

Poetics of Listening

On Concrete Music And Free Improvisation

followed by *Monde(s)*

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Introduction

«C'est que le problème de l'art, le problème relatif à la création, est celui de la perception, et non pas de la mémoire : la musique est pure présence et réclame un élargissement de la perception jusqu'aux limites de l'univers» G. Deleuze, Occuper Sans Compter

This essay links my work in free improvisation and the culture of sound I happened to grow up with. My father, who studied concrete music (at the GRM with Pierre Schaeffer, Michel Chion, Roger Cochini,...), has a very strong relationship with sound, wherever he goes, he listens to its surroundings and, by a mysterious process, turns it into music. It doesn't matter if it is the wind whistling between the trees, the chaotic symphony of a busy port, the melody of a siren far away disappearing in the city's purring. There is a way to listen to noise musically, hear the sound's qualities or flaws, just like the sound of a musical instrument. He gave me once the example of water, a river flow sound. It is usually interpreted as a calming, beautiful sound, not because people like the sound but because people like the idea of putting their feet into the water, surrounded by a green scenery of forest on a sunny afternoon. We are not speaking about sound but cinematic images. The sound is calming because it makes us see the river. Still, if we listen to it disconnected from its source, we could assimilate it to something close to white noise, a sound that can be fascinating because of its internal perpetual micro-variations, but a sound which is not saying much on its own. But put at the right place and the right time in a composition it can become a valid musical statement, just like a simple major triad can be the **pick** of a complex piece. To prick up our ears to the world, curiosity as a banner, to be conscious of time and space, is a valuable lesson for a musician willing to enter free music territory.

In the past years, I had been mainly playing jazz and practice piano in a traditional sense. It is in my first year of master's in Basel that I came back to free improvisation. I had the chance to study it with Fred Frith and meet Basel-based musicians playing this music. I improvised in many different ensembles, mostly duos, and trios, and recorded my first album in the genre in September 2020, a piano and prepared drums duo with Jordi Pallarés Barberà. Following the album post-production process closely reminded me of the concrete music composer's creative process, how we could create an entirely imaginary space, very different from what we heard when we were improvising. In a way, the improvisation's souvenir faded and left space for newly born sounds, with different emotional weight. It was a different type of research that happened in the studio, but it still was about creation, not only with the technical purpose of reproducing or fixing the improvisation's past reality.¹

In this essay, I explore the connection between concrete music and free improvisation, using the first as the departure point to speak about to second. I am convinced that these two very different ways to create music are connected by how its protagonists listen to the sound. I documented myself on concrete music, the philosophical, historical, and sometimes scientific concepts that resonate with the musical

¹ There is always creativity in sound engineer's work, but, in my opinion, the absence of « rules » or aesthetic standards in free improvisation give a freedom that is more difficult to take in a traditional production.

creation. I also had my experimentation composing concrete music using the studio tools, learning by doing. After this process that gave me a deeper understanding of concrete music and free improvisation, I came back to the piano and recorded a free improvisation session in duo with the guitarist Martin Theurillat. From this couple of hours of dialogs between guitar and prepared piano, I selected eight tracks that compose MONDE(S), the final musical product of my IDP.

In the following pages, I will display the research I did concerning concrete music and connect its concepts to the practice of free improvisation. I will then speak about the recording and mixing process of the duo, giving insights on the music and the tools we used to shape it into its final form.

Part I : on concrete music and free improvisation

At the very beginning of this project was the idea that concrete music composers and free improvisers approach the sound in a similar manner. Studying concrete music concepts and how composers listen to the world of sound surrounding us gave me a new perspective on my own practice of free improvisation. The theoretical documentation that I have conducted leads to different territories: history of music, physics, and philosophy. Apart from being intellectually stimulating, this process offered me new tools to open my ears, be present when it comes to playing my instrument, and open new perspectives on the post-production work in the studio.

A short definition and history of concrete music

The first definition of “Musique Concrète” is found in an article in the french journal *Polyphonie* in 1948. The article written by the inventor of the genre, Pierre Schaeffer, explains :

*“We use the term abstract to speak about the music we listen usually because it is an intellectual construct, notated theoretically, eventually realised in an instrumental performance. We call our **music concrete** because it is constituted from pre-existing elements taken from any kind of sound material, noise or music, then composed experimentally by direct construction.”²*

At the beginning of the 20th century, we can point out several factors that would lead to the invention of concrete music.³ The role of percussions changes drastically, from almost nothing in the 19th century to a leading role in significant compositions such as the Rite of Spring (I. Stravinsky, 1913), Bartok's sonata for two pianos and percussions (1937), Ionisation (E. Varèse, 1933)... Percussions become the ambassador of noise (sound without pitch) in contemporary instrumental music. The noise had already been the subject of musical experimentations in 1913 when Luigi Russolo, Italian futurist painter, wrote a manifesto called “The Art of Noise,⁴” leading to a natural noises classification used in musical productions. Orchestras of noise-makers played these concerts using specifically designed instruments. The invention of cinema and the revolution initiated by the apparition of recording technics led to musical experimentation using the newly available technical tools. John Cage had already written in 1939 his Imaginary Landscape n°1 for two variable-speed turntables, frequency recordings, muted piano, and cymbal. The machines used to reproduce sound (tape recorder, gramophone) and the amplification systems **allow** the musicians to discover new sonic worlds that had not been heard before.

In the 1940's, Pierre Schaeffer (1910-1995) was working with the french radio R.T.F. experimenting with **recordings** technics to create original backgrounds for the radio shows. It is by accident that the idea of concrete music was born. Schaeffer was working with a broken record that repeated the same fragment of sound (see figure 1). While

² Michel Chion. L'art des sons fixés ou la musique concrètement, p.12

³ Michel Chion, Guy Reibel. Les musiques électroacoustiques. INA-GRM, édisud. p. 20-24

listening to this sequence repeated by mistake, out of context, out of time, the effect was surprising and much stronger than what would have provoked the same fragment in his original context. Schaeffer continued working with this idea, observing the behaviour of these fragments and asking the question : « *How to distinguish an element (hearing it in itself, for its texture, matter, colour) ? Repeating it. Repeat the same sound fragment twice : there is no longer event, but music.* »⁴

