorporate this part of the unknown. This mirror-witness reflects, work after work, through the successive projections and reintroductions, the inner psychic mutations of the artist. This mirror will perhaps send some feedback to the one, different and yet similar, who receives it.

Why such fascination with music?

Music has the specificity to always lie beyond. It lies beyond the Imaginary, for the figures and the volumes that it delineates are not images. The possibility of sound images can be called to mind, but they present therefore a kind of paradox. Being not perceptible through vision, they belong to the field of abstraction and a capacity to produce diagrams, configurations of mobile particles, which connect multitudes of points and dissolve into a polydimensional space. In this regard, music - a sound body - can express distorted and potentially endlessly distortable images of the body. The sound Imaginary goes beyond the limits of the visual Imaginary since the vectorizations of points, lines, curves, trajectories and intersections are part of a boundless space.

But music lies also beyond the symbolic, in its narrowest meaning, i.e. beyond what is identified by language.

For Lacan, "The real, or what is perceived as such, is what absolutely resists to symbolization".¹⁶¹ The symbolic system, in the most restrictive meaning of the term, only concerns language. But music develops an ensemble of articulations of signs. Accordingly, it can be envisaged as a language which, for lack of designation and meaning, cuts surfaces and marks condensations within undifferentiated sound, catches a portion of this infinite ensemble and tries to give a framework to this non-imaged figuration which might be linked to the theories that physicists put forward to explain the universe. The same endeavour to apprehend and contain the unknown is at the intersection of the artistic and scientific approaches. Physical formulae and musical poetizing converge toward this non-symbolizing zone that the *Real* is (according to Lacan), in a common effort to surround, envelop, reduce - who knows? - what is experienced as a void. How can one create a shape around a void, the shape of this void, and make some meaning appear (a void being what cannot be represented without any scientific tools rather more than what does not exist)? It is the capture of *non-sonic forces*.¹⁶²

In this journey, the strangeness of outside and inside converge in a set of signs. In the renewed attempt to recover an originating fund, in the insistence to control these signs and to reiterate the trajectories of ever more tightened spirals around a centre, it is a matter of finally being born to the world and to oneself.

In this way, with each new piece, the inaugural and endlessly repeated act - a quasi ritual - consists in cutting out a space of frequencies. As if a piece of sound cosmos was grabbed, a first ceasura is brought in operation between me and something else; and from this delimited surface, the work will have to spread out with its game of figures and its singularity.

¹⁶¹ Lacan, J. (1975), *Le Séminaire. Livre I. Les écrits techniques de Freud (The Seminar of Jacques Lacan. Book I. Freud's Papers on Technique)*, Editions du Seuil, Paris, p. 110

¹⁶² Deleuze, G. (1981; 1996), *Francis Bacon. Logique de la sensation*, La Vue le Texte aux Editions de la Différence, Turin
English translation: Deleuze, G. (2003), *Francis Bacon. The Logic of Sensation*, translated from the French by Smith, D. W., Continuum, London

How can one say what cannot be said? To say is a delusion, but an essential delusion. To say oneself is always to say the gap, and in this gap with oneself, to betray oneself (to unveil oneself) and to betray (to fail). The power of music, however, is to offer us this wordless speech.

To give oneself up to the successive ephemeral figurations, constructions and deconstructions of fragile sound constellations which appear in the movement of their disappearance or disappear in the movement of their appearance. The ghostly and illusory nature of these objects carried away by the trajectories that turn around an absence, as the mathematical equation articulated around an x indicates the place of the unknown factor without being able to determine its shape.

The musical work is a paradoxical, twofold construction.

On the one hand, it unfolds its sound chains, its interlocked events. It appears in the thickness of a polystratified structure, accumulating layers of matter that slide or crystallize in a fluid movement or with furious oscillations. The intertwining of these multitudes allows one to hear an evanescent presence that dances in the interstices. It echoes thereby the experience of human beings, who can feel that their psyche does not cover their brain with a perfect adequacy, that their sensations extend beyond their body image and who always miss the meeting in their relation to the world.

On the other hand, the work unties, point after point, the connections that were established, giving substance to objects. Lines loosen, surfaces disintegrate, and this nudity that Beckett was hunting down between the words emerges in a gap.

This crossing retraces the stages in the structuring of the person, the series of identifications which constitute the Ego. At the same time, it mimics the opposite way that leads to parting with these identifications, divesting the Ego, and aiming at a reduction in alienation, a way forward to more freedom.

It is a kind of pact with oneself and with the creation in progress that must be incited and accepted each time. Personal ethics consists in trying to be permanently in the "vanguard" of oneself, i.e., once the structural frame is established, severing the links of a musical speech which develops with its own logic, and whose destiny is to escape from a will of consciousness, or to infiltrate on all the levels of various psychic strata at work in the writing process. Traversed by this intense and destabilizing movement, musical events vibrate under the pressure of all kinds of forces: forces of sliding, mutation, distortion, condensation, accumulation, proliferation, crystallization, stratification, oscillation or pivot, symmetry, flattening, pulverization, vacuum, disappearance.

All these forces that can be encountered in psychic life, and more specifically in dreams (the access door to the unconscious), give its matter, its textures, its trajectories and its moving borders to the piece, flow into the artistic production which is both a content - forces into action - and a container - a place of pure forces, with elastic outlines. It is a place where simple oppositions such as subject/object, content/container, inside/outside disappear, a place where

¹⁶³ Beckett, S. (1983), *Worstward Ho*, John Calder Publishing, London

¹⁶⁴ *Ibid.*

sensory experience disturbs classifications, where one touches with hearing, hears through the stomach. This immaterial place is everywhere and nowhere, giving sometimes the sensation to be outside of the human being and the world, "where none"...

The power of music is to be at the same time outside and inside, and to reverse data that one would tend to consider as definitely certain.

In a world in which the will of totally eliminating any risk contaminates every field, and in which the search for meaningless objects is a substitute for the search for meaning, if the artists allow themselves to let music travel towards unknown territories and if the listeners allow themselves to receive it without any constraint, I like to think that music sheds light on the mirage of the intoxicated consumption of objects, reasserts its subversive power of wavering and dismissal, of the disruption of markers, going beyond intellectual and perceptive categories and spreading its cycle of tiny yet infinite revolutions.

Article 4 - Instants-passages (1999)¹⁶⁵

Cahiers Bleus n°13. *Actes du Colloque de Cerisy: Henri Michaux est-il seul?*

Editions Les Cahiers Bleus, Troyes, pp. 89-93

Article about the piece *Instants-Passages* for soprano, clarinet, violoncello and percussion

(adapted from excerpts from *L'infini turbulent* by Henri Michaux)¹⁶⁶

Commissioned by INSIEME ensemble. Premiere: January 23rd, 1998. Soirées Musicales d'Arles

Translation: **C. Maïda**

Over the last few years, my compositional research has been an attempt to articulate musical discourse along the same lines as unconscious psychic processes. *Instants-Passages* outlines a moving network of plural sound objects which are never fixed or completed, but metamorphose, fissure, combine with one another to give rise to composite textures, temporarily setting up arrangements, unsteady compositions through their endless transformation activity.

The framework of the piece would come apart if the irrepressible energy which runs through it did not bring in insistent lines of forces between the fragments, persistences which make them resonate with one another.

During the composition of the piece *Instants-passages*, I was permeated with the recent reading of three psychoanalytical works, *L'espace imaginaire* and *Le corps, l'espace et le temps* (Sami-Ali),¹⁶⁷ as well as *L'œuvre du temps en psychanalyse* (Le Poulichet).¹⁶⁸

The relationship between Michaux's mescaline experiments and the imaginary space-time described by both psychoanalysts (whose most obvious representative is dream functioning) immediately occurred to me.

Therefore, I chose to apprehend Michaux's text through a psychoanalytical approach focused on the functioning of the unconscious (and not exclusively on its content).

Besides, the linguistic approach has also been invaluable (I will come back to this later).

In dreams, the dreamer's psychic isolation from the outside world opens a corporeal experience that destroys the distance between the subject and space. The corporeal boundaries are abolished, the opposition inside-outside is destroyed and there is an absolute coincidence between the subject and the space of the dream.

A double projection of the subject establishes a relationship of mutual inclusion, such as the subject finds himself inside himself, in a space that is himself.¹⁶⁹

¹⁶⁵ This piece is no longer part of my catalogue of works.

¹⁶⁶ Michaux, H. (1964), *L'infini turbulent*, Editions Mercure de France, Paris

Two excerpts are chosen: p.11 and pp. 75-76.

¹⁶⁷ Sami-Ali (1974), *L'espace imaginaire (Imaginary Space)*, Editions Gallimard, Coll. "Tel", Paris

Sami-Ali (1990), *Le corps, l'espace et le temps (Body, Space and Time)*, Editions Dunod, Paris

¹⁶⁸ Le Poulichet, S. (1994), *L'œuvre du temps en psychanalyse (The Work of Time in Psychoanalysis)*, Editions Payot & Rivages, Paris

¹⁶⁹ Sami-Ali (1990), *Le corps, l'espace et le temps (Body, Space and Time)*, Editions Dunod, Paris

The space of dream becomes an unlimited corporeal space which can indefinitely spread or, on the contrary, be reduced into a tiny dot. In this non-permanence, the subject splits up, is atomized into the figures which come across his dream.

In the field of the dream, the dreamer himself finds himself identified to those objects that watch him and constitute him since there is no longer any gap between what is seen and the point where it is seen from.¹⁷⁰

The subject disintegrates, scattered among the images of the content of the dream, simultaneously taking place in several staring points. (The existence of a unique perspective, of a centre from which the ego would watch the visible, is completely destroyed in dreams).

This experience of dream can be related to the condition of the subject under the influence of mescaline. Any sensation of corporeal and psychic unity is lost (besides, it is a permanent feature in Michaux's work, enhanced here by drug-taking). No more global form, no more perception of a whole, but a multitude of fragments of objects, of molecules into which the ego is absorbed.

In both selected excerpts, the process begins with a complete dissolution of the identity of the visible figures, connecting Michaux's experiment with the schizophrenic process described by Deleuze and Guattari:

There is a schizophrenic experience of intensive quantities in their pure state [...] an intense feeling of transition, states of pure, naked intensity stripped of all shape and form.¹⁷¹

The dissemination of the subject into the objects of the dream would go on with the disintegration of the subject-object complex into particles, like a plunge into the heart of matter as described in modern physics; it recalls again here the schizophrenic experience:

[...] this schizo who sought to remain at this unbearable point where the mind touches matter and lives its very intensity, consumes it [...].¹⁷²

Selection of both excerpts

This choice was motivated by what connects them. For both, the visible starting point is a perception (visual in the case of the first excerpt, auditory in the case of the second one), but an obvious ambiguity immediately appears.

Is it really a perception or a projection of the psychic mechanisms disrupted by mescaline which is described in those pages? Does what Michaux observes react to his mode of mental activity, "the turbulence of air and dust" inducing a crumbling of his cerebral faculties, or does the disintegration of the state of consciousness generated by the drug contaminate any perception of the objects which surround him, making them explode into the "dust of objects" ("poussières")?¹⁷³

¹⁷⁰ Le Poulichet, S. (1994), *L'œuvre du temps en psychanalyse (The Work of Time in Psychoanalysis)*, Editions Payot & Rivages, Paris, p. 64

¹⁷¹ Deleuze, G. and Guattari, F. (1972), *L'Anti-Œdipe. Capitalisme et schizophrénie 1*, Editions de Minuit, Coll. "Critique", Paris, p. 25

English translation: Deleuze, G. and Guattari, F. (1983; 2000), *Anti-Oedipus. Capitalism and Schizophrenia 1*, translated from the French by Hurley, R., Seem, M. and Lane, H.R., University of Minnesota Press, Minneapolis, p. 18

¹⁷² *Ibid.*, p. 26 (original text), p. 20 (English translation).

¹⁷³ Michaux, H. (1964), *L'infini turbulent*, Editions Mercure de France, Paris

Would he become what he sees or would he see what he becomes, the distance between subject and object being abolished here until it leads to an atomization, a disappearance of the ego? (it is not "I", but "one is in", "there is"). He is absorbed by what he sees or hears, he totally coincides with the visible or the audible which fascinates him, but this fascination takes place only because the scattering process is already in progress. A kind of infinite *feedback* is carried out. Being pulverized, he pulverizes what he perceives and this pulverized perception emphasizes even more the pulverization of identity, until the subject, objects, space and time are annihilated. Non-directional, non-located particles only remain while all subject is absent.

On a musical level, how can one convey this instant when consciousness reels, starting a whole series of disruptions to come?

An auditory shock has to be generated (hence the violent and brutal beginning of the piece), in order to trigger a rocking effect and an adherence with no possible distantiation from sound. A particular mode of listening results from this. The listener will memorize this shock, in a kind of concentration area, at a focalization point which, not only immediately opens a temporal gap (time seems to have rushed into the violence of the sound impact), but also leaves its imprint on the music that follows.

I will come back later to the musical material of the piece as such by describing more specifically the main approaches considered during the composition.

Selection of the title of the piece

The selection of the title *Instants-passages* refers to the functioning of the unconscious observed by the psychoanalysts mentioned above.

According to Sami-Ali, "The time of dream is always the present, an absolute present which creates itself at each instant of the same dream and which merges with the presence", a series of images of a same presence at any instant of time.¹⁷⁴

According to Le Poulichet, in the unconscious, "there is no direction, there is only some passage which persists", a self-generating activity, in permanent becoming, in which the connections, the passages between the figures are more meaningful than the figures themselves.¹⁷⁵

I have condensed both approaches as well as Michaux's reiterated use of two words in both excerpts ("passages" in the first excerpt, "instants" in the second one) in a title *Instants-passages*, a kind of composite object already made up for the listener even before the work becomes a sound entity.

A linguistic approach

My first approach to the text, once I was permeated with its semantic content, was to transcribe it phonetically in order to have a more precise idea of the phonemes, the most recurrent sonorities. A twofold operation consists in counting how many times each phoneme is repeated, then in assessing the relationships between these phonemes, their trajectory within the sentence so as to

¹⁷⁴ Sami-Ali (1990), *Le corps, l'espace et le temps (Body, Space and Time)*, Editions Dunod, Paris, p. 100

¹⁷⁵ Le Poulichet, S. (1994), *L'œuvre du temps en psychanalyse (The Work of Time in Psychoanalysis)*, Editions Payot & Rivages, Paris, p. 64

reveal the fluxes related to their utterance by the vocal apparatus (closing, opening of the mouth, type and place of articulation).

The place where sounds are formed reminds me of the hypnagogic experiences described by some subjects. They experience themselves within a space which keeps metamorphosing, representing at the same time the inside of their mouth as if the subject was in a space which was inside himself (the mutual inclusion relationship previously described by Sami-Ali is recognized here).

It is necessary to compose musical paths which echo the trajectories of the phonemes in the text in order to find again the coincidence between sound space and the space of the mouth cavity.

In the first excerpt, for instance, labial occlusions (*p*), of aperture 0, are disseminated across the text. Besides, a large number of apico-dental occlusives (*d*, *t*, aperture 0) is followed by the increasing presence of muffled sibilant (*s*) and palato-alveolar fricatives (*ʃ*, *ʒ*, aperture 1, therefore slightly larger); it suggests a path that undergoes a slight dilation while, at the same time, the vibrant consonant *ʋ* (wider aperture), very frequent at the beginning of the excerpt, rarefies in the middle and reappears at the end in a movement which contrasts with the previous one.

Additionally, the alternations of open and closed vowels evoke an endless movement: "passages d'images": *a i a* (open/closed/open), "passages d'idées": *a i e* (open/closed/slightly less closed), "passages d'envies": *a ã i* (open/open/closed).

At the end of the excerpt, this opening/closing/opening process is condensed in the word "agité" (*a i e*).

(The phonemes considered, of course, are the most represented in the selected excerpt; 26 dental occlusives, 15 labial occlusives, 17 palato-alveolar fricatives and 22 muffled sibilant consonants, 35 closed vowels - *i* and *e* -, 42 open vowels - *a* and *ã* -, since the other phonemes are not represented in significant numbers).

This observation allows to highlight a polyphony of sometimes contradictory paths, micro-movements, contracting here, dilating there, creating zones of condensation or of void within the fabric of the text, triggering torsions which strengthen its semantic content ("agité"), and are precious clues for the composition.

On a strictly musical level, how can one retrace these passages of energy, these tensions which seem to be distorting verbal matter?

I opted for the development of a drifting, disorganized, polydirectional and fluctuating musical matter. It overwhelms the listener with an increasing flow of sound excitations, thereby creating uncertainty in listening. The flowing energy cuts through the texture; as soon as micro-formulae arise, they are absorbed by this huge flux which carries along and swallows everything on its way, even its own residues.

This instability of the whole also occurs in the musical objects themselves, kinds of reeling micro-structures (glissandi, a sound complex: crescendo/splinter/silence, a rocking movement between two timbres alternately presented, etc.).

In the second excerpt, the predominance of phonemes which present an opposite degree of aperture reappears, more particularly perceptible regarding the vowels level (48 closed vowels, 48 open vowels). For each sentence, each path goes from closing to opening ("il y a une ampleur": *i a*

ã œ: slight fluctuations on the aperture level, always in a movement of enunciation which returns to itself in order to lead each time to more widening, the same sentence being more and more developed).

Here, the rhythm is therefore different from the one observed in the first excerpt, but I will come to this aspect later.

Regarding the consonants (they are nearly all represented, except the palato-alveolar fricatives), numerous fluctuations ranging from aperture 0 to aperture 3 retrace an extreme mobility (especially in the second part of this excerpt), still enhanced by the rhythm of the sentences which gradually accelerates (with a transition from long sentences to shorter ones this time), then to repeated three-syllable formulae ("qui se forme, s'achève, s'effondre").

A rhythmical approach

Beyond their semantic and phonological relationship, both excerpts have different spatio-temporal tempos and rhythms.

The first excerpt can be described as quick, abrupt, polydirectional. As mentioned above, it has generated an extremely mobile sound matter, undergoing vibrations, oscillations, distortions, surges, sudden stops then repeats.

The instrumental writing conveys this agitation with several processes (an absence of melodic stability, the melodic textures oscillating around a few close pitches, a harmony crossed with micro-slidings suggesting unsteady geological strata).

The second excerpt functions in a circular way (with kinds of wider and wider concentric circles, first short then ever longer sentences built on the model: "il y a une ampleur", the word "ampleur" being developed through a series of more and more numerous ornamentations).

