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Mixing the Immiscible: Improvisation within Fixed-Media Composition

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Abstract

This paper will explore ways in which mastered improvisation practice, with the studio as an instrument, is a proposed avenue to bridge the historical dichotomy between what Ted Gioia describe as ‘the aesthetics of perfection’ and ‘the aesthetics of imperfection’. It is proposed as a way to re-embodiment fixed music, as experimented by the author through the composition of his last fixed-media work. This will be put in the context of a wider trend observed amongst the current emerging generation of composers interested in the aesthetics of the work, by opposition to the previous generations that placed the value of the work in its poetics. The vital and primal importance of practice outcome as practice-based research’s main document will also be advocated for, as these trends are happening in the laboratory of live music.

1. A Research Context

1.1 Disclaimer: on Practice-Based Research

This paper is a tale from the field. It is a report from a practitioner whose research is mainly practice-based: composition, performance, and improvisation of electronic music, with or without instruments, within different musical scenes. The author is not a musicologist, at least in the historical or analytical definition of the field; if a wider definition of the field is accepted¹, then the author has many musicological activities: pedagogue, producer, technical-artistic- and production-director of concerts/festivals/conferences, director of electronic music studios, and computer programmer. However, all of these are the fruit of his practice, are completely at its service, and therefore their perspective is highly biased.

Such a view is not necessarily a bad thing, as many other subjects have embraced this bias for its strengths. In anthropology, for instance, it is now accepted, though frequently questioned and criticised², that the field anthropologist will write highly biased reports. There is a good reason for this: to be able to understand the subtleties of a culture, one needs to live in the cultural area one is specialised in, inducing personal bias; we can see such a practice as a bottom-up perspective. Armchair anthropologists, on the other hand, will have a top-down view: taking multiple reports from adjacent cultural area, they will be able, with their critical

¹ Here the author refers to the German tradition of the term, as illustrated in (Duckles et al.).

² An interesting text showcasing the tension in this field is (Ingold and Ingold).

distance, to establish trends, taxonomies, tangents, which are impossible to view from the terrain, yet are essential to the healthy evolution of the comprehension of a wider area.

We can see musicologists as these analysts. They capture the overall tendencies of the field, whatever is their speciality: for instance, analysis of recurrent musical memes³, performance practice of chamber music with electronics⁴, concatenative-synthesis engine design⁵, and the more obvious biographical elements of an influential composer⁶. These models and taxonomies, once disseminated, are then in turn questioned, pushed, blurred and dissolved by the practice-based researchers, namely the composers and performers, through their use and abuse of these tools and ideas within their practice. We can see this dynamic between the two approaches as a very rich symbiotic system, where both parties strive on the other's successes.

It is important at this point to stress the primacy of the output itself as the main outcome of practice-based research: reports such as this paper are secondary comments, biased field notes, and therefore one level remote from where the research happened. They are needed, as they offer unique insight on the practitioner's interrogations, influences, and perspectives; however, their value is only assessable through the value of the main outcome, i.e. the work itself. In other words, if the music is not relevant to its community, and does not give by itself new proposals, original questions, clear hypothesis, and innovative answers, to the specialists of that practice, the paper is of little if no use.

It is also interesting to note that many individuals practice both sides of the discipline: it is not rare to see a composer doubling as analyst, or a performer doing historical musicology. However, most will agree with this statement from improviser Derek Bailey, as an introduction to the second edition of his seminal book *Improvisation*:

‘Turning once again from improvising to writing about improvisation was done reluctantly; they are very different activities, it seems to me, and not always compatible.’⁷

The author therefore asks the reader to take this paper as a modest observation of the field, from a single perspective of fieldwork, and to be balanced against the quality of the works themselves, and most importantly against other such reports by other practitioners. Some conclusions and observations will hopefully be useful and inspirational.

1.2 A Multi-Faced Project

The Mixing the Immiscible project was based around a year-long composition sabbatical, mainly used to realise a series of four studio residencies towards the same number of works, commissioned to the author by four leading electroacoustic music research centres: INA's *Groupe de Recherche Musicale* in Paris, *Miso Music Portugal* in Lisbon, the studio of the *Technische Universität Berlin*, and *Musiques et Recherches* in Brussels.