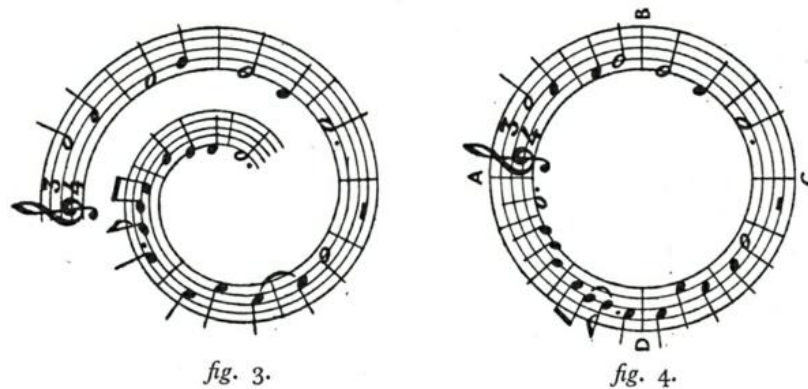


Figure 1: « Le sillon fermé »
 Pierre Schaeffer, *À la Recherche d'une musique concrète*, Paris, Le Seuil, coll.
 « Pierres vives », 1952, p. 40

In June 1948 was presented the first composition of concrete music, Schaeffer's *Etude Aux Chemins De Fer*, consisting of recordings of 6 train engines, cut and edited on magnetic tape. In 1950, the *Symphonie pour un homme seul*, a collaboration between Pierre Schaeffer and Pierre Henry, gave to concrete music its international recognition. Concrete music had a considerable impact on the second half of 20th century's music.

Reflection on concrete music concepts

While reading about this music and listening to the work of its composers, I isolated a few key concepts to understand what concrete music is trying to achieve and how these concepts can lead to a reflection about sound that could apply as well to free improvisation.

I chose five of the ten “commandments” of concrete music, written by Michel Chion in his book *L'art des sons fixés, ou la musique concrètement*. They are fascinating on their own, and regarding the connexion they have with free improvisation practice.

*1. The fixed sound's composer works with sounds and not with written signs, alternating between “doing” and “listening”.*⁵

The absence of formal notation is an essential common point between concrete music and free improvisation. In both these genres, the subject is the sound matter itself in its

⁴ Pierre Schaeffer. In search of a concrete music, p.13. Translation Christine North and John Dack.

⁵ Michel Chion. *L'art des sons fixés ou la musique concrètement*, p.22

entirety. The sound's complexity cannot be transcribed into abstract signs if we want to preserve the sound's absolute integrity (two violins playing the same score will not sound the same). A free improvisation could never be transcribed correctly, neither a concrete music piece could be totally written on paper, whereas a fugue can be written down without producing any sound beforehand. In these two fields, the abstraction of notation would narrow the way we listen to sounds and music.

*2. He separates the sounds from their sources.*⁶

The term "concrete" is not meant to speak about a concrete source, but it means that the composers would listen to the sound as its whole.

*« Thus, a concrete sound is a violin sound considered in all its sensitive qualities and not only in its abstract qualities, notated on the music sheet. »*⁷

Speaking about sources, we should precise that it is not only the tangible object and apparel but also the way the sound was recorded, the manipulations and corrections from which was born the sound we hear in the final product. For example, the violin is played, recorded in a specific room with specific microphones, processed in the studio, played on specific speakers within a particular space. The sound we hear contains all of these steps. Approaching concrete music, we should not ask the question "where do these sounds come from?", but ask what narrative and emotional potential are they carrying within themselves. Otherwise, this music could become anecdotal, like a game played by the listener, constantly trying to recognize the object behind the cause. The composers can not totally escape the anecdote, and it has even been the topic of some compositions (Hétérozygote, Luc Ferrari, 1963). One of the problems created by the sources is the propensity of concrete music to become figurative work. Like an inversion of silent film, the music's narration can be limited to the pictures that come to mind when thinking about the sources. We have the same kind of problems playing free improvised music in concert. The audience can easily focus on the performer's movement (which can sometimes become very theatrical), the visual aspect becoming the main aspect of the performance, or giving out clues of tension and release in the music. The problem might come from the use of noise, and musical instruments being played in an unusual way (use of preparation, extended technics). When we listen to a romantic violin concerto, we could "see" images of nature, using paintings or movies as references to what could be evoked by the music. Still, we would not see the violin being played. Noise played in a musical context encourages the listener to find out which event produced the sound, reach for the source, and look for help in finding signification. Without movement, there is no sound, and when we hear noise, we do not hear an object but an event.⁸ As written by Olivier Revault d'Allones, *« it is like if million years of evolution gave us ears as a kind of permanent alarm system that tells us almost immediately what is happening, when it is happening, and if this event is source of danger, comfort or is addressed to us »*.⁹ Depending on its

⁶ Michel Chion. *L'art des sons fixés ou la musique concrètement*, p. 22

⁷ Pierre Schaeffer. *Traité des objets musicaux*

⁸ Francis Wolff. *Pourquoi la musique*, p.31

⁹ Olivier Revault d'Allones. « Musique et philosophie », in *L'Esprit de la musique. Essais d'esthétique et de philosophie*, 1992. p.37

nature, the event, musical or not, initiates a specific emotional response: tension for danger, release for safety. In a piece of music without harmony, pulse, or any **cultural, emotional references**, the listener has trouble deciding if a musical event means tension or release (like a dominant chord or a tonic) and therefore focuses on the source to give meaning to the sound. But the way we listen can be trained, and through practice, we can take any sound for what it is, sonic matter in evolution, without focusing on the externalities evoked by the sound. Pierre Schaeffer named this way of listening « *écoute réduite* ».

3. *Recording of sound is a postulate of the composer's work.*¹⁰

The sensitive characteristics of sound are, in general, so particular and fragile that they become intelligible only when fixed by recording. It is impossible to ask a musician to reproduce it following a music sheet. For a concrete composer, instrumental music is approximative. Of course, if we take the sound characteristics under the loop, even in the best conditions, fixed sound music also has its own approximations, for example, the way it is played (what kind of speakers) and the space where it is displayed (sound of the room). In free improvisation, the existence of a piece is limited in time by its own length. Only recording it allows the improvisation to exist after it has been played. The same musicians asked to reproduce an improvisation that has just been played would be unable to do so. The survival of this unique musical moment (the survival isn't necessary, the ephemeral status of improvisation can also be part of the artist's statement) is conditioned by the recordings process, the way it is recorded, the way it is manipulated later in the studio.