Here, the texture gets more fragile, only the voice unfolds in melismatic writing, with microintervallic embroideries. It is accompanied only by the sounds of the vibraphone played with a double bass bow (very pure and delicate sounds) and the Chinese tam-tam *ppp* roll which enhances this increasing depth of space. The very deep resonance of the tam-tam leads to a kind of temporal suspension in which only a few harmonics echo (there is a feeling of almost hypnotic psychic vacuum induced by the repetition of the word "ampleur" which evokes here Deleuze and Guattari again: "The subject spreads himself out along the entire circumference of the circle, the centre of which has been abandoned by the ego.").¹⁷⁶

An inversion of the flow appears in the second part. An acceleration procedure develops through the repetition of certain words (this procedure was already used in the first excerpt in which the layout of the reiterations of the word "passages" was emphasizing the increasing disruption already perceptible in the ever more disjointed fragments of sentences). Here, the words "instant" and "suivant" insistently return. Since the same phonemes are disseminated in different words and in spite of slight variations, the repeated formulae such as "qui se fait, qui se forme, qui s'achève"

¹⁷⁶ Deleuze, G. and Guattari, F. (1972), *L'Anti-Œdipe. Capitalisme et schizophrénie 1*, Editions de Minuit, Coll. "Critique", Paris, p. 28
English translation: Deleuze, G. and Guattari, F. (1983; 2000), *Anti-Oedipus. Capitalism and Schizophrenia 1*, translated from the French by Hurley, R., Seem, M. and Lane, H.R., University of Minnesota Press, Minneapolis, p. 21

finally give the illusion of an eternal renewal of a same instant which might be the "catastrophic instant" evoked by Le Poulichet.

[...] the catastrophic instant would be this temporal mode in which the ego is reduced to the tip of the instant, endlessly moving to the tip of another same and yet different instant: denuded, uninhabitable time [...] for at each passage from instant to instant - to which the ego and time are thereby reduced - an abyss seems to be yawning where the ego might really disappear.¹⁷⁷

The play upon iterative sonorities, the ternary morphology of these quasi similar formulae finally produce a rhythm on the phonemes *k*, *s*, *f*, which is at first more and more scanned by the soprano and the performers, as if cut out from the text it derives from, and then independent from the voice which was uttering it, played by the percussion in an increasingly bewitching development and leading up to silence, in a kind of self-absorbing sound process.

The pulverization of the subject gives birth to a pulverization of sound

The treatment of the voice and its part in the musical matter of the piece, are the reflections of psychic disruptions. It oscillates between a presence relatively isolated from the instrumental texture (the sign of a subject of enunciation still able to describe the experience he has been through, shaken as he may be in his innermost structures), and a loss of identity which pulverizes and throws it into the heart of the fabric woven by the various instruments. Therefore, it becomes a pure sound material, deprived of its semantic content. Divided into several voices (the performers whisper some words of the text: "agitation", "turbulence"), it also undergoes an atomization of the words which it utters, some of them being lengthened by stretching a consonant which follows an independent path ("agitation" → *sss*, "feu" → *fff*).

Like Michaux's processes (the phonemes of a word are scattered in other words: "passages" → "images" → "haché" → "agité"), the voice gets fragmented, plural, and simultaneously exists in several places (for instance, the word "agité" is vocalized by the soprano: *a i e a i e...*, while the percussionist utters the syllables "gi-té").

It induces a greater depth of the sound field. Echoing effects, reverberations, dislocations, are generated by this explosion of the verbal material. Moreover, the latter mutates into musical material. The consonants become noise as well as instrumental sounds (on the sound level, *f* can thereby be associated to the rubbing of a metal stick on the surface of the Chinese tam-tam, *s* gets lengthened through the rattle of a maracas), which still emphasizes the confusion of identity.

Further remarks

Apart from my work on the text as such, I have chosen to use Michaux's drawings¹⁷⁸ as well as his graphics under the influence of mescaline.¹⁷⁹

¹⁷⁷ Le Poulichet, S. (1994), *L'œuvre du temps en psychanalyse (The Work of Time in Psychoanalysis)*, Editions Payot & Rivages, Paris, p. 121

¹⁷⁸ Michaux, H. (1964), *L'infini turbulent*, Editions Mercure de France, Paris (drawings included at pp. 48-49)

¹⁷⁹ Michaux, H. (1972), *Misérable miracle*, Editions Gallimard, Paris, pp. 54-55, 86-87 and 120-121

The poetical but also pictorial and graphic materials have therefore determined the choice of the musical writing described above (its main features are: trills, glissandi, oscillating melodic textures, melismatic writing, the rapidity of the flow, mobility, the luxuriance of sound yet the musical fabric is torn apart).

Additionally, the fragmented form of the piece, a series of states of extreme tension which lead most of the time to a fracture followed by silence, refers to the whole of *L'infini turbulent*: a series of fragmented visions, which do not systematically connect with one another and leave spatio-temporal voids (the blank of the page, suspension points), kinds of breaches in the flesh of the work.

The last part of *Instants-passages* builds up around the words written in the margin of the first selected excerpt, in a kind of repetitive structure playing both on the words themselves and on certain syllables ("a-a-agité", "tu-tu-turbulence"), in an attempt to clear a space in the margin, as well as resonance, the remnant of all that has preceded.

Conclusion

In this regard, the composition work was articulated around two poles: on the one hand, the analytical work which concerns specifically both excerpts described above, and on the other hand, in parallel, the reading of Michaux's other works, in order to be permeated with his poetical world, and to favour a whole unconscious approach, also likely to orientate the composition.

After using *L'infini turbulent*, it was highly tempting to go on a deeper investigation of the author's work. Accordingly, I decided to approach the poem *Iniji*, excerpted from *Moments. Traversées du temps*.¹⁸⁰ Using the same linguistico-psychoanalytical method as a starting point, I intend this year to adopt not only a musical form of writing but also a theatrical one (with light scenography, electronic sound treatments) in order to reveal the flux of the text with still more evidence and force.

¹⁸⁰ Michaux, H. (1973), *Moment. Traversées du temps*, Editions Gallimard, Paris

SCORES AND BIBLIOGRAPHY

SCORES

These scores are mentioned because they had a specific impact on different aspects of my musical language while, in the 1990s, I was still involved in the development of my compositional identity.

- Dufourt, H.** (1978), *Antiphysis*, for flute and chamber orchestra, Editions Jobert, France.
- Grisey, G.** (1974), *Périodes*, for seven musicians (*Espaces acoustiques*), Ricordi, France.
- Grisey, G.** (1975), *Partiels*, for seven musicians (*Espaces acoustiques*), Ricordi, France.
- Grisey, G.** (1976), *Prologue*, for solo viola (*Espaces acoustiques*), Ricordi, France.
- Grisey, G.** (1976), *Modulations*, for seven musicians (*Espaces acoustiques*), Ricordi, France.
- Grisey, G.** (1996), *Vortex temporum I, II, III*, for piano and five instruments, Ricordi, France.
- Lachenmann, H.** (1971), *Notturmo Musik für Julia*, for small orchestra and solo cello, Breitkopf & Härtel, Germany.
- Lachenmann, H.** (1971), *Kontrakadenz*, for orchestra, Boosey & Hawkes, United Kingdom.
- Lachenmann, H.** (1977), *Salut für Caudwell*, for two guitarists, Breitkopf & Härtel, Germany.
- Lachenmann, H.** (1985), *Ausklang*, for piano and orchestra, Breitkopf & Härtel, Germany.
- Ligeti, G.** (1968), *Ramifications*, for twelve solo strings, Schott Music, Germany.
- Ligeti, G.** (1970), *Kammerkonzert*, for thirteen musicians, Schott Music, Germany.
- Ligeti, G.** (1972), *Double Concerto*, for flute, oboe and orchestra, Schott Music, Germany.
- Ligeti, G.** (1985; 1994), *Etudes pour piano*, 1st and 2nd Books, Schott Music, Germany.
- Ligeti, G.** (1990), *Concerto*, for violin and orchestra, Schott Music, Germany.
- Murail, T.** (1977), *Tellur*, for solo guitar, Editions Musicales Transatlantiques, France.
- Murail, T.** (1977), *Territoires de l'oubli*, for solo piano, Editions Musicales Transatlantiques, France.
- Murail, T.** (1978), *Ethers*, for six instruments, Editions Musicales Transatlantiques, France.
- Murail, T.** (1982), *Désintégrations* for seventeen instruments and electronic sounds, Editions Lemoine, France.
- Murail, T.** (1990), *Allégories*, for six instruments and electronic sounds, Editions Lemoine, France.
- Xenakis, I.** (1953-54), *Metastaseis*, for sixty musicians, Boosey & Hawkes, United Kingdom.
- Xenakis, I.** (1955-56), *Pithoprakta*, for forty-nine musicians, Boosey & Hawkes, United Kingdom.
- Xenakis, I.** (1953-54), *Nuits*, for twelve mixt voices, Editions Salabert, France.
- Xenakis, I.** (1969), *Anaktoria*, for eight musicians, Editions Salabert, France.
- Xenakis, I.** (1975), *Phlegra*, for eleven musicians, Editions Salabert, France.
- Xenakis, I.** (1978), *Ikhoor*, for string trio, Editions Salabert, France.
- Xenakis, I.** (1978), *Pléiades*, for six percussions, Editions Salabert, France.
- Xenakis, I.** (1979), *Palimpsest*, for eleven musicians, Editions Salabert, France.
- Xenakis, I.** (1979), *Thallein*, for fourteen musicians, Editions Salabert, France.

BIBLIOGRAPHY

- André, J.** (1981; 2012, 2nd term), "Temporalité", *Le Carnet PSY*, n°160, DOI: 10.3917/lcp.160.0035, France, pp. 35-37.
- Anonymous** (Last Updated January 28, 2015), "Neuron. Anatomy", *Encyclopedia Britannica* (online), available at: <http://global.britannica.com/science/neuron> (accessed September 2, 2015).
- Baillet, J.** (2000), *Gérard Grisey. Fondements d'une écriture*, L'Harmattan, Paris.
- Barrière, J.-B.** (ed.) (1991), *Le timbre, métaphore pour la composition*, IRCAM/Christian Bourgois, Coll. "Musique/Passé/Présent", Paris.
- Boulez, P.** (1963), *Penser la musique aujourd'hui*, Editions Gonthier, Paris.
- Boulez, P.** (1966), *Relevés d'apprenti*, Editions du Seuil, Coll. "Tel Quel", Paris.
- Bourguignon, A., Dupont, J.-C., Koupernik, C., Lledo, P.-M., Mazoyer, B. and Vincent, J.-D.**, "Cerveau humain", *Encyclopedia Universalis* (online), available at: <http://www.universalis.fr/encyclopedie/cerveau-humain/> (accessed July 23, 2013).
- Burger, J.-P.**, "Phonon", *Encyclopedia Universalis* (online), available at: <http://www.universalis.fr/encyclopedie/phonon/> (accessed July 19, 2013).
- Changeux, J.-P.** (1983), *L'Homme neuronal*, Hachette Littératures, Coll. "Pluriel", Paris.
- Changeux, J.-P.** (ed.) (2007), *L'homme artificiel*, Odile Jacob, Coll. "Collège de France", Paris.
- Coget, J.** (March 2009), "Physiologie du neurone", CUEEP-Université Lille 1, Sciences et technologies/Département de Sciences, France, available at: http://passeport.univ-lille1.fr/site/biologie/scbio/Neurone/Neurone_web.publi/web/co/Neurone_web.html (accessed August 20, 2015).
- Decarsin, F.** (1st semester 2011), "Chaos - Milieux - Rythmes", *Filigranes* n°13, "Deleuze et la musique", Editions Delatour, France.
- Delalande, F.** (1997), *"Il faut être constamment un immigré". Entretiens avec Xenakis*, INA-Buchet/Chastel, Paris.
- Delaplace, J.** (2007), *György Ligeti. Un essai d'analyse et d'esthétique musicales*, Presses Universitaires de Rennes, Coll. "Aesthetica", Rennes.
- Delaplace, J.** (2007), "György Ligeti, ou le travail du négatif dans l'écriture musicale", *Filigranes* n°6, "Musique et inconscient", Delaplace, J. and Moll, O. (ed.), Editions Delatour, France.
- Deleuze, G.** (1964; 2010), *Proust et les signes*, PUF/Quadrige, Paris.
- Deleuze, G.** (1968), *Différence et répétition*, PUF/Epiméthée, Paris.
- Deleuze, G.** (1969), *Logique du sens*, Les Editions de Minuit, Coll. "Critique", Paris.
- Deleuze, G.** (1985), *L'Image-temps. Cinéma 2*, Les Editions de Minuit, Coll. "Critique", Paris.
- Deleuze, G.** (1988), *Le pli*, Les Editions de Minuit, Coll. "Critique", Paris.
- Deleuze, G.** (1993), *Critique et clinique*, Les Editions de Minuit, Coll. "Critique", Paris.
- Deleuze, G.** (1981; 1996), *Francis Bacon. Logique de la sensation*, La Vue le Texte aux Editions de la Différence, Turin.
- Deleuze, G. and Guattari, F.** (1972), *L'Anti-Œdipe. Capitalisme et schizophrénie 1*, Les Editions de Minuit, Coll. "Critique", Paris.
- Deleuze, G. and Guattari, F.** (1980), *Mille plateaux. Capitalisme et schizophrénie 2*, Les Editions de Minuit, Coll. "Critique", Paris.

- Deliège, C.** (2003), *Cinquante ans de modernité musicale: de Darmstadt à l'IRCAM*, Pierre Mardaga Editeur, Sprimont, Belgium.
- Derrida, J.** (1967), *L'écriture et la différence*, Editions du Seuil, Paris.
- Derrida, J.** (1972), "La différance", in *Marges de la philosophie*, Les Editions de Minuit, Coll. "Critique", Paris.
- Dictionnaire de la psychanalyse** (1997), *Encyclopedia Universalis*, Albin Michel, Paris.
- Dolto, F.** (1984), *L'image inconsciente du corps*, Editions du Seuil, Paris.
- Duguet, M. and Morange, M.**, "ADN (acide désoxyribonucléique) ou DNA (deoxyribonucleic acid)", *Encyclopedia Universalis* (online), available at: <http://www.universalis.fr/encyclopedia/adn-dna/> (accessed July 24, 2013).
- Eddington, S. A.** (1929), *The Nature of Physical World*, Cambridge University Press, United Kingdom.
- Freud, S. and Breuer, J.** (1895; 1956; 1996), *Etudes sur l'hystérie*, translated from the German by Berman, A., PUF, Paris.
- Freud, S.** (1909-10; 1924; 1961; 2001), *Cinq leçons sur la psychanalyse*, translated from the German by Le Lay, Y. and Jankélévitch, S., Editions Payot & Rivages, Paris.
- Freud, S.** (1905-18; 1954; 1995), *Cinq psychanalyses*, translated from the German by Bonaparte, M. and Lœwenstein, R. M., PUF, Paris.
- Freud, S.** (1895; 1956; 2002), "Esquisse d'une psychologie scientifique", *La naissance de la psychanalyse*, translated from the German by Berman, A., PUF, Paris.
- Freud, S.** (1915-23; 1981; 2001), *Essais de psychanalyse*, translated from the German by Altounian, J., Laplanche, J., Pontalis, J.-B., Editions Payot & Rivages, Paris.
- Freud, S.** (1926; 1993; 2011), *Inhibition, symptôme et angoisse*, translated from the German by Doron, J. and Doron, R., PUF/Quadrige, Paris.
- Freud, S.** (1916-17; 1922; 1961; 2001), *Introduction à la psychanalyse*, translated from the German by Jankélévitch, S., Editions Payot & Rivages, Paris.
- Freud, S.** (1903-18; 2007; 2010), *La technique psychanalytique*, translated from the German by Altounian, J., Laplanche, J., Pontalis, J.-B. and Sédat, J., PUF/Quadrige, Paris.
- Freud, S.** (1907-31; 1969; 1997), *La vie sexuelle*, translated from the German by Berger, D., Laplanche, J. and collaborators, PUF, Paris.
- Freud, S.** (1905; 1988), *Le mot d'esprit et sa relation à l'inconscient*, translated from the German by Messier, D., Editions Gallimard, Paris.
- Freud, S.** (1906-27; 1985), *L'inquiétante étrangeté et autres essais*, translated from the German by Féron, B., Editions Gallimard, Paris.
- Freud, S.** (1900; 2010; 2012), *L'interprétation du rêve*, translated from the German by Altounian, J. and Robert, F., PUF/Quadrige, Paris.
- Freud, S.** (1905; 1968), *Métapsychologie*, translated from the German by Laplanche, J., and Pontalis, J.-B., Editions Gallimard, Paris.
- Freud, S.** (1894-1924; 1973; 2002), *Névrose, psychose et perversion*, translated from the German under the direction of Laplanche, J., PUF, Paris.
- Freud, S.** (1933; 1984), *Nouvelles conférences d'introduction à la psychanalyse*, translated from the German by Zeitlin, R.-M., Editions Gallimard, Paris.

- Freud, S.** (1901; 1923; 1967; 2001), *Psychopathologie de la vie quotidienne*, translated from the German by Jankélévitch, S., Petite Bibliothèque Payot, Paris.
- Freud, S.** (1890-1920; 1984; 2001), *Résultats, idées, problèmes I*, translated from the German by Jankélévitch, S., Altounian, S., Assoun, P.-L., Laplanche, J., PUF, Paris.
- Freud, S.** (1921-38; 1985; 1998), *Résultats, idées, problèmes II*, translated from the German by Altounian, J., Laplanche, J., Pontalis, J.-B. and Sédat, J., PUF, Paris.
- Freud, S.**, *Sur le rêve* (1901; 1988), translated from the German by Heim, C., Editions Gallimard, Coll. "Connaissance de l'inconscient", Paris.
- Freud, S.** (1912-13; 1923; 1965; 2001), *Totem et tabou*, translated from the German by Jankélévitch, S., Editions Payot & Rivages, Paris.
- Freud, S.** (1905; 1987), *Trois essais sur la théorie sexuelle*, translated from the German by Koeppel, P., Editions Gallimard, Paris.
- Goodsell, D. S.** (2010), *La machinerie de la vie*, translated from the American by Fourmentin, E., Larivière, D., Schwartz, N. and Molino, F., EDP Sciences, France.
- Green, A.** (2000), *Le temps éclaté*, Les Editions de Minuit, Coll. "Critique", Paris.
- Grisey, G.** (2000), "Did you say spectral?", *Contemporary Music Review*, Volume 19, Issue 3, translated by Fineberg, J., Routledge, USA, DOI: 10.1080/07494460000640311, pp. 1-3.
- Guattari, F.** (1979), *L'inconscient machinique. Essais de schizo-analyse*, Editions Recherches, Paris.
- Hall, D. E.** (2002), *Musical Acoustics*, Cengage Learning, California State University, Sacramento.
- Harley, J.** (1-3 April 2011), "Nonlinear Mosaic Form: *Kraanerg* by Iannis Xenakis", *Xenakis International Symposium* Southbank Centre, London.
- Imberty, M.** (2005), *La musique creuse le temps. De Wagner à Boulez: Musique, psychologie, psychanalyse*, L'Harmattan, Paris.
- Jusserand, B. and Perrin, B.** (2008), "'La nanophonique': un outil pour l'acoustique térahertz", *Images de la physique*, "Nanophysique", CNRS, Paris, available at: <http://www.cnrs.fr/publications/imagesdelaphysique/couv-PDF/IdP2008/12-Jusserand.pdf>.
- Harari, R.** (2000), "La répétition de Freud à Lacan. 'Répéter: destin du sujet et voie du désir'", *Mensuel 44*, Forums du Champ Lacanien France, June 2009, available at: http://www.champlacanienfrance.net/IMG/pdf/hurtado_M44.pdf (accessed July 10, 2013).
- Juignet, P.** (2003, 2nd term), "Lacan, le symbolique et le signifiant", *Cliniques méditerranéennes*, n°68, DOI: 10.3917/cm.068.0131, France, pp. 131-144.
- Kramer, J.** (1988), *The Time of Music. New meanings, New Temporalities, New Listening Strategies*, Schirmer Books, New York/London.
- Kristeva, J.** (1995), "Le scandale du hors-temps", *Revue Française de Psychanalyse IV*, "L'intemporel", Volume LIX, PUF, Paris, pp. 1029-1044.
- Lacan, J.** (1966; 1970; 1999), *Ecrits I*, Editions du Seuil, Paris.
- Lacan, J.** (1966; 1970; 1999), *Ecrits II*, Editions du Seuil, Paris.
- Lacan, J.** (1953-54; 1975), *Le Séminaire. Livre I. Les écrits techniques de Freud*, edited by Miller, J.-A., Editions du Seuil, Paris.
- Lacan, J.** (1954-55; 1978), *Le Séminaire. Livre II. Le moi dans la théorie de Freud et dans la technique de la psychanalyse*, edited by Miller, J.-A., Editions du Seuil, Paris.