The main research focus of the project was to further the merging of the author's practices, namely studio composition, post-free-jazz improvisation (on laptop and bass guitar), DSP coding, and a strong past experience of popular music production. This aesthetical research

³ (Jan)

⁴ (Berweck)

⁵ (Schwarz, Cahen, and Britton)

⁶ Here the list is endless. The latest in-depth reading of the author is a thorough analysis of Nietzsche's relation to music in (Liébert).

⁷ (Bailey)

had been started in 2001 and its first phase's findings have been articulated musically through the hour-long piece for free-jazz drummer and electronics *la rage*, and articulated through the written commentary that accompanied the work in his PhD submission⁸.

However, the research in the current project was more acute, in that it did not want to rely on the physical presence of the performer/improviser to bring elements of the post-free-jazz world within the fixed-media music. The name of the project makes this research in shades of grey more explicit, between easily identifiable extremes, yet what is immiscible remains to be explained. It was presented under three angles: 1) improvisation within the studio; 2) a hybrid future to acousmatic, or post-acousmatic; and 3) performing the studio as a musical instrument. Another way to frame this research is how to bring critical improvisation practice in the studio to propose embodied post-acousmatic composition. In order to answer these questions, the author explored ways of deconstructing his different practices mentioned earlier, to allow a further integration of the performance aspect in the studio at the time of composition.

To make this integration simple, it could have been tempting to realise a series of 'takes' of different improvisations and to edit a perfect version of each, yet it would have missed the main aim: the focus of the research was more on the grey zone between studio composition and performance practice to answer questions such as: 1) how to capture improvisations on DSP and acoustic instruments within the environment of the composition studio, whilst maintaining gestural freshness? 2) How does the expressive virtuosity of instrumental performance translate into the studio compositional process and influence it? 3) How to deal with improvisation's inherent imperfection of gestures within the studio, where deferred-time would allow their refinement to near-perfect results by taking the time and means to improve them?

Herein lies the originality of this project, at the cross-over point of both worlds: the exploration of the back-and-forth process between improvisational performance on one hand, and its editing and further transformation as a studio composer on the other hand, in an approach similar to that of some daring popular music producers⁹. If Jon Appleton¹⁰ talks about a dichotomy between the studio monologue and the dialogue of improvising with others, the author wanted to find ways of engaging in a dialogue with himself, in order to fill this artificial gap.

The final works, released as a single DVD-audio on Empreintes DIGITALes¹¹, vary in style, intensity and sonorities, but they all share these same questions at their genesis. Moreover, the methodologies were further developed along the way, with the same desire to capture the interaction and the tensions between the two opposite approaches to the studio. This paper offers some hints on that compositional methodology, some practical considerations and some findings relating to both approaches; it also shares short observations on the different musical scenes visited, as well as reflections concerning a current shift in focus amongst a younger generation of composers.

⁸ (Tremblay, "A Portfolio of Compositions")

⁹ The literature on the subject is very varied, very often in the form of interviews and testimonies in specialised magazines such as *Sound on Sound*, although more thorough academic analyses of practices and influences have started to emerge, for instance (Moorefield).

¹⁰ (Appleton)

¹¹ (Tremblay, *Quelques Reflets (Audio DVD)*)

2. On Improvisation Practice

2.1 What is Improvisation, or Post-Free-Jazz Critical Improvisation

For this article, the author's practice of post-free-jazz critical improvisation will be implied, which is in need of a clear definition of what it entails, and how it differs from other typical uses of improvisatory techniques used in electroacoustic and elsewhere.

The improvisatory exploration of the studio was always, and still is, at the centre of electroacoustic composition. The classic *séquence-jeu*, as defined by the first generation of electroacoustic composers¹², allows the composer to get sound material out of an object or a piece of equipment by 'playing' with it, in a sort of improvisatory game. These composers tend to talk about composing in the studio as a two-part process: generating a pool of material, and then composing with it. We could define this approach as constructivist, as they use the studio itself as an instrument to experiment with their source material, before deciding what to use from this experience to compose the piece. This often goes hand-in-hand with the discourse of ultimate control of the final music. This precision and fixity of the final work by the composer leads some critics to consider it the nearest possibility to the aesthetic of perfection¹³.