4. *For the composer of fixed sounds, each sound born from another during studio manipulations is a new sound.*¹¹

As stated by Michel Chion: « *the trap would be to put the original sound, as heard as when it was played for the first time, on a pedestal, thinking that its integrity guaranty the composition's unity.* » We should leave our ears open in the studio and take what we hear as what it is, new sounds with meanings or effects that can be different from the original sound. Listening to the raw recordings of our improvisations, I had the feeling that specific sounds sounded better recorded than live or the opposite. In the mixing process, I tried not to ask myself how to reproduce what I heard while playing but how to “compose” with the recording's qualities and imperfections (not a value-judgment, the recorded sounds are to be considered as independent entities, not as better or worst versions of previous sounds).

5. *There is no hierarchy between sounds.*

In the development of concrete music's history, composers affiliated with the concrete music movement started working with electronics aside from, or in complement

¹⁰ Michel Chion. *L'art des sons fixés ou la musique concrètement*, p. 23

¹¹ Michel Chion. *L'art des sons fixés ou la musique concrètement*, p. 23

of magnetic tape. A distinction was made between *concrete music* and *electronic music* compositions. For Michel Chion, the mistake is, once again, to consider the sound's source, coming from "natural" sounds (recorded with microphones) in the case of concrete music and "artificial" sounds in electronic music (using synthesized sounds). In the music of fixed sounds, there should not be such distinction because the source is irrelevant. Each sound is equal in dignity.

In its development, free improvised music has carried this equity value as a political statement, anti-capitalist, anti-class warfare. Without the cultural bias of pre-established aesthetics, each musician is equal. There is no lead or accompaniment; the piano is not meant to play harmony, the drums do not have to play rhythm, the focus is somewhere else. The improvisers try to consider each sound in itself as an entity without intrinsic purpose. They give it a purpose together by making a decision not as individuals but as a group.

When considering the sound engineer's perspective on working with concrete music compositions or free improvisation, his role is quite different from traditional production. Since there is no "natural sound" in opposition to artifacts or mistakes (for example, an amplifier noise being too loud), there is no "special effect" used to render what would be the truth of the sound.

On timbre

When I think about concrete music and free improvisation, the first word that comes to my mind is *timbre*. When I play/compose this music, this notion of timbre is usually the departure point. Timbre doesn't come alone in a live improvisation, it is put on a frame of time and space. Isolating timbre from these other elements, I would like to try to define and reflect on this notion that we, as musicians, use so much but that is not easy to grasp. The word *timbre* comes from french and acquires its musical meaning quite late. In middle age, it designates a small bell used in monasteries to call religious monks for prayer.¹² Jean Jacques Rousseau is the first to use the word *tymbre* in its modern meaning. The word timbre was born from the necessity of a new concept to describe what, within the sound, isn't a pitch, a duration, or a dynamic: a mysterious component that can't be found on music sheet is here defined, in French, in Rousseau's *Dictionnaire de musique*:

«On appelle ainsi, par métaphore, cette qualité du son par laquelle il est aigre ou doux, sourd ou éclatant, sec ou moelleux. Les sons doux ont ordinairement peu d'éclat, comme ceux de la flûte et du luth ; les sons éclatants sont sujets à l'aigreur, comme ceux de la vielle ou du hautbois. Il y a même des instruments, tel que le clavecin, qui sont à la fois sourds et aigres ; et c'est le plus mauvais timbre. Le beau timbre est celui qui réunit la douceur à l'éclat. Tel est le timbre du violon»¹³

The word isn't much in use in the music circles of the 19th century. It appears more frequently in musical critics and treatises at the end of the century. Orchestral music has

¹² Makis Solomos. De la musique au son. L'émergence du son dans la musique des XXe-XXIe siècles, p.15

¹³ Jean-Jacques Rousseau. Dictionnaire de musique (1764)

integrated the idea of combining instruments to create new timbre (cf Rimsky Korsakov treatise on orchestration, 1891), and the term becomes widely used in the 20th century.¹⁴

In 1912, Schönberg developed in his *Harmonielehre* a concept of timbre melodies with the ambition of substituting pitch with timbre. He explains that timbres can be organized in such a way that it creates an understandable and coherent ensemble that can be called melody. To illustrate this concept, we can listen to Schönberg's *Fünf Orchesterstücke*, especially the n°3 *Farben*, which is particularly illustrative of Klangfarbenmelodie's concept.¹⁵

In psychoacoustic, timbre is about perception and not acoustic, it is not contained within the sound itself, but within the way the listener perceives the sound. Pierre Schaeffer is one of the first to make the distinction between the acoustic phenomenon of frequency and the perceptive phenomenon of pitch. Timbre is about perception, its acoustic equivalent would be the spectrum. In the 1960s, Claude Risset analyzed the spectrum of trumpet's sound, but when he tried to reproduce these sounds with synthetic harmonics, he proved that the analysis of a real sound doesn't match its perception by the listener. Indeed, the artificially produced spectrum was the same as the original trumpet sound but it didn't feel the same.¹⁶

In the 1970s, John Grey (among other authors) worked on a multidimensional analysis of timbre, creating a 3-dimensional map that would describe the timbre of different instruments, using the perceptual relationship between the sources (see figure 2).¹⁷ The chosen instruments' timbre was characterized by a group of musicians trying to identify the correct musical instrument. The study's conclusion reveals three axes that describe timbre formally :

- Spectral energy distribution or spectral centroid (brightness).
- Log attack time (degree of spectral envelop's variation and synchronization of partials attack).¹⁸
- Roughness (related to attack transients).

This method is criticised because the interpretation of these axes is difficult, especially when it comes to the « roughness ».¹⁹

Today, the concept of timbre remains unclear and the tendency is now to simply use the word “sound” to designate a qualitative variable in opposition to quantitative variables (pitch, loudness, duration). That is how we speak about jazz musicians who built their art

¹⁴ Makis Solomos. De la musique au son. L'émergence du son dans la musique des XXe-XXIe siècles, p.21

¹⁵ Makis Solomos. De la musique au son. L'émergence du son dans la musique des XXe-XXIe siècles, p.32

¹⁶ Makis Solomos. De la musique au son. L'émergence du son dans la musique des XXe-XXIe siècles, p.24

¹⁷ Grey, J.M.: Multidimensional perceptual scaling of musical timbre. Journal of the Acoustical Society of America 61, 1270–1277 (1977)