- Lacan, J.** (1955-56; 1981), *Le Séminaire. Livre III. Les psychoses*, edited by Miller, J.-A., Editions du Seuil, Paris.
- Lacan, J.** (1956-57; 1994), *Le Séminaire. Livre IV. La relation d'objet*, edited by Miller, J.-A., Editions du Seuil, Paris.
- Lacan, J.** (1957-58; 1998), *Le Séminaire. Livre V. Les formations de l'inconscient*, edited by Miller, J.-A., Editions du Seuil, Paris.
- Lacan, J.** (1964; 1973), *Le Séminaire. Livre XI. Les quatre concepts fondamentaux de la psychanalyse*, edited by Miller, J.-A., Editions du Seuil, Paris.
- Lacan, J.** (1971-72), *Le Séminaire. Livre XIX. Le savoir du psychanalyste*, unpublished, *Ecole Lacanienne de Psychanalyse*, Paris, available at: <http://www.ecole-lacanienne.net/seminaireXIX.php>.
- Lacan, J.** (1972-73; 1975), *Le Séminaire. Livre XX. Encore*, edited by Miller, J.-A., Editions du Seuil, Paris.
- Lacan, J.** (2001), "Litturaterre", in *Autres écrits*, Editions du Seuil, Paris.
- Lachenmann, H.** (2009), *Écrits et entretiens*, chosen and prefaced by Kaltenecker, M., translated by Donin, N., Kaltenecker, M., Lauxerois, J., Mannoni, O., Potzmanter, M., Saint-Amant, Y. and Szendy, P., Editions Contrechamps, Geneva.
- Laplanche, J., Pontalis, J.-B.** (1967; 2002), *Vocabulaire de la psychanalyse*, PUF, Paris.
- Leclaire, S.** (1968), *Psychanalyser*, Editions du Seuil, Paris.
- Leclaire, S.** (1971), *Démasquer le réel*, Editions du Seuil, Paris.
- Leclaire, S.** (1999), *Rompre les charmes*, Editions du Seuil, Paris.
- Le Poulichet, S.** (1994), *L'œuvre du temps en psychanalyse*, Editions Payot & Rivages, Paris.
- Ligeti, G.** (2013), *L'atelier du compositeur. Écrits autobiographiques. Commentaires sur ses œuvres*, translated by Fourcassier, C. and Michel, P., Albèra, P., Fourcassier, C. and Michel, P. (ed.), Editions Contrechamps, Geneva.
- Lyotard, J.-F.** (1980), *Des dispositifs pulsionnels*, Christian Bourgois, Paris.
- Maïda, C.** (1999), "Instant-passages", *Nouveaux Cahiers Bleus* n°13, Acts of the Colloquium "Henri Michaux est-il seul?", Editions Les Cahiers Bleus, Troyes, pp. 89-93.
- Maïda, C.** (2007), "...ça écrit ça écrit ça écrit ça...", *Filigranes* n°6, "Musique et inconscient", Delaplace, J. and Moll, O. (ed.), Editions Delatour, France.
- Maïda, C.** (2010), "Worstsaid Ho, worstheard Ho", *Positionen*, 85, *Texte zur Aktuellen Musik*, "Schreibkrise?", Nauck, G. (ed.), Verlag Positionen, Berlin, pp. 37-39.
- Maïda, C.** (2011), "Für eine Nanomusik", *Zeitschrift für Musik. Das Magazin für neue Töne*, Universität der Künste, Berlin, pp. 60-63.
- Matossian, N.** (1981), *Iannis Xenakis*, Fayard/Fondation SACEM, Paris.
- Michel, P.** (1985), *György Ligeti. Compositeur d'aujourd'hui*, Minerve, Coll. "Musique ouverte", Paris.
- Mijolla (de), A., Mijolla-Mellor (de), S.** (ed.) (1996), *Psychanalyse*, PUF Fondamental, Paris.
- Nasio, J.-D.** (1992), *Enseignement de 7 concepts cruciaux de la psychanalyse*, Petite Bibliothèque Payot, Paris.
- Nasio, J.-D.** (1994), *Cinq leçons sur la théorie de Jacques Lacan*, Petite Bibliothèque Payot, Paris.

- Picraux, S. T.** (Last Updated May 5, 2015), "Nanotechnology", *Encyclopedia Britannica* (online), available at: <http://global.britannica.com/technology/nanotechnology> (accessed September 1, 2015).
- Pierce, J.** (1984), *Le son musical. Musique, acoustique et informatique*, translated from the English by Berquier, F., work published with the collaboration of Risset, J.-C., Laboratoire de Mécanique et d'Acoustique (L.M.A.), CNRS-Marseille-Luminy University, Pour la science/Diffusion Belin, France.
- Pontalis, J.-B.** (1997), *Ce temps qui ne passe pas*, Editions Gallimard, Coll. "Connaissance de l'inconscient", Paris.
- Proust, F.** (2001, 3rd semester), "La doublure du temps", *Rue Descartes* n°33, DOI: 10.3917/rdes.033.0105, France, pp.105-119.
- Sacco, L.**, "Singularité, trou de ver et voyage spatio-temporel. Le pont d'Einstein-Rosen et les trous de ver de Wheeler-Misner", *Futura-Sciences Electronic Magazine*, France, available at: <http://www.futura-sciences.com/magazines/matiere/infos/dossiers/d/physique-singularites-trou-ver-voyage-spatiotemporel-614/> (accessed March 21, 2006).
- Sami-Ali** (1974), *L'espace imaginaire*, Editions Gallimard, Coll. "Tel", Paris.
- Sami-Ali** (1990), *Le corps, l'espace et le temps*, Editions Dunod, Paris.
- Scherer, R.** (1998), *Regards sur Deleuze*, Editions Kimé, Paris.
- Science et Avenir Hors-Série** (April-May 2010), "Infiniment petit. Des particules aux cellules, les mystères de l'invisible", Paris.
- Sofinaya, A.** (2005, 1st term), "Tuchê et Automaton. Introduction à l'Introduction au séminaire sur La Lettre volée", *La clinique lacanienne* n°8, DOI: 10.3917/cla.008.0199, France, pp. 199-220.
- Tournois, P.**, "Hypersons", *Encyclopedia Universalis* (online), available at: <http://www.universalis.fr/encyclopedie/hypersons/> (accessed July 19, 2013).
- The Editors of Encyclopedia Britannica** (Last Updated July 30, 2015), "DNA", *Encyclopedia Britannica* (online), available at: <http://global.britannica.com/science/DNA> (accessed September 3, 2015).
- Thompson, D. W.** (1917; 1945), *On growth and form*, The University Press, Cambridge, The Macmillan Company, New York.
- Treton, D.** (2011), "La lalangue", *Insistance* n°5, "L'inconscient et ses musiques", Editions Erès, France.
- Valentin, L.**, "Nucléaire (Physique) - Noyau atomique", *Encyclopedia Universalis* (online), available at: <http://www.universalis.fr/encyclopedie/nucleaire-physique-noyau-atomique/> (accessed July 18, 2013).
- Von der Weid, J.-N.** (1992), *La musique du XXème siècle*, Hachette, Coll. "Pluriel", Paris.
- Weissbuch, C.**, "Nanotechnologies", *Encyclopædia Universalis* (online), available at: <http://www.universalis.fr/encyclopedie/nanotechnologies/> (accessed August 30, 2015).
- Winchester, A. M.** (Last Updated April 29, 2014), "Genetics", *Encyclopedia Britannica* (online), available at: <http://global.britannica.com/technology/nanotechnology> (accessed September 2, 2015).
- Winnicott, D. W.** (1953), "Transitional Objects and Transitional Phenomena. The Study of the First Not-Me Possession", *International Journal of Psychoanalysis* 34, pp. 89-97.

Xenakis, I. (1963; 1981), *Musiques formelles*, Editions Stock/Musique, Paris.

Xenakis, I. (1994), *Keleütha. Ecrits*, L'Arche, Paris.

Zenck, M. (1st semester 2011), "La différence dans et à travers la répétition dans la musique et la peinture", *Filigranes* n°13, "Deleuze et la musique", Editions Delatour, France.

ARTICLES - ORIGINAL VERSION

Article 1 - Für eine Nanomusik (2011, *Neue Zeitschrift für Musik*, Music Journal, Berlin)

Article 2 - Worstsaid Ho, worstheard Ho (2010, *Positionen*, 85, Music Journal, Berlin)

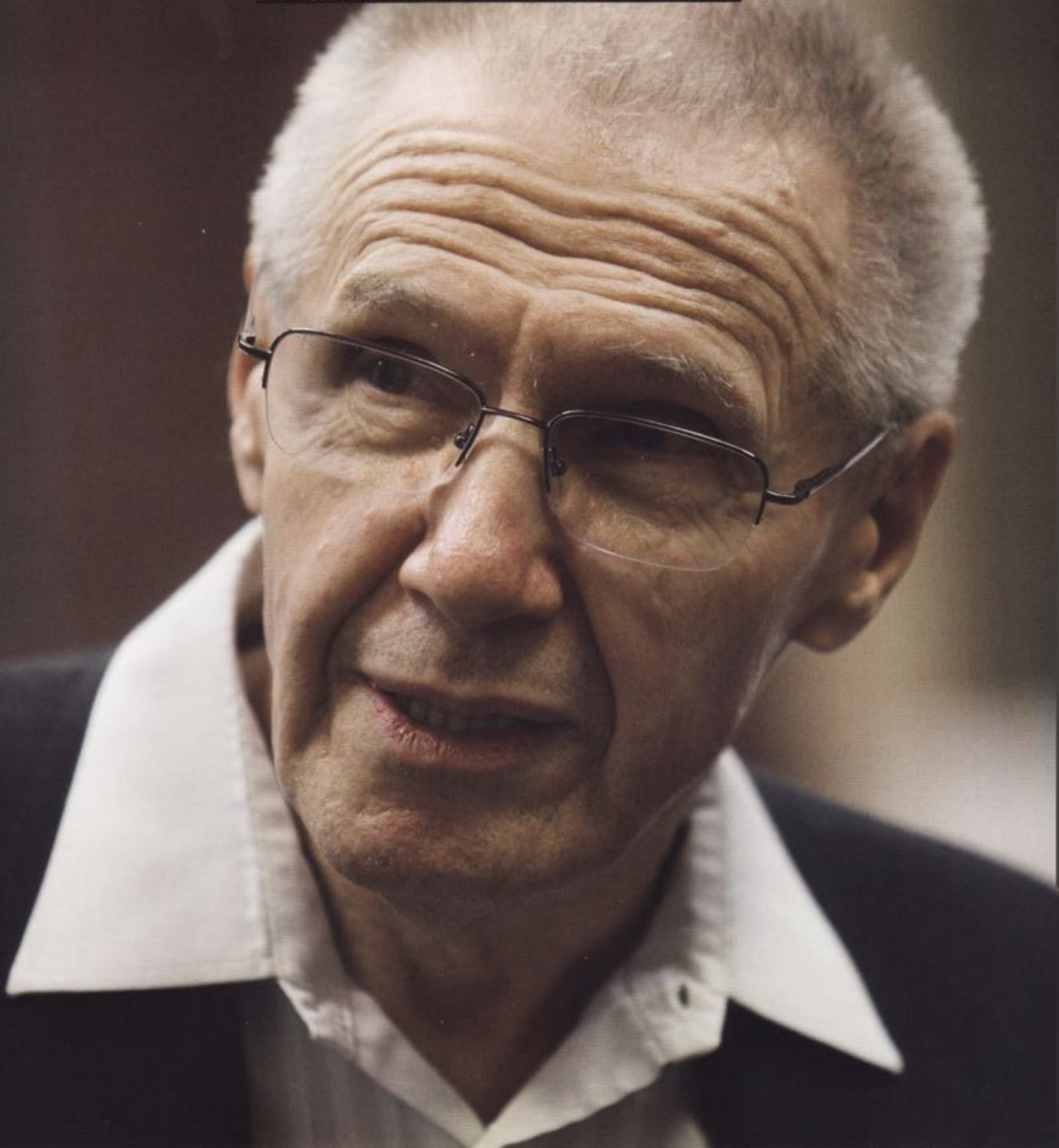
Article 3 - ...ça écrit ça écrit ça écrit ça... (2007, *Filigranes* n°6, Music Journal, Paris)

Article 4 - Instants-passages (1999, *Cahiers Bleus* n°13, Review of Literature, Troyes)

NEUE ZEITSCHRIFT FÜR **musik**

2
März
April
2011

DAS MAGAZIN FÜR NEUE TÖNE



György Kurtág

■ Im Gespräch: Matthias Osterwold ■ Nachruf auf Rolf Julius ■ Alan Hovhaness zum 100. ■ Clara Maïda: Nanomusik ■ Trompeter Peter Evans ■ Gruppe Neue Musik «Hanns Eisler» ■ Neue Bücher | Tonträger | DVDs ■ www.musikderzeit.de



Können 34 miteinander verknüpfte Schößlinge ein Lebewesen bilden? Ja, ein Meidosem.»¹ Das Meidosem ist so ein Lebewesen, das sich Henri Michaux ausgedacht hat und das aus einem zerbrechlichen, beweglichen Gewebe miteinander verflochtener Fäden besteht, die wiederholt von Krämpfen und elektrischen Zuckungen durchzogen werden. Wir brauchen offenbar mehr als 34 wirre Knäuel, um ein Lebewesen, insbesondere ein menschliches Wesen, zu erschaffen ... Aber jedem Organismus liegt tatsächlich ein Wirrwarr unterschiedlichster Verbindungen zugrunde.

Zu Beginn des 20. Jahrhunderts führten drei bedeutende Entdeckungen zu einer tiefgreifenden Wandlung unserer Betrachtungsweise des Menschen. Die Psychoanalyse revolutionierte die Vorstellung von Ich und Psyche. Im Jahr 1900 gab Sigmund Freud seine *Traumdeutung* heraus und entwickelte die Theorie des Unbewussten, mit der er bewies, dass man mit Hilfe von Träumen und der Technik der freien Assoziation Zugang dazu erhalten kann. Viele psychoanalytische Untersuchungen folgten den Schriften Freuds – hauptsächlich die englische Schule (Melanie Klein, Wilfried Bion, Donald Winnicott) und im Nachkriegsfrankreich Jacques Lacan, der unter dem Einfluss von Linguistik, Strukturalismus und Kybernetik neue Begriffe vorschlug.

Im selben Jahr erweiterte sich nach der Wiederentdeckung der Mendel'schen Gesetze der Vererbungslehre das genetische Wissen durch die Bestimmung von Genen auf den Chromosomen und des DNA-Moleküls bzw. durch die Untersuchung von Mutationen. Die Beiträge von Physikern und Biochemikern ebneten den Weg für die Entstehung der Molekularbiologie, die zu Beginn des 21. Jahrhunderts eine umwälzende Entwicklung erfuhr. Es ist bekannt, dass Gene Proteine kodieren, die bestimmte Funktionen im Organismus ausüben. Dieses genetische Material ist allen Lebewesen gemeinsam, vom Bakterium bis zum Menschen. Das menschliche Genom wird aller Wahrscheinlichkeit nach bis zum Ende dieses Jahrhunderts entschlüsselt sein.

**CLARA MAÏDA: «MUTATIS MUTANDIS»
FÜR 12 STREICHER, 2008, PARTITUR S. 49**

Aber wir müssen uns davor hüten, «das Gen zu fetischisieren», denn selbst Genforscher sind sich der noch vorhandenen Lücken bewusst. Wir wissen, dass Gene nicht bestimmten Fähigkeiten entsprechen, sondern hauptsächlich in gegenseitiger Abhängigkeit agieren (es gibt beispielsweise kein Gen für Intelligenz oder künstlerische Kreativität ...).

Zu Beginn des 20. Jahrhunderts bestand die Hirnforschung schon seit einem halben Jahrhundert. Nach 1950 nahm das Wissen um den Aufbau des Nervensystems dank des Elektronenmikroskops Gestalt an. Die elektrische Aktivität des Gehirns und die chemischen Signalübertragungen zwischen

Nervenzellen (Neuronen) wurden entdeckt. Das Gehirn stellt eine sehr komplexe Ansammlung von mehr als zehn Milliarden miteinander vernetzter Neuronenverbindungen dar, in denen elektrische Impulse und chemische Signale übertragen werden.

Trotz der immer gründlicheren Erforschung geistiger Fähigkeiten dürfen wir nicht glauben, dass sich die Gedanken oder Emotionen eines Individuums auf die bloße Ansammlung aktiv werdender Neuronen zurückführen lassen. Tatsächlich scheint keine Wissenschaft in der Lage zu sein, die Komplexität und subjektive Dimension des Menschen zu erklären.