However, professional improvisational practice, whether on laptop¹⁴, DSP instruments¹⁵, or acoustic ones¹⁶, has a completely different ethic: improvisation is not a means to generate material to be filtered later on by the composer; it is rather an art of composing in real-time, more often than not within an ensemble context. Post-free-jazz practice also takes a clear stance on virtuosity: an interesting denomination proposed lately is 'Critical Improvisation', where the quality of the music is based around the ability of the performer to generate a musical outcome, by opposition to 'Inclusive Improvisation', where its quality is mostly based on the participatory element of an event where everyone is welcome¹⁷. It is also opposed to a certain vision of real-time musical production that stems from American experimental music, where rules are to be followed to remove the taste of the performer from the equation¹⁸: in critical improvisation, the ensemble's summative musical result is acted upon, and the ability to adapt to a musical situation (or to trigger it), to listen to the ensemble and to participate to the musical discussion, are key criteria of quality. The musical personality of the improviser is also valued, as it is a music that still relies mainly on oral tradition, with its agents sharing a common wide musical culture. It is with this critical practice and ethos that we will use the word now on.

2.2 Improvisation and the Studio

The arguments in favour of improvisation are as varied as there are different practitioners: some argue that it gives back music its spontaneity and *raison d'être*¹⁹, others say that this art

¹² Marcelle Deschênes, Francis Dhomont, Bernard Parmegiani, Guy Reibel and Annette Vande Gorne have talked about it extensively, amongst others.

¹³ (Hamilton, "The Art of Recording and the Aesthetics of Perfection")

¹⁴ (Barrett)

¹⁵ (Casserley)

¹⁶ (Bailey)

¹⁷ For an interesting academic analysis of improvisation within different settings, one can peruse the online journal 'Critical Studies in Improvisation' at <http://www.criticalimprov.com/>.

¹⁸ (Kostelanetz)

¹⁹ (Bailey)

is dealing with the humanity of imperfection and risk²⁰. In any case, most critical improvisers agree that professional improvisational practice requires years of training to reach a real-time musical transparency on the instrument, whatever the musical idiom in which this improvisation takes place. Mastery of the instrument, in other word virtuosity, is fundamental to this music, yet most practitioners refer to a state of flow, a heightened awareness of the moment, of letting go of intentions. Interestingly, this paradox is embraced too, and most performers talk about aiming for a transparency, where the instrument is rehearsed to the point of disappearance during the performance. Again, Derek Bailey's book has interesting contribution to this matter, but so are canonical thinkers of the new interface, where such virtuosity is quite rare, a critique voiced more and more openly even within the most convinced circles of such research like NIME²¹, or by practitioners like Lawrence Casserley and Richard Barrett quoted above.

Nevertheless, there is amongst improvisers a taboo subject, where views differ wildly: the practice of editing studio sessions of improvised music towards a final, near-perfect document to be released. This is a common-yet-mostly-unspoken practice, despite some practitioners considering it as a betrayal of the ethic of improvisation and refusing to take part of such practice. For instance, many labels insist on the 'high fidelity' and authenticity of a live event being captured on tape, be it in the studio or in concert, despite many reflections on the fallacy of such reasoning^{22 23}. The gap between these two seem irreconcilable.

Ted Gioia reflected on these two extreme, coining the expressions 'the Aesthetic of Perfection' and 'the Aesthetic of Imperfection'. The former is where the studio is used with all its tools and tricks, to get to what is said to be a platonic vision of the work by the composer, performer and producer. Multiple takes, multiple microphones, multiple edits are all embraced, as only the result matters. Such views have been also clearly advocated for by electroacoustic composers²⁴ and chamber music performers alike²⁵. On the other hand, the 'Aesthetic of Imperfection' takes a stance towards transparency, and the accurate capture of a given moment, including all of its quirks and imperfections, as a testimony of its reality.