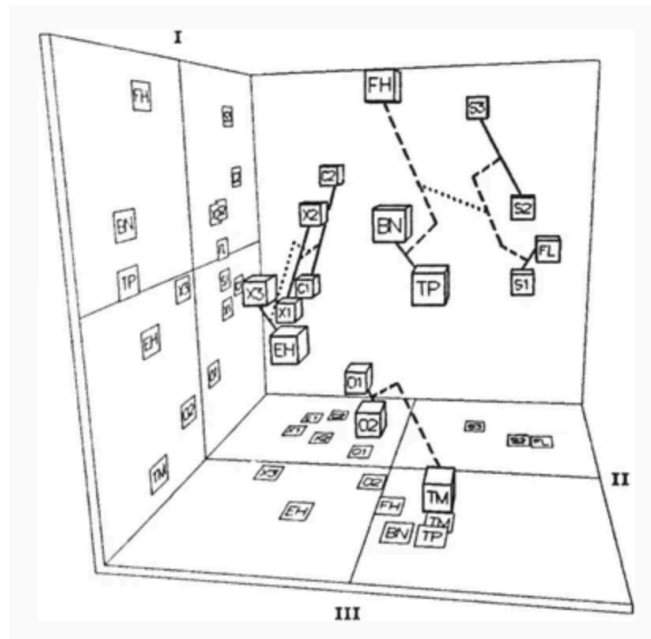
¹⁸ John Ashley Burgoyne, Stephen Mcadams. A Meta-analysis of Timbre Perception Using Nonlinear Extensions to CLASCAL

¹⁹ Makis Solomos. De la musique au son. L'émergence du son dans la musique des XXe-XXIe siècles, p.26

on sound, Miles's sound, Monk's sound, Coltrane's sound. In 21st century music, the timbre or sound becomes the stylistic signature of song producers. When listening to a pop music track, I will not pay too much attention to the chords used or the orchestration usually stereotypical of a genre. What will matter the most is the sound quality and specificity of the production. As instrumentalists, we have to build our own sound. We have to be deeply connected and conscious about it to get to work on our sound.

Figure 2: Grey 1977 timbre space

Grey, J. M. (1977). "Multidimensional perceptual scaling of musical timbres," *J. Acoust. Soc. Am.* 61, 1270.



I = spectral centroid (brightness) ; II = log attack time ;
III = spectral slope (roughness)

The sounds consisted of an Eb4 (311Hz) played by 16 different instruments, electronically resynthesized imitations based on tape recordings normalised to a consistent perceived loudness, pitch and duration.

Instruments : 2 oboes (O1, O2), French horn (FH), 2 alto saxophones played piano and mezzo forte (X1, X2), soprano saxophone (X3), flute (FL), 3 cellos (S1, normal bowing ; S2, sul tasto ; S3, sul ponticello), English horn (EH), Eb clarinet (C1), bass clarinet (C2), muted trombone (TM), trumpet (TP), basson (BN).

During the creative process of the IDP, I recorded an inventory (or a map) of timbres played by Nadav Erlich on his contrabass. My goal was to explore the contrabass's timbre and record as many different sounds as we could find on this instrument. I was then going to compose a piece using these samples. Even if this session didn't turn into a music piece, the process was very interesting for Nadav and me. From the bass player's perspective, Nadav knew what sounds he could play but didn't know on which level of details he should listen to distinguish a sound from another. From my perspective, with no clue

about bass technics, I asked him to play specific sounds and pointed out the moment he crossed the border between one sound and another. During the session, Nadav changed his way of listening to his own instrument. It was beautiful to see him, who plays the bass so well, being surprised by the diversity of sounds and the difficulty to reproduce a simple note when you change the way you listen to it. In my own practice of the piano, I would like to do more this kind of exercise, for example, trying to play a note exactly the same twice, not to be able to do it (impossible and without real musical purpose) but to train the perception and concentration.

On space

For the main part, the composition of concrete music happens inside the studio. It is then destined to be played on speakers in a concert hall, a living room, or whatever space in which it can be deployed. Michel Chion has theorized the existence of two levels of space existing in concrete music.

*“The space within the piece itself, fixed on the tape (and characterized by the level of presence of every plane, the different reverberations surrounding the original sounds,...) and the external space, depending on the listening conditions each time different (acoustics of the concert hall, number/nature/display, use of filters during the concert, the intervention of a sound engineer,...).”*²⁰

The inner space of the piece is part of the sound identity as much as the pitch, the timbre, the dynamics. To play the music in an external space is to modify the nature of the piece itself. The idealistic situation would be to play the piece in a neutral acoustic environment, but sometimes, the environment can be used to magnify and reveal some aspect of the concrete music piece. Concrete composers have developed such eternal space, explicitly created for concrete music diffusion: *the acousmonium*.

In free improvisation, we can say that we play the external space as much as we play our instruments. The music created is conditioned by the space in which it deploys, and each space has its own advantages and issues. For example, in a church with a 10 seconds reverb, we would tend to play with less density, controlling the dynamics. The simplest sounds would become complex, and we could play more with the resonance than with the sound itself. **Playing loud** would be difficult because the sounds are blending and becoming blurred. Whereas a very dry acoustic space, for example, the Regie 2 in Jazz Campus, would make us play denser, the sound dying quickly and impoverished by the absence of resonance. We would maybe tend to create more complex timbres to overcome the dead space. On the other hand, **playing loud** wouldn't be a problem.

The idea of inner space is common to every kind of music (every recording has its own space crafted by the sound engineer), but usually, the use of space is standardized depending on the music genre. Recording a jazz quartet, the sound engineer will try to create a space that gives the illusion of listening to the band at a venue (for example, soloist upfront, the rhythmic section behind). In concrete music, this objective of faithful reproduction is replaced by the creation or suggestion of an « imaginary or poetic space ». Creating space for free improvisation recordings is similar. It leaves a lot of freedom and can be a compositional process on its own. For example, the smallest details of the sound,

²⁰ Michel Chion. *L'art des sons fixés ou La musique Concrètement*, p. 50-51

barely hearable in reality can be put up front. The instruments can be placed so that their physical integrities melt into one another to cover the tracks of who is playing what. Without changing the sound's nature, the use of space can completely change the record's identity.

On time

In concrete music and free improvisation, the perception of time is not necessarily related to a specific pulse, subdivision, or meter. In both genres, a pulse can appear and even be at the core of the composition/improvisation, but it is not the result of a mathematical grid framing the musical flow. The subdivision usually stays out of sight and is suggested by a sum of events. It is then the choice of the composer or the improviser to brighten it to light or not. The main idea is that you can hear rhythm in everything surrounding us. The most complex polyrhythms can be extracted from a pan falling on the floor, a bird flapping its wings, a door squeaking in the wind. It is even easier to do it in our modern environment, every machine respecting strictly a rhythmical rate of production, the faster, the better. The question asked by these kinds of musics freed from pulsed time is: How can there be motion without meter?