Die verschiedenen Gehirnwellen, die je

für eine nanomusik

VON CLARA MAÏDA

nach Änderung des Zustands (Wachen, Aufmerksamsein, Ruhen, Schlafen, Träumen ...) eines Individuums auftreten, wurden inzwischen identifiziert. Wir wissen, dass Wahrnehmung bzw. Verhalten auch in Beziehung zur Freisetzung bestimmter Neurotransmitter und zu einer in ganz bestimmten Bereichen des Gehirns (Seh-, Hör-, Bewegungszentrum) besonders gut sichtbaren Aktivität stehen. Allerdings konzentrieren sich die beobachteten Phänomene nicht ausschließlich darauf, und viele Neuronenverbindungen und Signalübertragungen finden sich auch im gesamten Cortex. Neuroplastizität des Gehirns wurde mit Hilfe von Studien an Patienten mit Hirnverletzungen nachgewiesen.

Aber diese Informationen sagen nichts über die Besonderheit einer Person aus. In Träumen beispielsweise geben die mit einem EEG² gemessenen Gehirnwellen keinen Aufschluss darüber, warum sich einige Bedeutungsträger in dieser oder jener Anordnung im Trauminhalt zusammenfinden. Die Psychoanalyse versucht, diesen Aspekt zu entschlüsseln, und konzentriert sich dabei auf den triebhaften Aspekt des Individuums, während die Kunst Licht in dieses Unterfangen bringt, indem sie die imaginären Bilder be- und verarbeitet.

GENETIK, NEUROPSYCHOLOGIE, PSYCHOANALYSE

Warum also Modelle verwenden, die aus diesen drei wissenschaftlichen Disziplinen abgeleitet wurden, um musikalische Prozesse zu entwickeln?

Ihnen ist gemeinsam, dass sie versuchen, in anatomischer und funktioneller Hinsicht und auf mikroskopischer Ebene (Gene, Neuronen) bzw. in triebhafter, phantasmatischer und imaginärer Hinsicht Licht auf körperliche Mechanismen zu werfen (der Wunschkörper).

Die Genetik (die das Baumaterial aller Lebewesen beisteuert), die Neuropsychologie (die den Aufbau und die Funktionen des Gehirns untersucht) und die Psychoanalyse (die sich mehr mit der Einzigartigkeit jedes

Individuums, mit dessen besonderen Erfahrungen und psychischer Struktur befasst) versorgen uns so mit wertvollen zusätzlichen Daten, mit deren Hilfe wir versuchen, den Menschen zu verstehen.

Außerdem – wenn wir vorübergehend das Gebiet verlassen, auf das sich diese drei wissenschaftlichen Disziplinen beziehen – ergibt jede von ihnen auf struktureller Ebene ein verbindendes, von einem Netzwerk eingerahmtes System. Wir können somit von dieser Beobachtung ausgehen, um festzulegen, welche Charakteristika wir in Musikwerken entwickeln möchten: Konnektivität, Verbreitung des Klangflusses, formale Mobilität, um nur einige zu nennen.

Nach der Systemtheorie (von Bertalanffy, 1968)³, die mit der Kybernetik konvergiert, die sich zur selben Zeit entwickelt hat, finden sich überall Systeme, die offener Natur sind. Ein komplexes System ist die Summe einer Vielzahl von Einzelphänomenen, die in dynamischer, lokaler und gleichzeitiger Wechselwirkung miteinander stehen, und verfügt über ein großes Spektrum an Zuständen. Die Systemlehre und die Kybernetik berücksichtigen so unterschiedliche komplexe Systeme, dass sie nur transdisziplinär sein können. In der zweiten Hälfte des 20. Jahrhunderts führte die kybernetische Revolution zu einer ganzen Reihe konkreter Neuerungen auf unterschiedlichen Gebieten, wie der künstlichen Intelligenz (insbesondere das Internet), der Psychologie, Psychoanalyse, Soziologie, Neurophysiologie und Neurobiologie.

Diese Definition eines dynamischen, komplexen Systems kann gleichzeitig auf genetische Phänomene (Nukleotidketten, die zu Aminosäuren, dann Proteinen und Makromolekülgruppen führen, die den Organismus bilden), auf Prozesse im Gehirn (Verbreitung von Informationen zwischen Neuronen innerhalb eines sehr dichten, schichtförmigen Verbindungsnetzes) oder auf psychische und unbewusste Prozesse (Verbindung von Bedeutungsträgern innerhalb eines assoziativen Netzes) sowie auf Musik (ein Zusammenschluss kleiner Einheiten mit Bezug zu Tonhöhe und Dauer in

Zeit und Raum) angewendet werden. Es ist daher kein Widerspruch, Musik als eine Ansammlung systemischer Möglichkeiten anzusehen, genau wie lebende, zerebrale oder psychische Systeme. Wie diese besteht sie aus evolutionären Schaubildern und Flussdiagrammen.

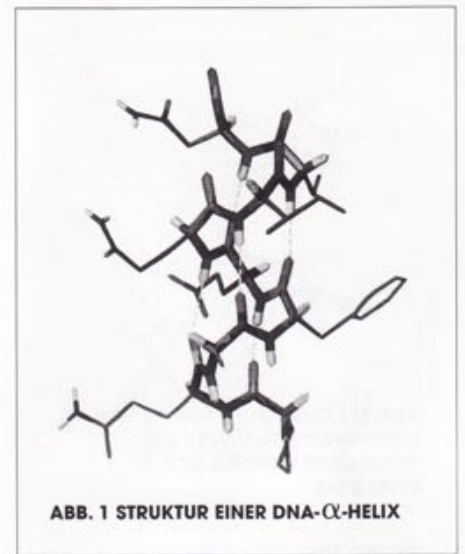


ABB. 1 STRUKTUR EINER DNA- α -HELIX

Auf genetischer Ebene ist die DNA, ein elastisches Makromolekül, das aus zwei Strängen (Doppelhelix) besteht (Abb. 1), im Kern jeder lebenden Zelle zu finden. Sie speichert die genetischen Informationen, die für die Entwicklung und das Funktionieren eines Organismus notwendig sind, und gibt sie von Generation zu Generation weiter. Jeder Strang wird durch die Verbindung von Nukleotiden gebildet, die wiederum aus drei Teilen bestehen, von denen einer, die Stickstoffbase (vier mögliche Basen), variiert, und die eine lineare Abfolge bilden und mit der jeweils komplementären Base auf dem anderen Strang ein Basenpaar bilden. Sie ordnen sich zu Basentriplets (Kodons) in verschiedenen Kombinationen an, um Aminosäuren zu bilden und auf diese Weise eine kodierte Nachricht für die Proteinsynthese (über die mRNA) darzustellen. Zum Beispiel ergibt eine Kette aus den Nukleotiden Guanin, Cytosin und Thymin (GCT) die Aminosäure Alanin.

Die beobachteten Phänomene sind extrem dynamisch (Wechselwirkungen, Ener-

gietransfers, Bindungen, Abspaltungen, Wiederzusammensetzungen ...), und diese Aktivitäten finden auf kleinstem Raum (Nanometer-Skala) statt. Aufgrund des Musters dieser intrazellulären Mechanismen können wir «Klangnukleotide» entwickeln, die aus einer Tonhöhe bestehen, wenn wir das genetische Nukleotid als eigene Einheit betrachten, oder solche, die aus drei Tonhöhen bestehen, wenn wir dessen dreiteilige Struktur übernehmen (Abb. 2-5). Die Verbindungen zwischen diesen Klangelementen können die gleiche Gestalt annehmen wie die kleinen, auf der genetischen Ebene gezeichneten Darstellungen. Wir können beispielsweise musikalische Motive konstruieren, die den Kodons ähneln.

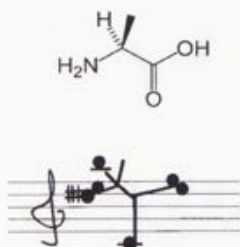


ABB. 2/3 CHEMISCHE FORMEL VON ALANIN (AMINOPROPIONSÄURE): VIER ARTEN MÖGLICHER KODONS: GCT, GCC, GCA ODER GCG

BEISPIEL EINES TONHÖHEN-MODULS («TIME-OUT»), DAS DIE GESTALT VON AMINOSÄUREN NACHAHMT. DIE DIE TÖNE VERBINDENDEN LINIEN KÖNNEN GLISSANDI SEIN.

einem Klangspektrum und die Anzahl der Basenwiederholungen einer Tondauer (aaaaa = a5, ccc = c3) entsprechen ...

Aber Gene kodieren Proteine, die für die Entwicklung und Steuerung der an verschiedenen Aspekten der Hirnfunktionen beteiligten neuronalen Schaltkreise verantwortlich sind. Neuronen unterscheiden sich von anderen Zellarten. Sie exprimieren für sie spezifische Gene. Aber sie sind in weitaus größerer Zahl vorhanden als diese. Jedes Neuron ist mit Tausenden anderer Neuronen verbunden (vgl. Abb. 7). Der Grad der Anordnung ist daher viel komplexer. Vernetzungen von Neuronen sind vielfach vorhanden, und Signale pflanzen sich in Wellenform entlang der Axonen⁴ fort. Bei der

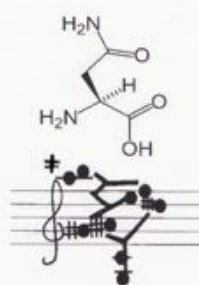


ABB. 4/5 CHEMISCHE FORMEL VON ASPARAGIN (ALPHA-AMINOBERNSTEINSÄUREMONOMAMID): ZWEI ARTEN MÖGLICHER KODONS: AAT ODER AAC

BEISPIEL EINES TONHÖHEN-MODULS («TIME-OUT»), DAS DIE GESTALT VON AMINOSÄUREN NACHAHMT. DIE DIE TÖNE VERBINDENDEN LINIEN KÖNNEN GLISSANDI SEIN.



ABB. 6 BEISPIELE FÜR KETTEN VON «KLANG-KODONS»

Diese Bausteine, die sich in Richtung immer anspruchsvollerer Ebenen musikalischer Ausarbeitung entwickeln und die Gestalt von Aminosäuren nachahmen, können sich gliederartig verbinden und «Klangmoleküle» bilden, wenn sie ineinander greifen (Abb. 6). Mit Pivot-Systemen auf dem Gebiet der Frequenzen bewegen sie sich durch das gesamte Spektrum und bilden immer komplexere Strukturen. Ich bin gerade dabei, ein Projekt mit dem Fachbereich Bioinformatik der Universität Strasburg zu entwickeln. Wir planen die Umwandlung sehr präziser Chromosomendaten – Subregionen mit verschiedenen Funktionen, Wahrscheinlichkeit des Auftretens, Abfolge und Anzahl der Nukleotide pro Subregion, beobachtete Motive ... – in akustische Daten. Hier sind einige von ihnen: Die Länge jeder Subregion kann einer Frequenz (Hz), die kollektiven Regionen (mit unterschiedlichen Längen)

internen Kodierung des Zerebralapparats handelt es sich sowohl um die topologische Kodierung der Verknüpfungen («Neuronendiagramme», bei J. P. Changeux⁵) als auch um das Kodieren elektrischer Impulse und chemischer Signale.

Das Komponieren von Musik kommt diesen Merkmalen sehr nahe. Die Prozesse sind spezifisch (Relationen zwischen den Einheiten, die durch die verschiedenen Anordnungsichten entstandenen Figuren, Kraftfelder) und wellenförmig (Schallwellen pflanzen sich wie Nervenreize fort).

Außerdem erlaubt die schichtförmige Anordnung im zerebralen Kortex (sechs übereinander liegende Schichten) Verästelungen sowohl auf horizontaler als auch auf vertikaler Ebene. Bei der musikalischen Ausarbeitung zeigt sich diese doppelte Dimension in den Relationen, die zwischen den verschiedenen Klangschichten entste-

Sinneserfahrung neutral. Der Körper ist sowohl Sender-Empfänger von biologischen Signalen als auch eine Fläche, auf der sich unbewusst Gedächtnisspuren umso tiefer und nachhaltiger einprägen, je intensiver ihre affektive Färbung gewesen ist (wie bei Schmerz, Freude). In der Kindheit erhöht sich die Anzahl der Neuronenverbindungen sehr stark, und die Kombinationen von Bedeutungsträgern (Ereignis-, Erinnerungsfragmente) verbinden sich und ballen sich zusammen, um die einzigartige psychische Architektur des Individuums zu bilden.⁷

An der Stelle, an der sich diese drei Disziplinen kreuzen, können wir uns eine Nanomusik vorstellen. Die Artikulation von Nukleotiden, Neuronen bzw. Bedeutungsträgern, Zusammenballungen von Molekülen, mentalen Objekten oder Triebobjekten, Energietransfers in der Zelle, Nervenreize oder der Weg des Triebes – all diese Elemente,

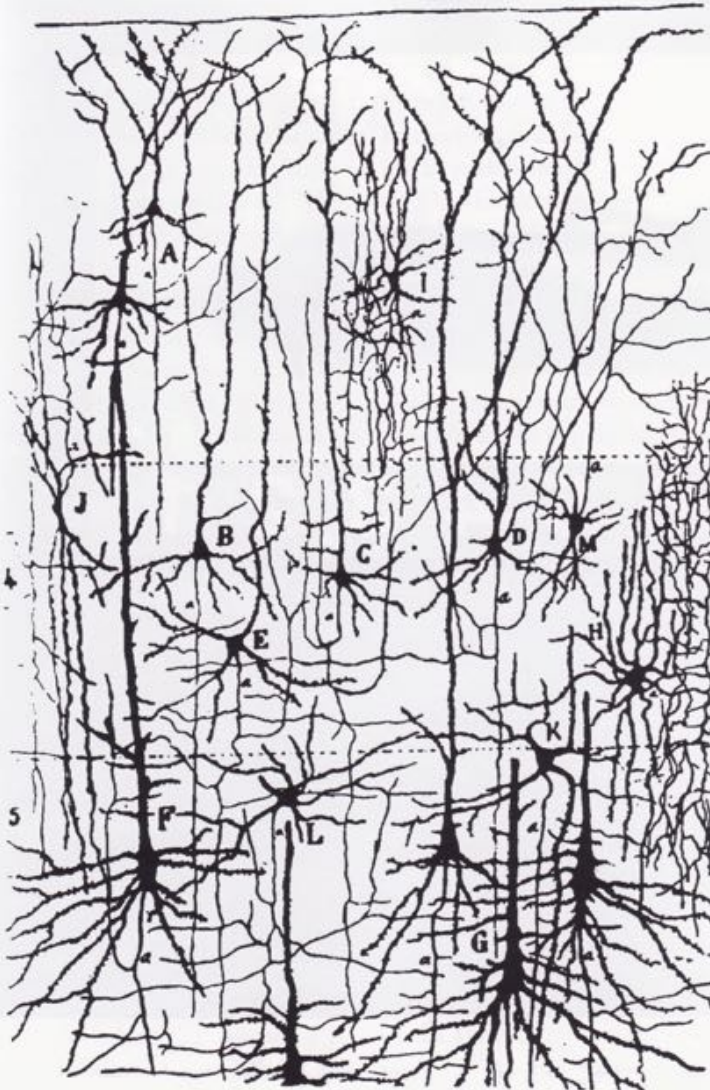
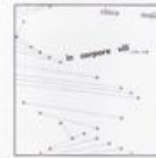


ABB. 7 NEURONEN, PYRAMIDENZELLEN, STERNZELLEN
UND SCHICHTEN DES CORTEX

■ INFO

CD-Einspielung



■ *Mutatis mutandis*,
Ensemble Resonanz,
auf: Clara Maïda:
In corpore villi,
DAAD/edition rz,
ed. RZ 10017 CD

Clara Maïda ist bei den diesjährigen
Donaueschinger Musiktagen (14. bis 16.
Oktober 2011) mit einem Vokalwerk vertre-
ten, das die Neuen Vokalsolisten Stuttgart
uraufführen werden.

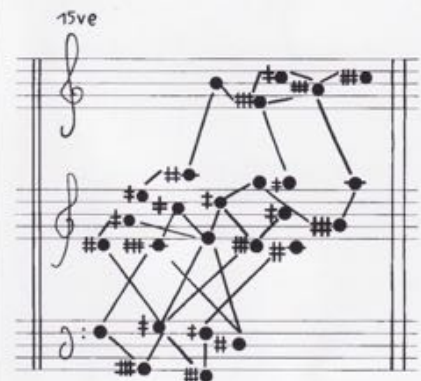


ABB. 8 FREQUENZFELD / VERKNÜPFTE BAU-
STEINE - „MUTATIS MUTANDIS“, SCHLUSS

deren strukturelle Merkmale sich stark äh-
neln, sorgen dafür, dass die Komposition auf
die Entwicklung von Nanoprozessen zu-
läuft. Letztere werden auf sehr bewegliche
elementare Einheiten mit variierenden Ver-
knüpfungen angewendet. Alle Arten von
Kräften wirken auf diese Partikel ein und
fegen sie in unkontrollierbaren Bewegungen
hinweg. Ihre Bahnen verlaufen entlang dy-
namischer Kreisläufe, die sich unaufhörlich
umgestalten. Kleine Mobiles erscheinen,
schwingen hin und her, halten aneinander
fest und schaffen so lineare Ketten oder
kompakte Koagulate.⁸ Aber diese kleinen
Strukturen werden durch die Zirkulation
von Punkten, die sich bewegen und in an-
deren Bereichen zusammenballen, rückgän-
gig gemacht.

Atome, Moleküle – die Nanowelt lässt
uns Objekte, im Wesentlichen mit Quanten-
verhalten, entdecken, die für das bloße Auge

unsichtbar sind. Das führt uns zu einer kon-
zeptionellen wissenschaftlichen Revolution.
Historisch gesehen handelte es sich bei der
Herstellung von Objekten um das Anord-
nen großer Mengen von Materie. Heute ba-
siert die Nanotechnologie auf der entgegen-
gesetzten Methode – vom Kleinsten zum
Größten. Die Musik scheint besonders dafür
bestimmt zu sein, sich diesen Perspektiv-
wechsel zunutze zu machen. Ihre kineti-
schen Eigenschaften und ihre Fähigkeit, ge-
wissermaßen Selbsterzeugung zu verbrei-
ten, sorgen für die Manipulation der Klang-
bestandteile auf einer zunehmend höheren
Abstraktionsebene.

Und was ist abstrakter und weniger
greifbar als das psychische Unbewusste, das
in jeder künstlerischen Produktion mobili-
siert wird ...?

Aus dem Englischen von Esther Dubielzig.

¹ Henri Michaux: *La vie dans les plis*, Paris 1949,
S. 118.

² Elektroenzephalogramm.

³ Ludwig von Bertalanffy: *General System Theory. Foundations. A Reader* (mit Jones R. W. und Rapo-
port A.), New York.

⁴ Das Axon ist der lange, faserartige Fortsatz einer
Nervenzelle, der elektrische Nervenimpulse vom
Zellkörper weg leitet.

⁵ Jean-Pierre Changeux: *L'Homme neuronal*,
Paris 1983.

⁶ Gilles Deleuze / Félix Guattari: *Mille plateaux*,
Paris 1980.

⁷ Für weitere Einzelheiten zu den Relationen zwi-
schen Musikkomposition und psychischem Unbe-
wussten siehe Clara Maïda: „... it writes it writes it
writes it ...“, in: *Filligranes* n°6, *Journal of musicology*
(Paris 2007).

⁸ Koagulation = Blutgerinnung.

positionen.

Texte zur aktuellen Musik

SchreibKrise ?

Eleonore Büning

Vom Verschwinden der neuen Musik aus der Musikkritik

Gisela Nauck

Der Markt richtet es nicht

Marion Diederichs-Lafite

Perspektive Österreich

Gerhard R. Koch

Verschiebungen aller Arten

Björn Gottstein

Porsche fahren oder Kellnern gehen

L. Baucke/P. Hagmann/R. Mörchen/F. Reininghaus/W. Schreiber u.a.

Warum über neue Musik schreiben?

Ulrich Mosch

Musik zur Sprache bringen

Michael Rebhahn

Welthaltigkeit

Marion Saxer

Am Rand der Sprachroutinen

Clara Maïda

Worstsaid Ho, worstheard Ho

85

November 2010 7,50 EUR

Mit dem folgenden Text der französischen Komponistin Clara Maïda, die von 2007-2008 als Gast des DAAD in Berlin lebte und deren Musik durch Feinsinnigkeit und Prägnanz fasziniert, beginnen wir eine lose Folge von kompositorischen Selbstdarstellungen. Auf Bitten der Redaktion soll es darin um Motivationen und Anliegen des Komponierens gehen.

On. Say on. Be said on. Somehow on. Till nohow on. Said nohow on.

Say for be said. Missaid. From now say for missaid.

Say a body. Where none. No mind. Where none. That at least. A place. Where none. For the body. To be in. Move in. Out of. Back into. No. No out. No back. Only in. Stay in. On in. Still.¹

In seiner faszinierenden, in sich geschlossenen Welt, durch äußerste Anstrengung der Ausdünnung von Wörtern – in einer Sprache, die auf ein Minimum reduziert ist – versucht Beckett das versteckte, unaussprechliche, nicht fühlbare Gebiet der Psyche zu erobern. Man kann sich dieses auf zweierlei Weise vorstellen: versenkt in einem unermesslichen und unbeweglichen Anderswo oder im Gegenteil: so flüchtig wie das leichteste Klopfen eines Punktes; das Sein in seiner unzugänglichen Nacktheit. Meine Musik hängt von diesem Streben ab. Beckett ging bis an die äußerste Grenze des Unaussprechbaren. Wenn kein Wort gesprochen wird – wie soll man es sagen? Von dieser Grenze an spinnt sich die Musik ihren Weg. Von dieser ungenauen Grenze an, wo Etwas unüberwindlich jenseits dessen ist, was Sprache versucht, wo die Schnitte der Wörter die Undurchsichtigkeit einer so zerbrechlichen wie zugleich kraftvollen Präsenz nicht beschwören können, breitet Musik ihre Welt der Zeichen aus, ihr Netz der Vibrationen.

Wie macht man diese Stimme hörbar – die Stimme der Abwesenheit oder die Abwesenheit der Stimme, das, was vor dem Erwerb der Sprache erfahren wird, was in einem embryonalen Zustand im privatesten Kern der Psyche nistet (dem autistischen Kern)?

»Say a body«, schreibt Beckett.

Aber welcher Körper? Der biologische Körper, eine komplexe und überraschende Fügung? Der psychische Körper, ein Körper der Empfindung? Die uranfängliche Erfahrung des Körpers, auf den von Geburt an unsichtbare Narben eingeschrieben werden? Spuren des Vergnügens und des Leidens zeichnen diesen Körper, der halb biologisch, halb psychisch ist, der triebhafte Körper. Können diese zwei Annäherungen an den Körper sich überlappen?

Clara Maïda

Worstsaid Ho, worstheard Ho

Man weiß, dass der Trieb sich entlang der Neuronen nicht bewegt ... aber Klang kann sich wie ein Trieb bewegen.

Was ist der Körper? Wie ist die Einheit des biologischen Körpers möglich? Wie wird dieser Körper erfahren, wahrgenommen? Wie ist die Einheit einer Person möglich? Ist sie eins mit dem Körper oder ist sie von ihm getrennt? Wie kann sie fühlen, dass dieser Körper, der aus einer Vielzahl von Abdrücken und sinnlichen Erinnerungen besteht, der eine unterbewusste und fragmentarische Erinnerung trägt, nur eins und ihr eigener ist – in Raum und Zeit? Und kann man diese ewig ständige Spaltung des Wesens fühlen, das mehrfache Stimmen in sich trägt, von denen manche unzugänglich sind?

Auf einer biomolekularen Ebene ist das DNA-Molekül aus Paaren aus Nukleotiden gemacht, die Proteine kodieren. Wie induzieren diese Wechselbeziehungen mehr und mehr komplexe Ausarbeitungen? Wie ist diese Bindekraft der Materie möglich? Auf einer psychoanalytischen Ebene: Wie werden ursprüngliche Gefühle, Affekte allmählich Strukturen zu einer Kombinatorik von Signifikanten? Diese unbewussten mnemotechnischen Spuren sind unauslöschliche Inschriften und sind durch die singuläre Architektur der Psyche charakterisiert. Was hält die Dauerhaftigkeit eines »Ich« aufrecht, trotz verschiedener psychischer Instanzen einer Person in der Folge des erfahrbaren Raums und der erfahrbaren Zeit? Diese Fragestellungen ziehen sich durch alle meine Stücke: unabhängig vom gewählten Blickwinkel, ob dieser genetisch oder neurophysiologisch ist (am Grunde der Materie und seiner Gesetze), oder psychoanalytisch, indem auf die psychische Organisation verwiesen wird.

Es ist das Rätsel des Daseins: des Ursprungs der Welt und des Lebens wie auch des Ursprungs des Gedankens, der Affekte, des Ego. Es ist die Frage, die ein Kind verfolgt – Kunst versucht eine Antwort auf dieses »Warum?« zu geben, das, was auf Unverständliches trifft. Warum empfangen wir Musik als Ganzes, als eine Klang-Einheit, trotz seines von Natur aus zerfallenden Materials? Wie formen diese Rahmenwerke von Punkten und Wellen die Kohärenz des Klangs?

Der Wahrheit, jemandem am nächsten zu sein ist dasselbe wie zu versuchen, das kleine

1 Samuel Beckett, *Worstward Ho*, Calder Publications: London 1983.



Die französische Komponistin Clara Maïda (Foto: Douglas Henderson)

2 Jacques Lacan, *Le Séminaire*, Livre I, *Les écrits techniques de Freud*, Editions Points, 1975, S. 110.

3 Gilles Deleuze, *Logique de la sensation*, Aux éditions de la différence, 1981, S. 33: »...Musik muss nicht-klangleiche Kräfte in klangleiche Kräfte verwandeln.«

mutistische Mädchen sprechen zu lassen, wenn es sich der Welt nähert. Musik war aus der Stille geboren, aus der Unmöglichkeit von Wörtern. Musik schreiben eröffnet die Möglichkeit eines Sinnes. Musik ist die Stimme der Kindheit, mit ihren Fragen, ihren Qualen und ihren Traumata, umgeben von der Undurchschaubarkeit eines psychischen, noch werdenden Wesens. Wie stellt man dies beim Erwachsenen wieder her, der dies nicht hören kann noch will? Das künstlerische Streben versucht, diese Gegenwärtigkeit des Kindes in uns zu beschwören und zu erlauben, seine unausgesprochene Stimme zu hören, manchmal in einer fast halluzinatorischen Gegenwärtigkeit. Zu hören auf all jene Zeiten, die in ihrer vollen Präsenz da sind, so nah und so fern, seit klar ist, dass alles gespeichert werden kann. Nichts ist vergessen, nicht einmal das Vergessene. Durch den kreativen Prozess wird etwas angesprochen, wird sich etwas ereignen können.

Das Schreiben erlaubt es, einen Bogen außerhalb von sich selbst zu spannen zu dem, was verschleiert gewesen war. In der künstlerischen Produktion ist dieses Selbst zu erkennen, kann man sich selbst wiedererkennen. Musik hat dabei zwei Seiten: Sie ist ein Stück der Psyche, ein Teil des Subjekts außerhalb des Körpers, eine Quasi-Substanz, die in den Raum vibriert, denn sie hat sich zu einer Form psychischer Wirklichkeit materialisiert. Sie ist außerdem ein wahrnehmbares, autonomes Objekt, das sich in der Raum-Zeit ausbreitet: ein intra-subjektives Gebiet zwischen dem

jektives Gebiet zwischen dem Schöpfer und dem Hörer. Die Grenzen zwischen Innen und Außen sind verschwunden und die Schwelle kann dann einen Klang-Spiegel bilden, in dem ich, eine Komponistin, mich wiedererkenne und diesen Teil des Unbekannten akzeptieren muss. Dieser Spiegel-Zeuge reflektiert Arbeit nach Arbeit durch die sukzessiven Projektionen und Re-Introjektionen, die inneren psychischen Mutationen des Künstlers.

Warum diese Faszination für Musik? Musik hat die Besonderheit, immer jenseits zu liegen. Sie liegt jenseits des Imaginären, da die Figuren und die Inhalte, die sie skizziert, keine Bilder sind. Es ist möglich, Klang-Bilder darzustellen, aber dann werden sie zu einem Paradoxon. Da sie visuell nicht wahrnehmbar sind, gehören sie zum Feld der Abstraktion, haben aber die Fähigkeit, Diagramme herzustellen, Konfigurationen von beweglichen Partikeln, die eine Vielzahl von Punkten verbinden und sich in einem vieldimensionalen Raum auflösen. Musik – ein Klang-Körper – kann potenziell endlos verformbare Bilder des Körpers ausdrücken. Die Vektorisierung von Punkten, Kurven, Bahnen und Kreuzungen sind Teil eines grenzenlosen Raumes. Aber Musik liegt auch jenseits des Symbolischen, in seinem engsten Sinn, zum Beispiel jenseits dessen, was durch Sprache bestimmt werden kann.

Jacques Lacan sagte: »Das Reale oder was als solches wahrgenommen wird, ist das, was der Symbolisierung vollkommen widersteht.«² Das symbolische System in der beschränktesten Bedeutung des Begriffs betrifft allein Sprache. Aber Musik entwickelt eine Reihe von Artikulationen der Zeichen. Dementsprechend kann man sie sich auch als Sprache vorstellen, die, aus Mangel an Bezeichnung und Bedeutung, Oberflächen schneidet und Kondensationen in undifferenziertem Klang markiert. Am Schnittpunkt von künstlerischer und wissenschaftlicher Annäherungen findet sich das gleiche Bemühen, das Unbekannte zu fassen und zu halten. Physikalische Formel und musikalische Poetisierung verbinden sich in diesem nicht-symbolischen Gebiet in einer gemeinsamen Anstrengung: die Leere zu umgeben, einzuhüllen und zu reduzieren. Es ist die Eroberung der »nicht-klangleichen« Kräfte.³

Es ist eine Reise, bei der die Eigenarten des Außen und Innen in einem Satz von Zeichen zusammenlaufen; und in der fortgesetzten Bemühung um einen originären Fundus, um Kontrolle dieser Zeichen, damit die Bahnen von immer mehr gefestigten Spiralen um ein Zentrum wiederholt werden können, ist dies eine Angelegenheit des letztlich Geborens in die Welt und für sich selbst.

38 Schöpfer und ihm/ihr selbst, ein inter-sub-

Wie sagt man etwas, das nicht gesagt werden kann? Zu sagen ist eine Illusion, aber eine wesentliche Illusion. Selbst etwas zu sagen bedeutet immer, eine Abweichung zu bezeichnen. In dieser Abweichung von sich selbst betrügt man sich (enthüllt man sich) und betrügt andere (scheitert). Die Macht der Musik bietet uns jedoch diese wortlose Rede. Das bedeutet, sich selbst treiben zu lassen zu den sukzessiven ephemeren Figurationen, Konstruktionen und Dekonstruktionen von zerbrechlichen Klang-Konstellationen, die in der Bewegung ihres Verschwindens auftreten oder in der Bewegung ihres Auftretens verschwinden. Die gespenstische Natur dieser Objekte, weggetragen von den Flugbahnen, die um eine Abwesenheit kreisen wie die mathematische Gleichung um x , lässt den Ort des unbekannten Faktor erkennen, ohne dass man in der Lage ist seine Form zu bestimmen.

Die musikalische Arbeit ist paradox. Auf der einen Seite rollt sie ihre Klangketten aus, ihr Ineinandergreifen von Ereignissen. Sie tritt in der Dicke einer vielschichtigen Struktur auf, wo sie Materialsichten sammelt, die in einer flüssigen Bewegung oder mit wütenden Schwingungen verrutschen oder Form annehmen. Das Ineinanderspiel dieser Mengen erlaubt es, eine verschwindende Anwesenheit zu hören, die in den Fugen tanzt. Auf diese Art ist Musik Widerhall der Erfahrungen eines jeden Menschen, der fühlen kann, dass seine Psyche sein Gehirn nicht vollkommenen bedeckt, dass seine Gefühle über sein Körperbild hinausgehen und er in seiner Beziehung zur Welt stets das Treffen mit ihr verpasst.

Auf der anderen Seite löst musikalische Arbeit Punkt für Punkt die Verbindungen auf, die errichtend waren und die Konsistenz eines Gegenstandes ausmachten. Wenn die Linien gelockert werden, Oberflächen zerfallen, offenbart sich in der Kluft jene Nacktheit, die Beckett zwischen den Wörtern verfolgte. Es ist eine Kreuzung, die die Stadien der Strukturierung einer Person, die Serien der Identifikationen, die das Ego konstruiert, zurückverfolgt. Zur gleichen Zeit ahmt Musik die entgegengesetzte Strecke nach, die zum Loslassen dieser Identifikationen führt, indem sie eine Verminderung der Entfremdung anpeilt auf einem Weg zu mehr Freiheit.

Es ist eine Art Pakt mit sich selbst und dem Werk, der jedes Mal erneut geschlossen werden muss. Die persönliche Ethik besteht darin zu versuchen, ständig in der »Avantgarde« seiner selbst zu sein, das heißt, wenn der strukturelle Rahmen einmal besteht, die Glieder einer musikalischen Rede zu trennen, die sich mit ihrer

eigenen Logik entwickelt und deren Schicksal es ist, dem Willen des Bewusstseins zu entkommen oder all die Ebenen der vielfachen psychischen Schichten bei der Arbeit im Schreibprozess zu unterwandern. Durchdrungen von dieser intensiven und destabilisierende Bewegung, vibrieren musikalische Ereignisse unter diesem Drang aller möglichen Arten von Kräften: Kräfte der Mutation, Verzerrung, Kondensation, Vermehrung, Schwingung, Pulverisierung, des Verschwindens.

All diese Kräfte, auf die man im psychischen Leben treffen kann und speziell in Träumen (der Pforte zum Unterbewussten), geben ihre Materie, ihre Texturen, ihre Bahnen und ihre bewegten Grenzen zum jeweiligen Stück, sie fließen in die künstlerische Produktion, die zugleich ihr Inhalt ist – Kräfte in Aktion – und ein Behälter – ein Ort der reinen Kräfte mit elastischen Umrissen. Es ist ein Ort, wo einfache Gegensätze wie zum Beispiel Subjekt/Objekt, Inhalt/Behälter, Innen/Außen sich auflösen, wo Sinneserfahrungen Klassifizierungen stören, wo man mit dem Gehör berührt, mit dem Bauch hört. Dieser immaterielle Ort liegt überall und nirgends, denn er gibt manchmal das Gefühl, außerhalb des menschlichen Wesens und der Welt zu sein, »where none« ...

Die Macht der Musik besteht darin, Gegebenheiten umzukehren, von denen man eher annimmt, sie seien definitiv festgelegt. In einer Welt, in der der Wille zur totalen Eliminierung jeglicher Risiken jedes Gebiet kontaminiert und in welcher die Suche nach sinnlosen Objekten ein Ersatz für die Suche nach Sinn ist, denke ich, dass es sich der Künstler erlauben muss, in unbekannte Regionen zu reisen. Und wenn es dem Hörer gelingt, sich selbst loszulassen, um Musik ohne Einschränkungen zu empfangen, dann wirft sie Licht auf die Sinnestäuschung des betäubenden Konsums von Objekten, bekräftigt ihre subversive Macht des Unstetigen und des Entgleitens, der Störung von Anhaltspunkten. Weil sich Musik jenseits von intellektuellen und perzeptiven Kategorien befindet und ihre winzigen aber unendlichen Revolutionen verbreitet. ■

(Übersetzung aus dem Englischen: Vera Emter/G.N./C.M.)

n°6

deuxième semestre 2007

Musique Esthétique Sciences Société

Jiligrane

Musique et inconscient

éditions
DELATOUR FRANCE

sous la direction de
Joseph Delaplace
et Olga Moll

Clara Maïda

... ÇA ÉCRIT ÇA ÉCRIT ÇA ÉCRIT ÇA...

Comment entendre ce titre, première amorce d'une chaîne où se répéterait déjà ce qui est à l'œuvre dans l'inconscient ? Le « ça » sous-entend-il que le Moi n'est pas là où le processus s'est déclenché, et revient-il incessamment le renouveler ? L'écrit tente-t-il de faire émerger, à chaque agencement de lettres, ce qu'il y a en nous de plus inaccessible, et reprendrait-il inlassablement cette activité ?

Où la chaîne s'initie-t-elle ? « ça » en est-il le premier maillon ? Qu'est-ce qui écrit ou qui est-ce qui écrit en moi quand j'écris ? Quelles parties du psychisme sont impliquées dans le processus d'écriture, dans le « ça écrit » ? Et qu'écrivent-elles ?

L'écrit trame-t-il l'inconscient ou est-ce l'inconscient qui engendre le désir d'écrire ?

Le « ça écrit ça » nous indiquerait-il que dans son origine, « ce moment hors du temps, insaisissable, qui excède tout commencement »¹, l'un et l'autre des termes se diffractent en un mouvement infini ?

Si l'on lit le fragment de chaîne « écrit ça », peut-on l'envisager comme une sorte d'injonction, continuellement présente, qui infléchirait la composition vers une tentative de laisser ça écrire ça ?

Ou si le « ça écrit » itératif impose sa césure, nous lance-t-il dans un pur devenir où persisterait toujours un reste, « ça » ?

La répétition des items – formule quasi incantatoire, rituel obsessionnel d'écriture, ou l'écriture elle-même, au travail, sans le moi ? – pose d'emblée la précarité du système et toutes les ambiguïtés que soulève un essai d'interprétation.