I find a key element in Ekkehard Jost's description of Cecil Taylor's treatment of rhythm²¹. He compares Taylor's rhythmical work in his solo recordings to « a sprinter, who in a fully unpredictable manner, moves forward while constantly changing his pace ». The change of dynamics, from soft to loud, accompanied by a change in density, from sparse to highly dense, in a definite amount of time gives a sense of forward motion without pulse. It is also true for the inversion of this principle, going from highly dense, and loud to sparse and soft, we can create the illusion of *rallentando*. The same kind of forward motion can be achieved in concrete music with the intrinsic changing qualities of the chosen samples or using collage technics.

From a philosophical perspective, Gilles Deleuze develops the idea of non-pulsed time in a speech he gave in Paris at the IRCAM during a conference on musical time. Time can be crafted by the use of elaborated material, consisting in individualities not related to a subject (for example: the wind, an hour, a temperature, an event...) in opposition to the individuality related to a form or a subject (a theatrical character, a blues form).

For Deleuze, a non-pulsed time is a duration, freed from the bar, consisting of a sum of heterochronous, heterogenous pulsed time. To articulate these non-simultaneous durations, we choose not to use the general solution that is to impose, by intellectual constructions, the synchronicity of these durations, using a bar, a meter... These durations can interact and create motion by associating them, creating *molecular couples*, vibrating in a pace that can't be transcribed on paper in the case of concrete music, ensuring the communication of motion. Deleuze substitutes the notions of note and rhythm by the idea of *sound molecules able to get across layers of heterogenous durations*²². Non-pulsed music is not a raw material receiving a form by the mind but a coupling of elaborated

²¹ Ekkehard Jost. Instant Composing As Body Language. Liner notes from Cecil Taylor in Berlin '88, FMP

²² Gilles Deleuze. Conférences, Le temps musical, IRCAM, 23/02/1978

material allowing us to hear soundscapes, audible colors (not by synaesthesia or association but by essence), rhythmical characters.

How do we listen ?

Pierre Schaeffer describes three directions musical listening can take from an average listening activity (see figure 3):²³

- Towards the sound's origin: the clues (*indices*) concerning the sonic physical events (What did create the sound? By which mechanism?).
- Towards the sound's values: its meaning (*sens*) related to a specific musical language (its effect, tempo, dynamic, tuning; its structural role, theme, counterpoint...).
- Towards the sound itself (*écoute réduite*): the way musicians work on their own instruments (crafting their sound), or how concrete music's composer work with their sonic material, cut from the sound's origin and meaning.

In our « traditional » musical practice, the three ways are interconnected. We constantly switch between the first two kinds to perform the music, identifying the musical events happening around us and decrypting their meanings to react in the appropriate way depending on the musical language at use.

For example: we play a jazz standard, on top of the form the drummer takes the lead but after 8 bars the saxophone comes in. We listen to the origin of the sound (the drums) and understand a structural role (drum solo). We listen to a signal (saxophone) and its meaning (no drum solo, we trade!).

Sometimes, when we play music that we know very well, we can achieve a state of presence that allows us to leave the origin and meaning behind and cut straight to the sound itself.

Jean-Luc Nancy writes about this state of presence in musical listening:

*« This presence is thus not the position of a being-present: it is precisely not that. It is presence in the sense of an « in the presence of » that, itself, is not an « in view of » or a « vis-à-vis ». It is an « in the presence of » that doesn't let itself objectified or projected outward. That is why it is first of all presence in the sense of a present that is not a being, but rather a coming and a passing, an extending and a penetrating. (...) It is a present in waves on a swell, not a point on a line; it is a time that opens up, that hollowed out, that is enlarged or ramified, that envelops or separated, that becomes or is turned into a loop, that stretches out or contracts, and so on. »*²⁴

In free improvisation, we don't necessarily have to interrogate the meaning or the origin to interact. Since there are no pre-established aesthetics, the language we use is potentially (and hopefully) invented as it's being played, and the « rules » can change very quickly. The instruments can be played in a traditional way, but they can also be hijacked by the musicians from their usual role or sound repertoire. The sound's origin doesn't really matter anymore. Of course, we can't turn away from looking for meanings and

²³ Pierre Schaeffer. *Traité des objets musicaux*, p. 152

²⁴ Jean-Luc Nancy. *A l'écoute*, translated by Charlotte Mandell, p.33

sources so easily, but we can be conscious about it and train our *écoute réduite* to get to this state of being-present.

Figure 3: The three listening intentions

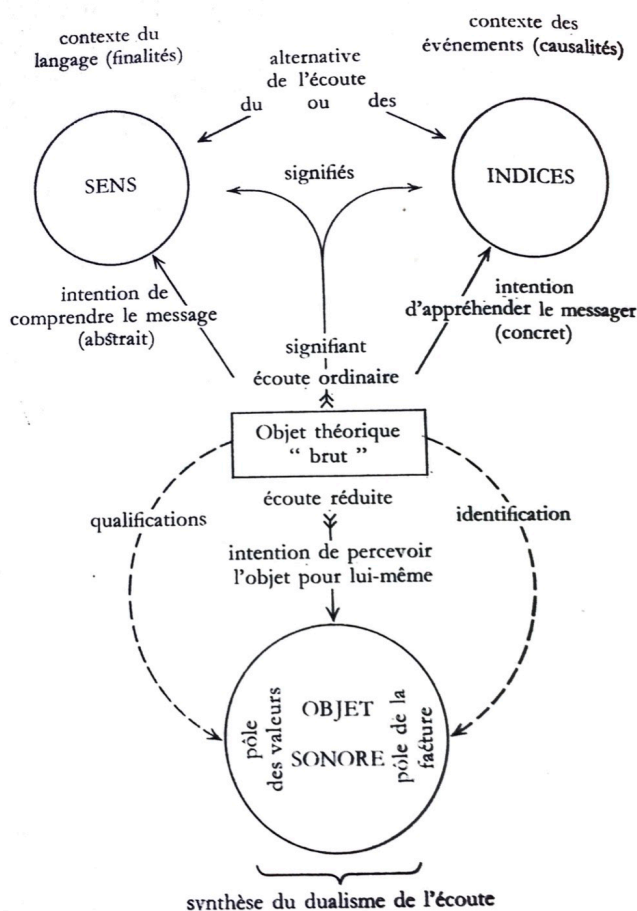


FIGURE 2
Bilan final des intentions d'écoute.

Pierre Schaeffer. *Traité des objets musicaux*, p.154

We can already find this duality in listening (perceiving signs and significations, listening to the sound itself) in Friedrich Nietzsche's reflexions on music. He makes the distinction between two kinds of listenings: *genealogical listening* and *musical listening*. The first one is described as the way someone « *alone with his soul, listens to the echoes of everything that his extreme solitude takes in, resonating on the walls of his inner cavern and learn how to decrypt it (finding its signification: danger, enemy presence...)* »²⁵. This way of listening isn't about sound itself but about what it means. Whereas *musical*

²⁵ Bastien Gallet. *Les labyrinthes de l'écoute : Nietzsche, le monde et la musique*, p.4

listening doesn't interpret or decrypt. It is tensed toward what lies inside the sound: timbre, pitch, duration, dynamic.

This vision is similar to what Schaeffer writes, but Nietzsche's work underlines another dimension in the phenomenology of listening: the openness it requires. To listen is to let the world breaking into the intimacy of our thoughts: « *the sky of abstraction streaked by lighting* »²⁶. To be open to the world of sounds without interpreting them (looking for signification) is like a process of incarnation: our body being filled by sound resonates with it. Listening opens an « inside-outside space », like a Möbius strip²⁷, the sound, once internalised, causes a chain of reactions, a movement of musical expression, an energetic cycle between our body and what surrounds it. The process in free improvisation consists of this movement of back and forth: we listen and produce sounds, in a perpetual oscillation between what happened and what could happen, what's inside and what's outside. Sound is the source of emotions, and it is these emotions that make us move and play.

Musical experiment : Train Collage

After reading about concrete music and listening to it, I had to experiment with the production of an original concrete music track. Remembering the origins of this music, I decided to focus on sounds related to trains (train's engine, sirens,...). I collected free-to-use samples on the BBC sound effects website (see figure 4).

Pitch	Noise + Pitch	Noise
<ul style="list-style-type: none"> - Distant train siren - Diesel train siren (x4) - Steam train siren (x4) - Talking train toys 	<ul style="list-style-type: none"> - Steam train - train guard's whistle - departs - Train-warning bells at crossing - Steam train at high speed with whistle, right to left 	<ul style="list-style-type: none"> - Train crash - Steam train, screech of brakes - Steam train passing slowly, right to left (x2) - Steam train starts up steep gradient, passes left to right - Door of steam train closing - Model railways Hornby O-Gauge clockwork train - Electric train - compressor running

Figure 4: BBC Sound Effects samples

²⁶ Friedrich Nietzsche, *Le Cas Wagner*, lettre de Turin, mai 1888

²⁷ Jean-Luc Nancy. *A l'écoute. Les chemins de la musique*, France Culture, 2002

Without trying to organise the composition on paper, I started to work directly on the computer, « improvising » with ProTools. I worked first with the rough material, editing the samples to extract the part I wanted to use. I organised the samples into different categories: shhh (continuous white noise-like sounds), cliquetis (high pitch metallic noise), low noise, bells, sirens, trains engine. I worked mainly by association, trying to find sounds that work well together. I experimented with different plugins to craft the inner space of the piece, emphasize details, and sometimes change the nature of the sounds radically.

Plugins :

- EQ : Fabfilter Pro-Q 3, PuigTec EQP-1A
- Compressor : Fabfilter Pro C-2, PuigChild 670
- Reverb : Fabfilter Pro-R
- Others : Soundtoys Crystallizer, Soundtoys Panman

I did not have much experience with ProTools or with production in general, but I spent time with the sounds, trying things until I was satisfied with the result. Through the creative process, I was constantly adjusting the plugin's settings, changing the associations of sounds, and through these goings and comings and ended up creating almost subconsciously the composition's narrative form.

From this draft made exclusively out of concrete sounds, I took out arbitrarily some elements to make space. At that moment the piece felt busy and without enough contrast. I went back to the piano and recorded myself improvising over the track. I cut the piano recordings and used short parts of them as samples integrated into the composition. A kind of memory of instrumental music lost in the middle of concrete abstractions.

The last step was to automate specific reverb associated with specific sound categories to create different feelings of space throughout the piece.

After all the theoretical research I had done on concrete music, it was important for me to live the compositional process of this music, to understand it better. In the practice of free improvisation as a pianist (it may not be true for a percussionist), I'm working with musical elements that can be distant from pitch but rarely with harsh noise like the sound of an engine or a slammed door. This experiment made me listen to this kind of noise at a level of detail that I had not reach before. The way the composition appeared through my divagation gave me a similar feeling to the end of an improvisation when after diving for a while in sound, you look around and remember vaguely the factual events that took place but the feelings involved remain strong. The key to breaking the musical code is given only at the very end of the process after listening back and analyzing.

I would analyze this piece by defining its form : A B A'

A : calm, low-density atmosphere consisting mainly of soft continuous sounds flowing around, metallic clicks, and some abstract piano sounds (no keyboard-related sounds).

B : increased density, lots of bells, sirens, low noise, strong engine's sound, and trains passing by, the piano comes at the end of this part playing chords and melody in the distance.

A' : coming back to the introduction's atmosphere, but a complete sample of a train passing slowly is conserved, we hear a bird at the end (the only sound not produced by humans hand), the piano finishes the piece with its whale-like calls similar to the end of the first A.

On a musical point of view, I am not completely satisfied with the final product, especially when it comes to piece's inner space, which could be more contrasted and serve the narration better. I also used a lot of different sounds (that I mainly didn't record myself, that could have helped), maybe too much. A more minimalistic approach could have served the piece better. My lack of real training with the studio tools and the fact that it is my first concrete music production makes it the first steps of a long trip that I could take in the future but is not part of the final project, but the audio file will be provided separated from the official IDP music production.

Transition

All these reflections, concepts, association of ideas, correlations between the two very different aesthetics that are concrete music and free improvisation have the main purpose of remembering and acknowledging in a deeper and more meaningful way this culture of sound that makes this music relevant and enjoyable for me. To be more conscious of this possibility that is offered to us, to listen to the world that surrounds us, giving it a musical weight, can undoubtedly be a tool to open new doors and take the music to a different place, no matter the style. In the next chapter, I will focus on the recording of MONDE(S), the music that was born from these reflections.

« It is not an absolute ear but an impossible one, that can briefly arise in someone, when the music elaborates a sound matter that renders audible forces that are not audible in themselves. »²⁸

²⁸ Gilles Deleuze. Conférences, Le temps musical, IRCAM, 23/02/1978

Part II : Monde(s)

From the theoretical research on concrete music, its philosophical, scientific, and historical concepts, to the fundamental question of what happens when I improvise, I believe in the possibility of a transfer phenomenon leading this knowledge to land on my practice of free improvisation and hopefully making it better. The piano is an immense instrument. It allows the existence of an infinity of poetic universes, waiting to be incarnated into sounds.