Le redoublement souligne la difficulté de situer la part et la place du Sujet (de l'inconscient, que Jacques Lacan désigne par \$) et de l'objet – si place il y a – pendant le

¹ Sylvie Le Poulichet, *L'œuvre du temps en psychanalyse*, Paris, Rivages, 1994, p. 93.

travail de création. Il introduit aussi bien une mobilité fonctionnelle de chaque élément qu'une polyvocité très ouverte, indiquant que l'inconscient affleure dans tous les interstices de l'écriture.

L'écriture manifesterait le désir de retrouver l'origine de la musique, l'origine du son, en retournant, pour chaque nouvelle œuvre, au point où la première différence se marque dans l'indifférencié sonore.

Si l'on imagine un espace sonore primordial – matière constituée d'une multitude de points, champ infini de particules, au-delà de l'oreille humaine – au sein duquel aucun regroupement, aucune vectorisation, aucune organisation ne sont encore ébauchés, écrire consisterait à effectuer une inscription ou une effraction dans cette matière.

Dans ce lieu où le « doigt » (le choix) de l'écriture se pose, une limite à l'infini sonore va se découper (discrimination des partiels du spectre d'un son, par exemple).

Peut-on considérer ce champ infini comme le Réel, ce noyau irréductible de l'inconscient, hors de toute symbolisation, qu'on ne peut pas cerner avec les mots ?

À partir de cette trace, toute une chaîne sonore peut commencer à s'articuler, toute une suite de mouvements peut s'enclencher, et c'est peut-être finalement le point où naissent les gestes qui tentent d'occuper un espace, de se l'approprier, de construire le corps de l'œuvre.

Le corps de l'œuvre (par ailleurs, le titre d'un ouvrage de Didier Anzieu²) retracerait ce qui peut s'appréhender du corps psychique, c'est-à-dire : « le corps défini non pas comme organisme mais comme pure jouissance, pure énergie psychique, dont le corps organique ne serait que la caisse de résonance »³.

Dans quelle mesure composer une œuvre musicale ne consiste-elle pas à façonner un nouveau corps, qui serait à la fois le reflet des liens qui le ligotent (signes figés dans des agglomérations fixées une fois pour toutes), mais aussi la tentative de se libérer de cette rigidité, en inventant un corps mouvant, qui échappe à toute classification, toute forme définitive ?

² Didier Anzieu, *Le corps de l'œuvre*, Paris, Gallimard, 1981.

³ Juan-David Nasio, *Cinq leçons sur la théorie de Jacques Lacan*, Paris, Rivages, 1992, p. 51.

Diverses aires sonores sont fugitivement mises en vibration. Certaines sont circonscrites de façon plus intensive quand les particules (fréquences, par exemple) s'y distribuent avec une plus grande densité, quand l'amplitude ou la rapidité de leurs parcours se multiplient, puis l'activité – l'activation – se propage successivement vers d'autres aires.

On donne à entendre les parcours de la pulsion, dans la persistance de ses passages. Mais on affirme aussi la possibilité d'un corps, dont les zones érogènes, ces « trous noirs » – pour reprendre l'usage que Félix Guattari⁴ fait de ce terme –, au bord desquels l'intensité de l'énergie est maximale, se déplaceraient continuellement sur la surface sonore.

Ce corps sonore est donc le véritable support de projection d'un fantasme de retrouvailles avec le corps primordial évoqué plus haut, puisque la mobilité de ces zones induit paradoxalement leur négation, et nous laisse entrevoir une pure énergie à l'état de virtualité. Une véritable ambiguïté se présente néanmoins, car cet accroissement migrateur de l'intensité nous indique que celle-ci est potentiellement partout, et cependant perceptible uniquement dans les différents lieux où on la localise.

Complexité de ce vécu corporel. Comment acquiert-on la sensation d'une totalité ? Dans l'image que nous renvoie le miroir, nous dit Jacques Lacan. Mais cette image n'est qu'une reconstruction, nous disent les physiciens quantiques. Et la psychanalyse ne nous dit pas autre chose. Au-delà de l'abstraction de cette énergie psychique, des images du corps plus ou moins archaïques, reconstructions ou constructions plus ou moins mutantes, peuvent également s'incarner et sous-tendre le travail de composition (telles les figurations étranges et modulables souvent repérées dans les rêves).

Pour illustrer la présence de cette dimension imaginaire, on peut évoquer l'exemple selon lequel le trajet de l'œuvre vers l'auditeur serait inconsciemment ressenti, par exemple, comme passant par un conduit quasi viscéral, où « une bouche du ventre », la parole musicale, et non plus seulement le langage, s'adresserait à l'« oreille du ventre » (et une boutade jaillit : ces souris que les recherches scientifiques entraînent dans toutes sortes de mutations – une oreille sur le ventre, justement ! –, ne seraient-elles pas les meilleures auditrices d'une telle musique...?).

Ici, les mouvements sonores seraient à entendre comme les ondes de contraction musculaires d'un organe tubulaire, reliant l'œuvre – corps imaginaire du compositeur –, à

⁴ Félix Guattari, *L'inconscient machinique*, Paris, Éditions Recherches, 1979. En astrophysique, un trou noir est un objet massif dont le champ gravitationnel est si intense qu'il empêche toute forme de matière ou de rayonnement de s'en échapper. Aucune particule ne peut s'en échapper, car rien, même pas la lumière, ne peut vaincre leur force gravitationnelle. Ce que Félix Guattari nomme un trou noir est un lieu d'abolition sémiotique. On peut rapprocher cette définition de celle que la psychanalyse donne de la jouissance, un lieu où il n'y a pas de signifiant.

l'auditeur. L'écriture d'un tel « péristaltisme sonore », en s'étayant d'ailleurs sur l'investissement physique de l'instrumentiste, soulève également un des aspects évidemment très importants dans l'élaboration du langage musical, celui du rapport au geste et au corps de l'interprète.

On constate ainsi que plusieurs portes d'entrée vers le son sont en jeu. On peut l'appréhender comme un élément quasi abstrait qui poursuit sa course sur les lignes imbriquées d'un ensemble, au carrefour de forces, ou l'aborder dans toute sa corporalité, en fonction de ses propriétés acoustiques. Mais le choix de privilégier l'une ou l'autre approche, selon les séquences de l'œuvre, est toujours déterminé par la volonté de mettre à nu une vérité jusqu'ici masquée.

On voit donc que, parti du corps libidinal ou imaginaire, on arrive au corps réel qui n'est invoqué, dans l'interprétation, que pour mieux dévoiler cet autre corps.

Ces dimensions du corps sont étroitement nouées et les mouvements du psychisme, dans des situations de crise, sont quelquefois immédiatement agis en mouvements du corps. Ainsi, un effondrement mental peut coïncider avec une chute. Et cette chute sera le pivot d'un processus artistique, qui est aussi une tentative d'emprise à trouver.

De plus, à travers cette rencontre – dont la partition est le lieu –, l'autre rencontre qui est souhaitée est celle qui manifeste que quelque chose a glissé d'un inconscient à l'autre, et qu'une trame se tisse entre les gestes, entre les sons, destinée à s'étendre jusqu'à l'auditeur. Les mouvements du corps réel de l'interprète, l'énergie qui s'y engage, sont invoqués pour matérialiser les mouvements psychiques. La musique n'est-elle pas aussi un body art (à prendre dans le sens où elle génère une modification corporelle sensitive) et ne laisse-t-elle pas ses marques sur le corps qui, bien qu'invisibles, n'en sont pas moins vivaces ?

C'est donc le désir et l'origine du désir, le rapport au(x) corps et le rapport à l'autre – cet autre qui est en nous, mais aussi l'autre avec lequel une relation intersubjective se noue autour de l'œuvre, et l'autre de l'autre... –, qui sont interrogés dans une telle démarche.

C'est aussi le mouvement d'inscription dans le langage. Absence de langage. Cri ou chute dans le silence, et la musique articule des signes qui jettent un pont entre le cri et les mots.

Aller au-devant de ce corps psychique, l'inconscient, tenter d'en faire à la fois l'investigation et un modèle pour des processus d'écriture musicale, c'est prendre le parti de faire affleurer la structure à tout moment de l'œuvre, avec l'exigence constante de se

défaire de toutes les constructions qui la représentent (figures, objets, situations sonores). On articule un réseau de rencontres, non pas de mots ou de mouvements du corps, comme ce qui advient dans le cadre d'une analyse (réseau littéral ou signifiant), mais de sons et de mouvements sonores qui produisent des enchaînements d'entités éphémères, insaisissables (les particules a-signifiantes qu'évoque Félix Guattari).

Toute personne, dans l'expérience d'une psychanalyse, constate rapidement combien les mots prononcés peuvent se disloquer (en suivant les parcours de jeux de sonorités des phonèmes ou le surgissement de fragments de souvenirs, par exemple) selon une logique bien distincte de la volonté de signification ou de désignation, caractéristique du système conscient, et disséminer un certain nombre d'éléments minimaux le long du discours pour faire émerger un autre dire, celui de l'inconscient.

Ce dit – l'*Un*, selon Jacques Lacan, c'est-à-dire le signifiant qui se présente dans le discours – et ses multiples substitutions et déplacements le long de la séquence verbale, sont comme des brèches qui nous font entrevoir l'infinité des permutations et assemblages potentiels.

C'est ce rapport entre ce qui est dit, et l'ensemble des dires qui ont déjà été énoncés, ou qui le seront (S1 et S2, selon Jacques Lacan), c'est cet ensemble, où l'actuel et le virtuel sont les doubles faces des signifiants, que la composition va tenter de faire émerger, retraçant l'écriture psychique dans l'écriture musicale.

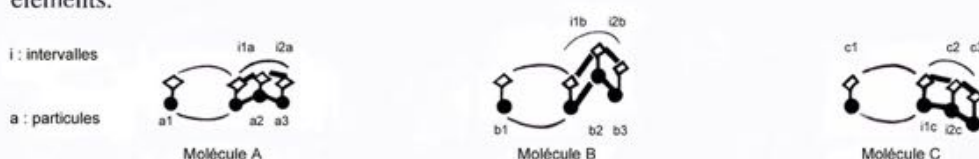
Composer des chaînes sonores en devenir, c'est considérer que chaque niveau d'articulation de ces chaînes est perpétuellement instable. La durée d'action et les coordonnées que les particules occupent dans l'espace, ne restent jamais identiques et ne sont à envisager que comme l'émergence d'une des innombrables possibilités d'apparition.

Ces « machines musicales désirantes »⁵, qui fonctionnent comme les machines désirantes que Gilles Deleuze et Félix Guattari décrivent dans *L'Anti-Oedipe*, génèrent des associations incessantes et des agencements toujours nouveaux, des configurations sonores en constante transformation.

Prenons un exemple très simple, où seul le paramètre de durée sera varié pour chaque molécule sonore.

⁵ « On dépasse ces grands ensembles [...] vers les éléments moléculaires qui forment les pièces et rouages des machines désirantes [...] Régions d'un inconscient productif, moléculaire, micrologique, micropsychique, qui ne veut plus rien dire et ne représente plus rien ». (Gilles Deleuze, Félix Guattari, *L'Anti-Oedipe, Capitalisme et schizophrénie*, Paris, Éditions de Minuit, 1972/73, p. 216).

Dans l'**exemple 1**, trois particules – ici, harmoniques artificiels de cordes – s'assemblent pour former une petite molécule (a_1 , a_2 et a_3 forment A), dont le comportement est modulé selon les intervalles tendus entre les trois particules ($i1a$ et $i2a$). S'ajoute un autre intervalle, $i3a$, qui se situe au point de jonction entre A et son retour. D'autres molécules (B et C) peuvent adopter le même type de connexions entre trois éléments.

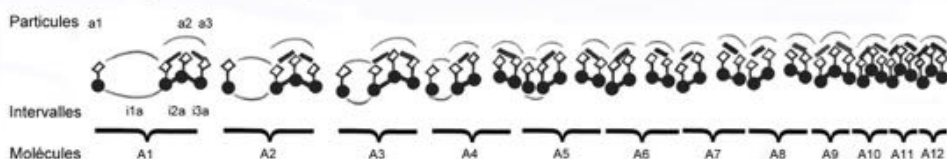


Exemple 1. Trois molécules, chacune formée de trois particules

Le mouvement de cette molécule (ou module) peut s'assimiler à un micro-mouvement du corps, et est d'ailleurs effectué par un geste corporel de l'interprète.

Dans l'**exemple 2**, les intervalles se modifient et infléchissent la forme de cette molécule A (la dimension temporelle de l'intervalle $i1a$ se resserre, et une césure finit par s'introduire au niveau de l'intervalle $i2a$ pour se souder de nouveau ultérieurement, quand la molécule est compressée).

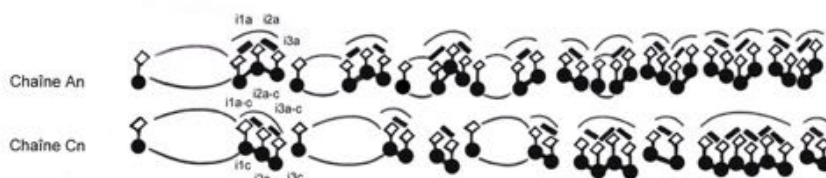
À chacune de ses répétitions, A est chaque fois différente, et chacune de ses énonciations pourrait être nommée A_1 , A_2 , etc. Nous avons là une première chaîne A_n (ou suite répétitive) qui déroule une suite de différences, ou de différances, pour reprendre le terme de Jacques Derrida, qui définit la différence comme « le moment d'une différance »⁶.



Exemple 2. Chaîne A_n , constituée de la répétition différante de la même molécule

Mais dans ce même temps où les répétitions différantes de A produisent une chaîne d'évènements, les intervalles $i1b$, $i2b$ et $i3b$ de la molécule B décrite plus haut sont également altérés à chaque répétition. Le parcours d'une chaîne B_n ($B_1 + B_2 + B_3$, etc.) se superpose donc à celui de A_n . Il en est de même pour une chaîne C_n (**exemple 3**).

⁶ Jacques Derrida, *L'écriture et la différence*, Paris, Seuil, 1967, p. 300.



Exemple 3. Processus des chaînes A_n et C_n , extrait de la pièce *Fluctuatio (in)animi*
(pour le processus superposant quatre chaînes, voir en fin d'article).

On peut multiplier le nombre de chaînes superposées et élaborer alors, dans une telle situation musicale, un réseau plus complexe et mobile que celui que révèle le langage, car la limite y excède celle des mots. Ceux-ci découpent la matière verbale pour produire phonèmes, morphèmes, mais les incisions que le langage musical pratique dans la matière sonore sont infiniment plus subtiles. Elles se multiplient sur de nombreux axes et agissent presque comme des projectiles, entaillant la surface de leurs frappes.

L'intervention sur divers paramètres – quantité de particules liées, hauteurs et durées de ces particules et des intervalles, accélérations et décélérations, coupures ou colmatages dans la chaîne, convergences ou divergences avec les autres chaînes, nombre de ramifications, etc. – tisse une trame instable.

De multiples écarts se situent à tous les niveaux de jointure, à l'intérieur d'une molécule, entre une particule de la molécule A et une particule de la molécule B, entre un intervalle de A et un intervalle de B, entre une particule de A et un intervalle de B, etc.

Si l'on privilégie l'accentuation gestuelle de ces micro-différences, en ajoutant des glissandi entre les hauteurs, comme c'est le cas dans cet exemple, si l'on précise que les instrumentistes doivent exécuter ces gestes avec une intensité dynamique maximale, si le réseau édifie un espace extrêmement dense et saturé, on finit par percevoir un surplus sonore insistant.

Celui-ci ne repose sur aucun substrat. Une sorte de matière évanescence, abstraite, qu'on ne peut localiser, manifeste une présence hétérogène au réseau qui la fait émerger, et résulte de chaque écart creusé entre les éléments écrits, de chaque vacillation à tous les niveaux d'articulation, dans l'intervalle entre les éléments, dans l'intervalle entre les intervalles. Objet sonore virtuel dont la danse fantomatique hante l'espace, l'objet *a* conceptualisé par Jacques Lacan ?

Cet effet, audible, apparaît en raison de l'accumulation des gestes, de leur rapidité, de leur amplitude, de leur dynamique extrêmes. Il est engendré non par les signes inscrits sur la partition, mais par une prise du corps sur ces signes.

C'est dans l'élaboration de ce type de séquences que se pose tout particulièrement la question de la position du Sujet, celui de l'inconscient. Une division, une dissolution est induite pendant l'acte d'écriture, que l'on peut ressaisir seulement ultérieurement.

Le sujet (de l'inconscient) qui écrit, qui se laisse écrire, submergé ou renversé par ce qui s'écrit, se parcellise dans cette plongée au cœur des flux sonores. Il est à la fois chaque point emporté sur les innombrables trajets parcourus, et une présence flottante et pulvérisée dans chaque interstice que les déplacements de points ne cessent d'ouvrir et de découvrir au sein de cette architecture mouvante.

Découper un espace, c'est s'y découper, et s'y découper, c'est s'y décupler.

C'est à la fois ce qui se vit dans le temps de la composition et ce qui se perçoit, ou se pressent – peut-être inconsciemment – en écoutant l'œuvre. C'est un état vers lequel on tend, comme un horizon du moment créatif, et l'on sait bien qu'aller au-devant d'un non-savoir de l'écriture favorise paradoxalement le surgissement de notre vérité la plus nue et par là, de la vérité de l'œuvre. C'est aussi la quête de cet effet sonore qui cause le désir d'écrire de telles séquences.

Dans ce temps où le Sujet apparaît comme présence absente, et rencontre au point de son évanouissement ce qui ne peut se dire, ne peut s'écrire, ce qui est agi, l'extase créatrice (la Jouissance psychique), celle-ci est à entendre quelquefois plus comme douleur que comme plaisir dans le transfert qui est effectué vers le corps de l'interprète, car une limite est repoussée dans un sursaut, un mouvement forcé.

Cette oscillation du Sujet, annulé par la Jouissance, est soulignée – sinon figurée dans sa plus pure élémentarité, car c'est une fonction, et non une représentation qui est indiquée – par le parti pris de formules sonores qui chavirent autour d'un axe. Cette bascule est le mouvement de la dépossession.

Ici, un autre fantasme de l'écriture musicale incline non seulement à donner un son à cette jouissance par laquelle on est déporté (au-dehors de soi) pendant le travail de création, mais aussi à nourrir l'illusion que la partition qui reste, puis son interprétation, restitueront quelque trace de ce qui s'est traversé.

J'ai donc évoqué ces inscriptions, marques d'un écart dans la matière psychique, ou dans la matière musicale, qui peuvent se découper du lieu où elles ont laissé leur empreinte et devenir un matériau particulièrement signifiant, comme porteur de chromosomes – que Gilles Deleuze envisage comme des *loci*, « c'est-à-dire non pas simplement comme des lieux dans l'espace, mais comme des complexes de rapport de voisinage »⁷.

En effet, ce travail de la matière en train de se faire est régi selon des lois de contiguïté et d'attraction. Ces minuscules agrégats s'allient, se dupliquent, et leurs mutations prolifèrent dans un espace sonore extrêmement labile et dans les fentes duquel on devine la palpitation alternative du Sujet et de la Jouissance et le miroitement d'un objet virtuel. Là, pas là, « nobody » quand il y a seulement corps et débordement pulsionnel, « no body » quand il y a du Sujet.

Sur cette ossature, certaines parties acquièrent par endroits une plus grande consistance.

Des petits objets se détachent, comme expulsés, résidus de ce qui les a fabriqués.

J'ai adopté cette démarche dans deux de mes pièces, *Le livre des trous* et *Holes and bones*.

À partir de l'élaboration d'une structure réticulaire très dense, qui peut être, soit audible (dans *Le Livre des trous*), soit latente (dans *Holes and bones*) et au sein de laquelle des suites d'éléments minimaux tissent des liens horizontaux et verticaux dans un mouvement de chute répétée, certains fragments de cette trame sont déchirés, prélevés et constituent des objets (déchets) qui sont réutilisés, non sans déformations, et se déplacent dans toute l'architecture de la pièce. On les dilate jusqu'à les faire texture, on les contracte jusqu'à un geste minimal ou un point de disparition. On joue avec l'écran qu'ils dressent contre les béances, on joue avec les failles à combler ou cerner.

Le langage musical met ainsi en évidence la poly-fonctionnalité de ses composants (et de ceux de l'inconscient) : fonction littérale ou signifiante pour les chaînes sonores évolutives, fonction objectale pour les matériaux extraits qui forment des conglomerats compacts, et passage de l'une à l'autre, et bien d'autres encore.

Ce que Jacques Lacan nomme lettres ou signifiants et objets, ce que Félix Guattari nomme formation moléculaire ou formation molaire, est à désigner sur le plan musical, par les termes de chaînes d'unités minimales ou d'objets sonores, en gardant cependant à l'esprit que les fonctions ne sont pas établies une fois pour toutes.

⁷ Gilles Deleuze, *Différence et répétition*, Paris, PUF, 1968, p. 240.

Les particules peuvent aussi bien établir des liaisons séquentielles, que s'agglutiner pour fabriquer des objets, ou retrouver leur autonomie et les formes qui sont apparues se morcellent en une multitude de « quanta sonores » qui suivent alors diverses trajectoires.

Cette écriture peut tendre ses filets à travers l'ensemble des œuvres. En effet, il semble intéressant de déterminer également des connexions entre les pièces, non en les réunissant en simples cycles, mais en leur attribuant une place – toutefois relative – à l'un des embranchements de la structure. Une pièce peut être alors la deuxième d'un cycle (ou d'une chaîne) et la première d'un autre. C'est le cas du quatuor à cordes ... *who holds the strings...* qui est le deuxième volet du cycle de pièces *Order or release, border of relish*, mais le premier du cycle *www*.

La notion d'objet, elle aussi, est extensive à l'œuvre en général, ce reste du travail de création, partie détachée du psychisme du Sujet qui l'a créée et qui lui est maintenant hétérogène (sinon quelquefois perçue comme monstrueuse), renvoyée du dehors. Ces œuvres successives, ces objets dont chaque nouvelle forme se substitue à la précédente, c'est dans ce mouvement de projection à l'extérieur du psychisme qu'on les identifie, qu'on s'y identifie, qu'on s'y répète et qu'on s'en défait, peut-être... (j'ai retracé ce processus dans l'une de mes pièces, *Repeats, defeats*).

« De ces éléments discrets, de ces objets répétés, nous devons distinguer un sujet secret qui se répète à travers eux, véritable sujet de la répétition »⁸.

Dans ce mouvement constant des forces, la répétition qui caractérise le travail de l'inconscient peut adopter deux comportements différents. On peut les qualifier de machinique – terme utilisé par Félix Guattari pour qualifier cet inconscient qui ne cesse de produire – ou de mécanique. Et ces deux faces de la répétition sont à rattacher à un destin différent du sujet qui répète.

La première concerne la réitération d'un processus, et non d'une forme ou d'un contenu.

Rien n'est à représenter. Seules les forces dynamiques importent, celles qui se propagent de proche en proche. Chaque répétition renouvelle l'élément énoncé, jamais identique à lui-même, le dévie légèrement par rapport au point où il est revenu, et assure

⁸ *Ibid.*, p. 36.

ainsi une mobilité créatrice à la chaîne, ainsi que je l'ai indiqué dans les exemples cités plus haut, dans lesquels l'enveloppe des molécules sonores est affectée par les multiples variations des unités minimales. Ainsi, même si des strates se repèrent ponctuellement en fonction des superpositions de ces suites répétitives, les sédiments qui les composent et leurs points de contact entre les couches subissent un remaniement permanent ce qui donne une grande fluidité à l'ensemble.

Dans la deuxième sorte de répétition, mécanique, le processus n'introduit pas de variation des éléments. La mobilité n'est plus dynamique mais statique, dans le sens où le signifiant – ou le geste sonore – revient toujours identique à lui-même, telles ces stéréotypies motrices des individus psychotiques. L'alternance obturée des molécules A_1 et A_2 , en $A_1-A_2-A_1-A_2...$ (ou des particules a_1 et a_2 , en $a_1-a_2-a_1-a_2...$), et non plus la suite « différenciante » $A_1+A_2+A_3... A_n$.

Soit le circuit, au lieu de dérouler une spirale, se boucle sur lui-même en une impasse, soit les composants d'une strate se cristallisent, happés par un pôle de fixation, et ne sont plus susceptibles de glisser vers d'autres couches, ou d'engendrer de nouveaux agencements. Captifs des formes et des lieux dans lesquels ils se sont figés, ils témoignent de la logique implacable qui les aliène.

Ces deux répétitions ne sont pas toujours cloisonnées et peuvent mutuellement déboucher l'une sur l'autre.

J'en ai travaillé les deux aspects dans la pièce pour cinq instruments et électronique *Fluctuatio (in)animi*, dans laquelle les processus musicaux sont piégés à plusieurs reprises dans des séquences sonores qui utilisent des sons électroniques évoquant une machine.

Mais cette notion de répétition pose aussi la question du déploiement du temps dans l'œuvre musicale.

Dans l'inconscient, la dimension temporelle est tout à fait spécifique.

Sur le plan musical, la perception temporelle la plus immédiate est celle qui nous fait entendre des événements successifs sonores, comme les mots d'un discours respectent un ordre syntaxique.

Même dans le cadre d'une séance d'analyse, la structure du langage est maintenue. Un mot après un mot, un son après un son. C'est bien sûr la condition requise qui établit un code commun pour les individus engagés dans une situation intersubjective.

Mais on a vu comment cette autre logique de l'inconscient (primauté des signifiants) affectait les énoncés.

Des rebonds, des échos, des réverbérations courent dans toutes les directions sur le fil du discours. Bifurcations, brusques déportations, retours, ruptures, marquent la récurrence de ces traits minimaux qui glissent selon des critères de contiguïté phonétique ou sémantique, et sautent d'un mot à l'autre. *Chute, chut !, shut et cut* (en anglais), *cutter, taire, muet comme une tombe : silence et mort*, et soudainement, trois trajectoires sont condensées en cette formule : la chute qui réapparaît à ce point de jointure entre *tombe* et *tomber*, et la disparition des mots (*chut !*) qui fait écho à celle de l'être, la mort (*tombe*).

Mais *muet* se ramifie en *muer, mutation* ou *naissance, peau morte et chrysalide*, alors que *terre, père* et la remémoration d'une situation passée s'enchaînent sur une autre ligne.

Et ainsi, des éléments qui semblaient séparés vont, avec le dévoilement de ces nouages cachés, se rejoindre à des carrefours où le sens émerge.

Ce sont de telles séries que j'évoquais précédemment dans la description détaillée des déviations successives des chaînes sonores A, B, ou C (niveau local et échelle réduite).

Un mot avec un autre, un mot avec un événement actuel, un événement avec un lambeau de souvenir, se répondent en résonances démultipliées à travers les époques différentes de notre vécu. Un son avec un autre, un timbre avec un autre, un objet avec un autre, sont les signaux de cette réverbération temporelle.

Cette approche peut s'appliquer à des situations musicales plus globales, dont on va repérer l'élan rageur, l'interruption imprévue, ou l'essoufflement par exemple, pour les retrouver ultérieurement, comme surgissant de la rencontre avec une autre situation qui avait suivi son trajet singulier.

L'auditeur est ainsi immergé dans des temps qui s'imbriquent. S'il tente de s'accrocher aux représentations des objets sonores qu'il a discernés, il a la sensation que ceux-ci sont tailladés sous la violence des torsions qu'impriment ces brèches et ces revirements. Il les entend comme débris ou vestiges et se vit dans un « temps éclaté » (titre d'un ouvrage d'André Green⁹) dans lequel cependant pourra être reconnu par instants un objet, ou une parcelle d'objet, qui revient et insiste.

S'il renonce à se perdre dans cette reconnaissance fatalement partielle des figures qui s'ébauchent et se fracturent, il se laisse entraîner par les flux, dans un temps vécu

⁹ André Green, *Le Temps éclaté*, Paris, Éditions de Minuit, 2000.

comme pur processus, où important non les éléments drainés par le parcours, mais le parcours lui-même, « forme vide du temps »¹⁰.

Ce mouvement où seul le passage persiste, c'est ce que Sylvie Le Poulichet nomme « l'instant catastrophique » (mais n'est-ce pas aussi l'instant extatique ?) qui « serait ce mode temporel en lequel le moi est réduit à la pointe d'un autre instant qui est le même et pourtant différent : le temps dénudé, inhabitable »¹¹.

Pour invoquer une autre science du Réel – la physique quantique –, elle nous apprend que les objets, tels que nous les percevons avec nos yeux humains, ont en fait une tout autre matérialité. Leurs formes, que nous figeons dans des dimensions et des lieux précis, présentent une quantité d'incertitude qui résulte du déplacement constant des quanta dont soit la localisation, soit la trajectoire, ne peuvent exactement se déterminer. C'est une autre réalité dont il est ici question, qui dépasse celle de nos capacités perceptives.

N'en est-il pas de même en ce qui concerne la perception temporelle ? Et l'écriture musicale ne pourrait-elle pas dégager ces « quanta de temps » ?

Approcher l'inconscient, c'est transgresser, ou transe-gresser, car on a vu que la répétition musicale ou gestuelle (dont le rôle est important dans les expériences de transe, chez les mystiques soufis, par exemple) est un procédé d'ouverture à cette autre réalité psychique, inaccessible, ou qui nous livre un accès partiel, quand les représentations se défont dans le cadre d'une démarche analytique.

Cette autre réalité, cet espace qui n'est ni figurable, ni nommable, ce Réel, que Serge Leclaire nous invite à démasquer¹², et dont Jacques Lacan nous dit qu'il « est à la limite de notre expérience »¹³, l'œuvre musicale tente de la rendre tangible, d'en cerner les contours, d'en capturer les forces, de la prendre dans les filets d'une écriture d'une extrême rigueur, avec cependant la certitude que, déjà, cette entreprise est une trahison.

¹⁰ « Deux temps, dont l'un ne se compose que de présents emboîtés, dont l'autre ne fait que se décomposer en passé et futur allongés. Dont l'un est toujours défini, actif ou passif, et l'autre, éternellement Infinitif, éternellement neutre. Dont l'un est cyclique, mesure le mouvement des corps, et dépend de la matière qui le limite et le remplit ; dont l'autre est pure ligne droite à la surface, incorporel, illimité, forme vide du temps, indépendant de toute matière ». (Gilles Deleuze, *Logique du sens*, Paris, Éditions de Minuit, 1969, p. 79)

¹¹ Sylvie Le Poulichet, *op. cit.*, p. 121.

¹² Serge Leclaire, *Démasquer le réel*, Paris, Seuil, 1971.

¹³ Jacques Lacan, *Le séminaire*, Livre IV : *La relation d'objet* (1956-1957), texte établi par Jacques-Alain Miller, Paris, Seuil, 1994, p. 31.

L'Homme invisible et ses bandages. Ce sont ceux-ci qui nous indiquent qu'il y a de l'être.

Écrire est la double tentative de fabriquer ces bandages qui serrent au plus près une consistance invisible, et de les défaire pour être en prise directe avec cette force qu'ils cachent et soulignent simultanément. C'est se tenir au bord de la limite, où l'évocation de la possibilité d'une pure présence sans forme nous la fait pressentir, mais introduit paradoxalement l'impureté que lui donne l'écriture.

Limite de l'expérience à toujours reculer, ferment du désir de recommencer le travail de création vécu comme une plongée au bord de ce qui nous échappe irréductiblement.



Exemple 4. *Fluctuatio (in)animi* pour cinq instruments et électronique

Processus pour quatre cordes (vln, alto, vlc et cb) des pages 26 et 27

Superposition des chaînes A_n, B_n, C_n, et D_n

Violon

Alto

Vclle

Chœur

26

Violon

Alto

Vclle

Chœur

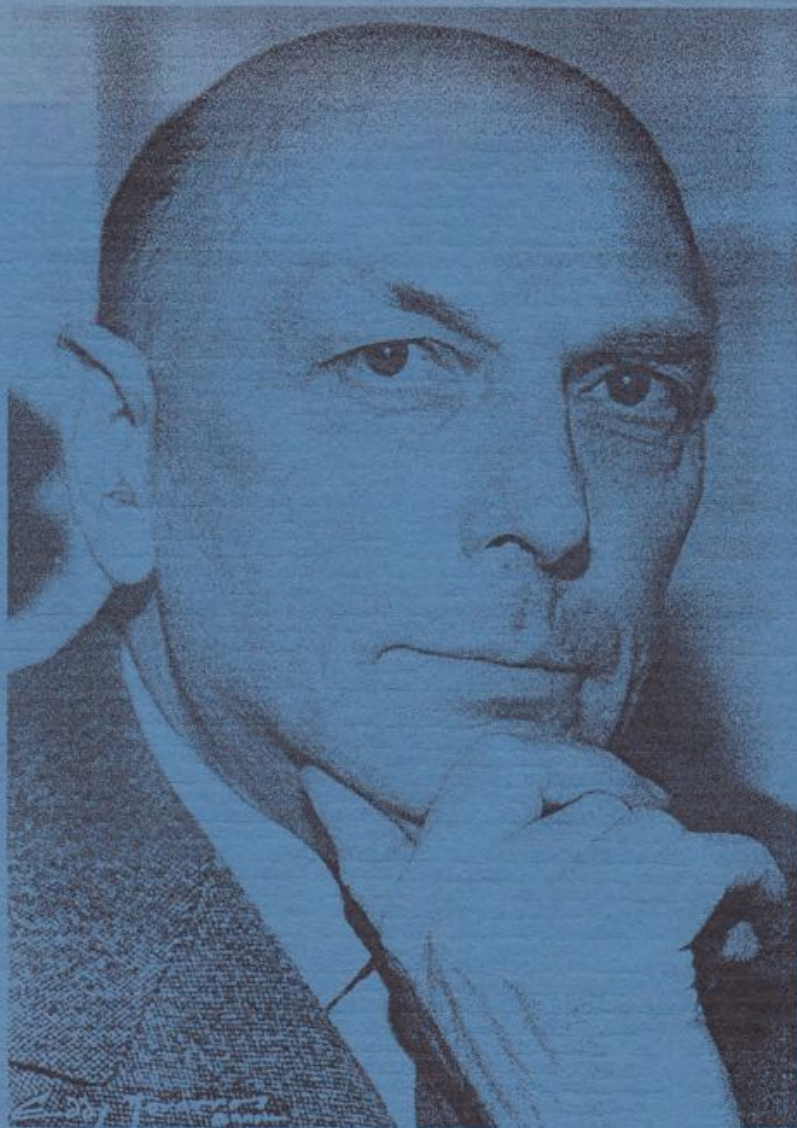
27

Exemple 5. *Fluctuatio (in)animi* pour cinq instruments et électronique

Extrait de partition (pages 26 et 27)

Superposition des chaînes A_n, B_n, C_n, et D_n

Calme et Bleu



Actes du Colloque de Cerisy :

*Henri Michaux
est-il seul ?*

Instants - Passages

Composition

de

Clara Maïda

(extraits de *L'infini turbulent*¹
d' Henri MICHAUX)

Commande de l'ensemble INSIE-
ME

Création le 23 janvier 1998.

(Soprano : Françoise ATLAN,
clarinettes : Magali RUBIO,
violoncelle : Bernard AMRANI,
percussions : Frédéric DAUMAS)

Depuis quelques années, ma recherche compositionnelle est une tentative d'articuler le discours musical à l'image des processus psychiques inconscients. L'œuvre ébauche un réseau mouvant d'objets sonores pluriels, jamais figés, jamais achevés, se métamorphosant, se fissurant, se combinant les uns les autres pour donner lieu à des textures composites, installant provisoirement des montages, des compositions instables par leur activité constante de transformation.

L'ossature de la pièce se disloquerait si l'énergie irrépressible qui la parcourt, n'établissait des lignes de forces insistantes entre les fragments, des persistance qui les font résonner les uns avec les autres.

Durant la composition de la pièce *Instants-Passages*, j'étais imprégnée de la lecture récente de trois ouvrages psychanalytiques, *L'espace imaginaire* et *Le corps, l'espace et le temps* de Sami-Ali², ainsi que *L'œuvre du temps en psychanalyse* de Sylvie Le Poulichet.³

La relation entre les expériences mescaliniennes d'Henri Michaux et l'espace-temps imaginaire décrit par les deux psychanalystes (dont le représentant le plus évident reste le fonctionnement onirique) s'est immédiatement imposée.

J'ai donc choisi d'appréhender le texte d'Henri Michaux par le biais des recherches psychanalytiques portant sur le fonctionnement de l'inconscient (et non exclusivement sur son contenu).

Par ailleurs (j'y reviendrai plus loin), l'approche linguistique m'a également été précieuse.