Before recording

During the second year of my master's degree, I organized sessions with many different musicians, mostly duos and trios but also with quartet and quintet, with various instruments (saxophones, guitar, drums, clarinet, oud, violin). I enjoyed the variety of the music produced in these different ensembles, but for this particular recording, I choose to stick with the duo, similar situation from the album I recorded in September 2020 with the drummer Jordi Pallarés Barberà. I played a couple of sessions with the guitarist Martin Theurillat in a jazz combo situation, and I was struck by the quality of his sound and how he played with it. We get along very well, and even if he didn't have a lot of experience playing free improvisation, it felt natural to ask him to try things out. To prepare the recording, we played five sessions together without discussing the music very much. Playing with guitar (even electric guitar backed up by a satisfactory amount of pedal effects), I missed a bit the more percussive sounds, and throughout the sessions, I found myself playing more and more inside the piano and preparing my instrument to get these sounds in my inventory. The guitar and the piano have the tendency to play pitched and resonant sounds and I wanted to compensate for this similarity by taking a more percussive role in the duo.

Before the recordings, we discussed the possibility of preparing a few textures that could appear (or not) during the improvisation, but we finally didn't formally prepare any arrangements or signs that would lead the music somewhere. But these conversations were helpful in the sense that they helped us knowing better each other's tastes. For example: we both love very much the idea of harmony emerging at the surface of atonality, or a rhythmical groove slowly getting revealed in the background of an anarchic flow. To acknowledge these elements probably oriented the improvisation towards certain places but we wanted it to stay a collective decision, coming from our ability to feel what the music wants. Without wishing to sound mystical, I believe that at some moments, we can reach a « level of mystery » in the feeling of music. Evan Parker describes this kind of connection in John Corbett's *Listener's Guide to Free Improvisation* :

« I think that it is more interesting when the process is lost and things happen that are clearly the result of an understanding, but the understanding is no longer worked

through at the overt, explicit level (...) the fact that there's an understanding is clear but quite how it works is moved to a level of mystery (...) »²⁹

And hopefully, the music we played with Martin contains this mysterious component.

The recording session

For the recording (and the mix), I asked the help of Raphel Rosse. Together, we set up the microphones in the Saal of the JazzCampus, and Raphael took care of the recording while Martin and I were playing.

Miking the piano :

- Schoeps CMC U 6 (x2), close to the hammers
- Brauner VM1(x2), inside the piano's body
- DPA 4006A (x2), outside the piano, a meter away
- Neumann TLM 170, close to the objects which were put inside the piano in the high register, ready to be used

Miking the guitar :

- Soyuz 019, close to the amp
- Coles 4038, apart from the amp

Miking the room :

- DS BM1 ruban mic (x2), on the back of the room in height

For the piano preparation, I strictly followed the rules, to insure not to harm the piano.

How to prepare a piano safely?

- Always wash and dry your hands to avoid the excess oils
- Always press and hold the damper pedal down before inserting or removing anything between the strings
 - Don't use hard metal on strings. Prefer soft material
 - Never pluck something close to the dampers
 - Never pluck something that doesn't flex at the string's extremities

²⁹ John Corbett. A listener's guide to free improvisation, p.109-110

Set of piano-preparation tools :

- Small magnets: placed on the strings to get the harmonics out (sometimes with metallic ringing sounds), or to mute the very high register
- Large magnets: placed on the cast iron plate, percussive metallic sounds
- Ebow (x2): on the strings, harmonic resonance
- Sponge: various uses, mainly rubbing the lower strings to get a cloud of low rumble, and on the tambourine
- Plastic wedge: to mute the lower strings
- Sticks (drum, gong,...): played on the strings, the plate, the tuning pins
- Sextoy: independant string stimulation
- Clothespins: adding a buzz on the lower strings
- Plastic card: to scratch the lower strings

Percussions set :

- Small tambourine: played with sticks or sponge
- Castanets: on the tuning pins, wooden clinging
- Glass: played with sticks

We started recording without giving any pre-established directions. After a couple of takes, we decided to focus on short forms (2-3 minutes) and focus on straightforward musical ideas. Martin and I played a fair amount of takes (overall 2 hours of music), and at the very end, I recorded one unexpected piano solo improvisation.

Mixing

The mix was done by Raphael Rosse. I worked with him during the whole process to set the direction and make aesthetic choices on some of the tracks.

From all the music that we had recorded, I selected eight tracks (7 duo pieces + one solo piece). The tracks were left uncut, no editing was done. In the previous album I had recorded, the forms we played were very long (up to 30-40 minutes) and the editing process had a significant impact on the final result compared to what we had played in the studio. With Martin we chose to record concise forms and, even without a conscious decision, we ended up playing forms that were not longer than 10 minutes. As a result, the identity of each piece is very clear, we stay with one or a few ideas and I didn't feel the need to cut anything from the complete takes.

The raw recording already had great acoustic qualities before mixing. I wanted to have a very detailed sound, to hear very close all the little sounds that I'm doing inside the piano. The piano sound recording had this quality (by pushing the Schoeps and Brauner pairs more than the DPA). From the start, we had our head inside a large piano stereo image. The TLM 170 helped to get the very close sounds played on the few percussions and objects used separately from the piano. The room itself gave a beautiful space to the recording, and I asked to use as little reverb as possible to keep the recording's transparency. The piano occupies the whole space (lows on the left; highs on the right)

and the guitar is usually in the middle. The idea was to have the guitar « inside » the piano and for the track n°7, in orbit around the piano.

Plugins used:

- Fabfilter Pro-Q : low cut, removing resonating frequencies.
- Fabfilter Pro-C 2: bring out sound without changing the sound color.
- Puig-tech EQ P1A: less precise than Fabfilter but build up the sound's character, adding bass and highs to enlarge the sound.
- Puig-child 670 (stereo) or 660 (mono): getting the sound closer and warmer.
- V EQ 4 (Waves): sometimes the piano and guitar were playing in the same frequency range, and the guitar was sometimes « eaten » by the piano sound. To fix the problem, we removed highs (2kHz) from the piano, and added highs (2kHz) to the guitar. We added also very highs (10kHz) to the piano to bring the metallic and percussive sounds.
- Lexicon Random Hall: a little of reverb to add deepness.
- Decapitor (Soundtoys): adding harmonics and color to bring out the guitar.
- API-550A and B (Waves)
- S1 Imager (Waves): to expand and bring out sounds.
- PanMan (Soundtoys) : used on track n°7, to pan randomly the guitar around the piano chords.
- Lexicom Plate: reverb used on the guitar on specific locations to hold off the sound.

The post-production process for MONDE(S) was very different from what I **experiences** during my previous free improvisation production. The raw material was already excellent, and I didn't feel the need to compose or transform it very much. We kept the complete takes, and worked mainly on the recording's feeling of space, looking for a good spot for the guitar in the middle of this wide piano sound. The most challenging aspect was the balance between the two instruments. The guitar felt a bit thin in comparison to the piano. By adding some saturation and high frequencies, and playing with the panning, we could manage to make the best out of it. Another interesting detail is that, by pushing the guitar sound to a certain level, we got the amplifier's noise audible, which wasn't very good news at the beginning, but I finally enjoy it. It gives a kind of background grain that is not unpleasant.

About Monde(s)

MONDE(S)

1. L'horizon des événements
2. Chute
3. Entreciels
4. Alignement
5. Contrefort
6. Galop
7. Satellite
8. Isola Nera

Alexandre Cahen: prepared piano and percussions
Martin Theurillat: guitar (on tracks 1, 2, 3, 4, 5, 6, 7)

Recorded and mixed by Raphael Rosse at JazzCampus, Basel

I did not want to write a formal analysis of the music, but I'd like to give some insights and bring out some elements, emotions and images that I particularly enjoy in each specific piece.

1. L'horizon des événements

The first piece is actually the first take of the recording session. It feels to me like a musical handshake, a bit shy, but fresh and leading to an interesting narrative. The beginning of the piece is composed from short and sparse elements. We were then going through melodic development and pattern repetition, exchanging motifs and roles between the piano and the guitar. The density of the sound increase to the point of a continuous and unpitched sound. From drops to cloud. This treatment of density is for me the core of the piece.

2. Chute

The piano takes a very percussive role in this piece, playing inside the instrument with wooden hits. The guitar plays sliding pitches, floating around until the epilog. A low note played by the guitar will trigger the piano's low register cavalry giving a feeling of emergency, rushing to the end. The beginning reminds me somehow of traditional Japanese music, with its wooden percussive *accelerando*, short sounds of strings with no resonance. It is a story of cracks and wounds in the wood, leading to a sudden breaking point and fall on the forest's ground.

3. Entreciels

This piece sounds to me like a fixed image of a changing landscape. The melodic fragment repeated with slight variations throughout the music is like a sign written time after time in calm water, creating waves as it appears and disappears. Around the melody, harmony is developed as well, coating the melody in ethereal clouds of sound.

4. Alignement

The beginning of this piece sounds similar to the first one, but it takes an entirely different path, getting progressively in a non-metrical but steady rhythmical flow. During the first 2 minutes, the guitar and piano test each other until they finally reach synchronization. The rhythmical, melodic and harmonic development continues in a more or less conventional spontaneous arrangement. I kept this take mostly for the first part. I enjoy very much the tension created by the slight desynchronisation of the 2 instruments looking for common ground or resisting the rhythmical gravitational attraction.

5. Contrefort

In this piece, we come back to a « landscape piece » model like n°3. This time the continuous sounds are disturbed by percussive elements of various dynamics. Even though no silence occurs throughout the piece and the sounds remain similar, the variation of density, the treatment in layers of different registers creates a feeling of motion through timbre evolution. Rocks falling down from a cliff in the mountain's shadow.

6. Galop

This concise form is like an image of momentum, a fiery galloping horse captured on 35mm that suddenly disappears when the film roll runs out.

7. Satellite

Another short form, here the piano plays harmonic chords and melody with the guitar orbiting around it. The shy ballet of celestial objects, one almost too far away to be observed, still attracting each other throughout space. The improvised harmonic progressions and the guitar sound's finesse give the music a character of fragility that I love.

8. Isola Nera

The last track of the album is a piano solo. It was the final and only solo take of the recording session. The piece is built on a wide variety of sounds. It has an interesting narrative arc, with lots of surprises, abstract and pianistic moments. Maybe because I was exhausted from the long session, or because I had not planned to play solo, I felt present and played without any tension, taking the time to listen.

Conclusion

In my work, I try to demonstrate that concrete music and free improvisation have in common a certain way to listen, focusing on sound itself and not on the means of sound production (*écoute réduite*). They share an openness to the sound of the world (noise, artificial or natural sounds, instrumental music) and a critical spirit that is not based on cultural conventions. They treat both space and time differently from many contemporary music genres: creating imaginary poetic space, far from physical reality, and using timbre and non-pulsed duration to create momentum and motion.

Of course, we can take the analogy to a certain level, but contradictions appear as well. Concrete music depends on recording technology and can't exist without it, whereas free improvisation does not have to be recorded and can live its ephemeral life in concert. The temporality of creation is also different: in free improvisation, the creative process happens while playing, and there is no repetition possible until the music is recorded. As improvisers, we are dependant on our ability to play « in time », whereas concrete music composers have the possibility to record their sounds and repeat them as much as they want or need. The moment when free improvisers and concrete composers are the most similar is during the post-production process. At that point, there is an infinite amount of time to listen and make choices.

This specific temporality of free improvisation also questions the relationship to the body that is crucial in free improvisation. It also speaks about our ability of being free from pre-established cultural and aesthetic judgment and play the utopia of « what the music wants to be ». Being inside the action, the musicians have to work with intuition, without having the time to take a step back. The musicians can't completely filter out their cultural backgrounds. But it is not necessarily a bad thing! I don't want to deny the existence of taste and playing with Martin, knowing each other, we could build our music on ideas that wouldn't leave anyone behind while still being surprising. In this sense, we played more *towards* than *against* each other. In future encounters, we could experiment more with this aspect of the music.

I am critical of my ability to conduct the post-production myself. In my Train Collage, I naïvely « improvised » with the studio tools like if I was given a new musical instrument. Something came out of it but it was frustrating to run so fast into my technical limitations. This is why the help of Raphael Rosse when it came to record and mix the duo was crucial and allowed me to make decisive choices that could be genuinely accomplished thanks to his expertise.

In the end, I think that the fundamental notion which led me to work on these topics is my interest in *Music Research* in the broad sense, incarnated into concrete music and free improvisation. The technics, physics, psychology, and philosophy of perception, all in relation to the long history of musical evolution. It might be in vain and the present work reaffirms that at the end, and no matter what I know or don't know, the music exists on a plane that is away from all these considerations.

Most importantly, I want to keep on exploring this process of creation, not to find truth in it but to confront its mystery.

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