Dans le rêve, l'état de détachement psychique dans lequel se trouve le rêveur vis à vis du monde

extérieur, inaugure un vécu corporel qui détruit la distance entre le sujet et l'espace. Il y a abolition des frontières corporelles, destruction d'une opposition dedans-dehors et absolue coïncidence entre le sujet et l'espace du rêve. « Une double projection du sujet instaure une relation d'inclusion réciproque, telle que le sujet se trouve à l'intérieur de lui-même, dans un espace qui est lui-même. »⁴

L'espace onirique devient un espace corporel illimité qui peut s'étendre indéfiniment ou au contraire se résorber en un point infime. Dans cette non permanence, le sujet se dissocie, il s'atomise dans les figures qui parcourent son rêve. « Le rêveur lui-même se trouve identifié dans le champ du rêve à ces objets qui le regardent et le constituent puisqu'il n'y a plus d'écart entre ce qui est vu et le point d'où il est vu. »⁵

Le sujet se désagrège, disséminé dans les images du contenu onirique, occupant simultanément plusieurs lieux de regard. (L'existence d'une perspective unique, d'un centre d'où le moi regarderait le visible, est complètement détruite dans le rêve).

On peut relier ce vécu onirique à l'état du sujet sous l'emprise de la mescaline. Toute sensation d'unité corporelle et psychique est perdue (c'est d'ailleurs une constante dans l'œuvre de Michaux, exacerbée ici par la prise de drogue), plus de forme globale, de totalité perçue mais une multitude de fragments d'objets, de molécules dans lesquels le moi est absorbé.

Dans les deux extraits choisis, le processus s'engage dans une dissolution complète de l'identité des figures visibles, rapprochant ici l'expérience de Michaux du processus schizophrénique décrit par Gilles Deleuze et Félix Guattari : « Il y a une expérience schizophrénique des quantités intensives à l'état pur (...) un sentiment de passage intense, états d'intensité pure et crue, dépouillés de leur figure et de leur forme. »⁶

La dissémination du sujet dans les objets du rêve trouverait un prolongement dans la désagrégation du complexe sujet-objet en particules, sorte de plongée au cœur de la matière telle que la décrit la physique moderne, rappelant ici encore le vécu schizophrénique : « lui qui s'installait à ce point

insupportable où l'esprit touche la matière et en vit chaque intensité, la consomme. »

sément les principales approches envisagées au cours de la composition.



Choix des deux extraits

Ce choix a été motivé par la parenté qui les unit. Ils ont tous les deux pour point de départ apparent une perception (visuelle dans le cas du premier, auditive dans le cas du second), mais une ambiguïté évidente apparaît aussitôt.

Est-ce réellement une perception ou est-ce une projection des mécanismes psychiques déréglés par la mescaline qui est décrit dans ces pages ? Ce que Michaux observe, réagit-il sur son mode d'activité mentale, « la turbulence de l'air et des poussières »⁸ provoquant un émiettement de ses facultés cérébrales, ou la désagrégation de l'état de conscience engendrée par la drogue, contamine-t-elle toute perception des objets l'environnant, les faisant exploser en « poussières » d'objets ?

Deviendrait-il ce qu'il voit ou verrait-il ce qu'il devient, la distance entre le sujet et l'objet étant ici abolie jusqu'à aboutir à un éparpillement, une disparition du moi ? (pas « je » mais « on est dans », « il y a »). Il est absorbé par ce qu'il voit ou entend, il coïncide totalement avec le visible ou l'audible qui le fascine mais cette fascination n'a lieu que parce que le processus de morcellement est déjà amorcé. Une sorte de *feed-back* infini s'effectue. Pulvérisé, il pulvérise ce qu'il perçoit et cette perception pulvérisée accentue encore la pulvérisation de l'identité, et ainsi jusqu'à l'annihilation du sujet, des objets, de l'espace, du temps. Seules subsistent des particules non directionnelles, non localisées dont tout sujet est absent.

Sur un plan musical, comment évoquer cet instant où la conscience chavire, induisant toute une série de bouleversements à venir ?

Il s'agit de provoquer un choc auditif (d'où le début violent et brutal de la pièce), afin de déclencher un effet de bascule et une adhésion sans prise de distance possible avec le son. Il va en résulter un type d'écoute particulier. L'auditeur va garder ce choc en mémoire, sorte de zone de concentration, de point de focalisation qui, non seulement ouvre dans l'immédiat une brèche temporelle (le temps semble s'être engouffré dans la violence de l'impact sonore), mais aussi colore de sa trace la musique qui va suivre.

Je reviendrai plus loin sur le matériau musical proprement dit de la pièce en décrivant plus préci-



Choix du titre de la Pièce

Le choix du titre « *Instants-Passages* » fait référence aux observations sur le fonctionnement de l'inconscient effectuées par les deux psychanalystes cités plus haut.

Selon Sami-Ali, « *Le temps du rêve, c'est toujours le présent, un présent absolu qui se crée à chaque instant du même rêve et qui se confond avec la présence.* »⁹ série d'images d'une seule présence simultanément partout dans le même temps.

Selon Sylvie Le Poulichet, dans l'inconscient, « il n'y a pas de direction, il n'y a que du passage qui persis-te. », ¹⁰ une activité s'auto-engendrant, en devenir permanent, où les liens, les passages entre les figures sont plus à signifier que les figures elles-mêmes.

J'ai condensé ces deux approches ainsi que l'utilisation réitérée de deux mots par Michaux dans les deux extraits (« passages » dans le premier extrait, « instants » dans le second) en un titre « *Instants-Passages* », sorte d'objet composite déjà constitué pour l'auditeur avant même que l'œuvre existe sur un plan sonore.



Approche linguistique

Ma première démarche dans l'approche d'un texte, une fois imprégnée de son contenu sémantique, est d'effectuer sa transcription phonétique afin d'avoir une idée plus précise des phonèmes, des sonorités qui reviennent le plus souvent. Une double opération consiste à compter combien de fois chaque phonème se répète, puis à évaluer les relations de ces phonèmes les uns avec les autres, leur trajet au sein de la phrase afin de dégager les flux liés à leur énonciation par l'appareil vocal (fermeture, ouverture de la bouche, type et lieu d'articulation).

Ce lieu où se forment les sons m'évoque les expériences hypnagogiques décrites par certains sujets. L'individu s'y vit au sein d'un espace constamment métamorphosable qui, dans le même temps, représente l'intérieur de la bouche comme

si le sujet se situait dans un espace qui était à l'intérieur de lui-même (on retrouve la relation d'inclusion réciproque précédemment décrite par Sami-Ali).

Pour retrouver la coïncidence entre l'espace sonore et l'espace de la cavité buccale, il s'agit de composer des parcours musicaux en écho aux trajectoires des phonèmes du texte.

Dans le premier extrait par exemple, les occlusives labiales (p), d'aperture 0 sont disséminées dans le texte. D'autre part, un grand nombre d'occlusives apico-dentales (d, t, aperture 0) est relayé par la présence croissante de sifflantes sourdes (s) et de chuintantes (ch, j, aperture 1 donc légèrement plus grande), évocation d'un trajet soumis à une légère dilatation pendant que parallèlement la vibrante r (d'aperture plus large), très fréquente au début de l'extrait, se raréfie au milieu pour réapparaître à la fin dans un mouvement qui s'oppose au précédent.

Par ailleurs, les alternances de voyelles ouvertes et fermées évoquent un mouvement incessant :

« passages d'images » : a i a (ouvert / fermé / ouvert)

« passages d'idées » : a i é (ouvert / fermé / un peu moins fermé)

« passages d'envies » : a en i (ouvert / ouvert / fermé)

À la fin de l'extrait, ce processus d'ouverture / fermeture / ouverture est condensé dans le mot « agité » (a i é).

(Il est bien entendu que les phonèmes pris en compte sont ceux qui sont les plus représentés dans l'extrait choisi (26 occlusives dentales, 15 occlusives labiales, 17 chuintantes et 22 sifflantes, 35 voyelles fermées (i et é), 42 voyelles ouvertes (a et en), les autres phonèmes étant représentés en nombre peu significatif).

Cette observation permet de mettre en évidence une polyphonie de parcours parfois contradictoires, des micro-mouvements, contractant ici, dilatant ailleurs, créant des zones de condensation ou de vide dans la texture du texte, déclenchant des torsions qui renforcent son contenu sémantique (« agité »), indices précieux pour la composition.

Sur un plan strictement musical, comment retracer ces passages d'énergie, ces tensions qui semblent déformer la matière verbale ?

J'ai pris le parti d'élaborer une matière musicale en dérive, désorganisée, polydirectionnelle et fluctuante. Elle submerge l'auditeur d'un flot croissant d'excitations sonores, créant ainsi une incertitude de l'écoute. L'énergie qui s'écoule, pratique des découpages dans la texture, laissant émerger des

micro-formules qui sont aussitôt absorbées par cet immense flux qui charrie et avale tout sur son passage, même ses propres résidus.

Cette instabilité de la globalité se retrouve au niveau des objets musicaux eux-mêmes, sortes de micro-structures à la constitution chavirante (glissandi, complexe sonore crescendo / éclat / silence, mouvement de balancier entre deux timbres présentés en alternance etc.).

Dans le deuxième extrait, la prédominance des phonèmes présentant un degré d'aperture opposé, réapparaît, repérable plus particulièrement au niveau des voyelles (48 voyelles fermées, 48 voyelles ouvertes) avec un parcours allant, au sein de chaque phrase, de la fermeture à l'ouverture (« il y a une ampleur » : i a an eu, légères fluctuations au niveau de l'ouverture), toujours dans un même mouvement d'énonciation qui revient sur lui-même pour emporter à chaque fois vers plus d'élargissement (la même phrase de plus en plus développée).

Ici, le rythme est donc différent de celui observé dans le premier extrait mais j'aborderai ce domaine plus loin.

Au niveau des consonnes (elles sont presque toutes représentées, exceptées les chuintantes), des fluctuations nombreuses allant de l'aperture 0 à l'aperture 3 retracent une extrême mobilité (surtout dans la deuxième partie de cet extrait), encore renforcée par le rythme des phrases qui s'accélère progressivement (passage de longues phrases à des phrases courtes cette fois-ci, puis à des formules répétées de trois syllabes (« qui se forme, s'achève, s'effondre »)).

*

Approche rythmique

Au delà de leurs parentés sémantique et phonologique, les deux extraits ont un tempo et un rythme spatio-temporel différent.

Le premier extrait peut être qualifié de rapide, heurté, polydirectionnel. Il a donné naissance, comme je l'ai évoqué plus haut, à une matière sonore extrêmement mobile, soumise à des vibrations, des oscillations, des distorsions, des élans, des arrêts brusques puis des reprises.

L'écriture instrumentale va évoquer cette agitation par plusieurs procédés (absence de stabilité mélodique, les trames mélodiques oscillant autour de quelques notes rapprochées, harmonie parcou-

rue de micro-glissements évoquant des strates géologiques peu stables).

Le deuxième extrait fonctionne sur un mode circulaire (sortes de cercles concentriques de plus en plus amples, phrases courtes puis de plus en plus longues, construites sur le modèle : « *il y a une ampleur* », le mot « *ampleur* » étant développé dans une série d'ornementations de plus en plus nombreuses).

Ici, la texture se fait plus fragile, la voix seule se déroule dans une écriture mélismatique, présentant des broderies micro-intervalliques. Elle est uniquement accompagnée des sons du vibrapone joué avec un archet de contrebasse (sons très purs, très fins) et des roulements *ppp* du tam-tam chinois renforçant cette profondeur croissante de l'espace. La résonance très ample du tam-tam aboutit à une sorte de suspension temporelle où seules résonnent quelques harmoniques (sensation de vide psychique quasi hypnotique induit par la répétition du mot « *ampleur* » et évoquant ici encore Deleuze et Guattari : « *le sujet s'étale sur le pourtour du cercle dont le moi a déserté le centre.* »¹¹).

Une inversion du débit apparaît dans la deuxième partie. Un procédé d'accélération s'élabore à travers la répétition de certains mots (ce procédé était déjà utilisé dans le premier extrait où la disposition des réitérations du mot « *passages* » soulignait l'effolement croissant déjà repérable dans les fragments de phrases toujours plus hachés). Ici, les mots « *instant* » et « *suivant* » reviennent avec insistance, les formules répétées du type « *qui se fait, qui se forme, qui s'achève* », malgré de légères variantes, finissent par donner l'illusion, les mêmes phonèmes étant disséminés dans des mots différents, d'un éternel recommencement du même instant qui pourrait être l'« *instant catastrophique* » qu'évoque Sylvie LE POULICHET : « *l'instant catastrophique serait ce mode temporel en lequel le moi est réduit à la pointe de l'instant, passant sans cesse à la pointe d'un autre instant qui est le même et pourtant différent : le temps dénudé, inhabitable (...) car à chaque passage de l'instant à l'instant – auquel se réduisent alors le moi et le temps – un trou semble s'ouvrir où le moi pourrait vraiment disparaître.* »¹²

Les jeux de sonorités itératifs, la morphologie ternaire de ces formules quasi semblables finit par dégager un rythme de plus en plus scandé dans un premier temps, sur les phonèmes k, s, f, par la soprano et les instrumentistes, comme détaché du texte dont il est issu, puis indépendant de la voix qui l'énonçait, joué par les percussions dans un développement toujours plus envoûtant et débou-

chant sur le silence, sorte de processus d'auto-dévoration du son.



Pulvérisation du sujet donnant naissance à une pulvérisation sonore

Le traitement de la voix, sa place dans la matière musicale, sont le reflet des bouleversements psychiques. Elle va osciller entre une présence relativement détachée de la texture instrumentale (signe d'un sujet de l'énonciation encore capable, bien qu'ébranlé dans ses structures les plus profondes, de décrire l'expérience vécue), et une perte d'identité qui la précipite en la pulvérisant au cœur de la matière tissée par les différents instruments. Elle devient alors dépossédée de son contenu sémantique, pur matériau sonore. Démultipliée en plusieurs voix (les instrumentistes chuchotent certains mots du texte : « *agitation* », « *turbulence* »), elle subit également une atomisation des mots qu'elle prononce, certains d'entre eux pouvant être prolongés par l'étirement d'une consonne qui suit un trajet indépendant (« *agitation* » → sss, « *feu* » → fff).

À l'image des procédés de Michaux (phonèmes d'un mot dispersés dans d'autres mots : « *passages* » → « *images* » → « *haché* » → « *agité* »), la voix se fragmente, plurielle et existant simultanément en plusieurs lieux (par exemple, le mot « *agité* » est vocalisé par la soprano : a i é a i é..., pendant que le percussionniste énonce les syllabes « *gi-té* »).

Il en résulte une plus grande profondeur du champ sonore. Des effets d'échos, de réverbération, de délocalisation, sont induits par cette explosion du matériau verbal. De plus, celui-ci se mute en matériau musical. Les consonnes deviennent bruit mais aussi son instrumental (ainsi, f peut être associé sur le plan sonore au frottement d'une baguette de métal sur la surface du tam-tam chinois, s trouve son prolongement dans le roulement d'un maracas), ajoutant encore à la confusion d'identité.



Remarques annexes

En dehors du travail sur le texte proprement dit, j'ai pris le parti d'utiliser également les dessins d'Henri Michaux¹³ ainsi que sa graphie sous l'emprise de la mescaline.¹⁴

Les matériaux poétique mais aussi plastique et graphique ont ainsi déterminé le choix de l'écriture musicale décrite plus haut (trilles, glissandi, textures mélodiques oscillantes, écriture mélismatique, rapidité du débit, mobilité, foisonnement sonore mais aussi déchirures dans le tissu musical, en sont la marque principale).

Par ailleurs, la forme fragmentée de la pièce, suite d'états de tension extrême qui aboutissent le plus souvent à une fracture débouchant sur le silence, fait référence à la globalité de « *L'infini turbulent* », série de visions hachées, ne comportant pas systématiquement de lien les unes avec les autres, laissant des vides spatio-temporels (blanc de la page, points de suspension), sortes de béances dans la chair de l'œuvre.

Par ailleurs, la dernière partie d'« *Instants-pas-sages* » s'élabore autour des mots inscrits dans la marge du premier extrait choisi, dans une sorte de structure répétitive jouant à la fois sur les mots eux-mêmes mais aussi sur certaines syllabes (« *a-*

a-agité », « *tu-tu-turbulence* »), tentative de dégager un espace en marge mais aussi résonance, résidu de tout ce qui a précédé.

Conclusion

Ainsi, le travail compositionnel s'est constitué autour de deux pôles : d'une part, le travail d'analyse portant précisément sur les deux extraits et décrit plus haut, d'autre part, la lecture en parallèle d'autres ouvrages d'Henri Michaux, afin d'être imprégnée de son univers poétique, privilégiant ainsi toute une approche inconsciente, susceptible elle-aussi d'orienter la composition.

Après l'utilisation de « *L'infini turbulent* », la tentation était grande de poursuivre une investigation plus approfondie de l'œuvre de l'auteur.

De ce désir est née la décision d'aborder le poème « *Iniji* », extrait de « *Moments, traversées du temps* »¹⁵ Prenant pour point de départ la même démarche linguistico-psychanalytique, j'envisage de tenter cette année une écriture non plus seulement musicale mais également scénique (scénographie lumineuse, traitement électronique des sons), afin de révéler avec encore plus d'évidence et de force les flux du texte.

Clara Maïda

le 5 septembre 1999

Notes :

1 - Henri Michaux, *L'infini turbulent*, Paris, Mercure de France, 1964, 235 p. Les deux extraits choisis sont joints à la fin de l'article (p. 11 et p. 75-76).

2 - Sami-Ali, *L'espace imaginaire*, Paris, Gallimard, Tel, 1974, 264 p. Sami-Ali : *Le corps, l'espace et le temps*, Paris, Dunod, 1990, 148 p.

3 - Sylvie Le Poulichet : *L'œuvre du temps en psychanalyse*, Paris, Payot et Rivages, 1994, 233 p.

4 - Sami-Ali : *Le corps, l'espace et le temps*, p. 96.

5 - Sylvie Le Poulichet : *L'œuvre du temps en psychanalyse*, p. 64.

6 - Gilles Deleuze et Félix Guattari : *L'anti-Œdipe, capitalisme et schizophrénie*, Paris, Minuit, 493 p., p. 25.

7 - *Ibid.*, p. 26

6 - Sami-Ali : *Le corps, l'espace et le temps*, p. 100

7 - Sylvie Le Poulichet : *L'œuvre du temps en psychanalyse*, p. 46.

8 - Henri Michaux, *L'infini turbulent*, p. 11.

9 - Sami-Ali : *Le corps, l'espace et le temps*, p. 100.

10 - Sylvie Le Poulichet : *L'œuvre du temps en psychanalyse*, p. 46.

6 - Gilles Deleuze et Félix Guattari : *L'anti-Œdipe*, p. 28.

10 - Sylvie Le Poulichet : *L'œuvre du temps en psychanalyse*, p. 121.

13 - Henri Michaux, *L'infini turbulent*, dessins inclus entre les pages 48-49.

14 - Henri Michaux : *Misérable miracle*, Paris, Gallimard, 1972, 195 p. – pp. 54-55, 86-87, 120-121.

14 - Henri Michaux : *Moments, traversées du temps*, Paris, Gallimard, 1973, 131 p.