Nevertheless, the practice of recording improvisation is very rarely that unbiased. Andy Hamilton, in his previously mentioned articles, proposes a much more mature, nuanced perspective on this dichotomy, and questions the purist/imperfectionist transparency thesis. He proposes that improvisation and composition are seen as interpenetrating opposites; yet more and more practitioners sit in-between these two extremes, with all shades of hybrid practices. Actually, the tendency is not so much to be in-between, but to be comfortable in many of the sub-categories, where these parallel approaches cross-pollinate to offer interesting crossover proposals. Some composers have started to document their research and ideas on exploring this middle ground²⁶, but much is left to say.

Interestingly, the popular music world has been using the studio as such hybrid instruments for many decades now, and most creative producers have had a very pragmatic yet experimental approach to the tool. Where in electroacoustic music the studio is usually used

²⁰ (Hamilton, "The Art of Improvisation and the Aesthetics of Imperfection")

²¹ (Dobrian and Koppelman)

²² (Chion)

²³ (Hamilton, "The Art of Recording and the Aesthetics of Perfection")

²⁴ One example amongst many is (Normandeau)

²⁵ (Gould)

²⁶ (Barrett)

first to capture raw material, then to compose, the popular music world has embraced an empirical back-and-forth approach to the environment²⁷, at least in the most daring and fortunate cases. The idea of brainstorm recording sessions, later edited, then re-performed, overdubbed or re-arranged, then re-edited, is not uncommon. The idea of multiple versions of a piece is not rare either, starting back to the bare idea²⁸. Collaboration is also very important in this field, where aesthetical divergences are used as creative engine²⁹, and the many contributors, in the form of producer, composer, engineer, session musicians, all contributed to give a work different perspectives, a sort of slowed down improvisation session. All these human interventions are captured; the best are kept, to give that music a sense of human craft.

3. Of Human Presence

3.1 Liveness and Embodiment

Liveness seems to be a recurrent obsession, and so is a trace of the human presence (mainly bodily presence) in electroacoustic works. It has been an historical argument of mixed music practice – that an orchestra of loudspeaker is missing the essence of concert – yet the success of fixed-media work in concert over the last six decades seem to question that assertion. Similarly, the static stage presence of a laptop performer, questioned at first, has now been accepted too, or at least has created its own public and events, in the full spectrum of musical styles – from the dance-floor to the concert hall³⁰. Nevertheless, the current trend emerging is an obsession with human presence and an illusion of liveness within fixed media work. Interestingly, Hamilton uses electroacoustic as the ultimate ‘studio perfection’ example, yet in the current project, the author goes in length to showcase methods to bring back a sense of performance and of liveness in fixed-media music.

This effort is in line with a younger generation of practitioners of all trends of electronic music that are happy to declare as their main influence the first generation of acousmatic composers, but refuses completely to be associated with its second generation³¹. Dominic Thibault³² has argued that the main difference between these two first generations is the use of the computer as a Digital Audio Workstation (DAW). In the pre-automation, pre-computer era, the studio composer had to perform the studio as an instrument: during the synthesis, transformation, editing, and mixing, the human gestures, with their jittery imperfections, were captured and, most importantly, are heard in the final piece. If the second generation have embraced Hamilton’s extreme of desiring the perfect outcome, it seems that the third generation is eager to hear a human behind the machine. One could also take the ever-growing market of new interfaces and its conferences/papers/books as evidence, a significant number of those new contraptions being for studio use: controlling the DAW physically has never been so present in the discourse of studio practice.

²⁷ On this overall empirical approach within worldclass popular music production, a good fieldwork report on many seminal works has been done in (Cunningham) and in (Moorefield).

²⁸ Trevor Horn is famous for his obsessive quest for the perfect version. An example is the piece *Relax* by the band ‘Frankie Goes to Hollywood’, mentioned in both books above, although they disagree in the number of actual versions.

²⁹ Again the two books are full of interesting anecdotes, but more specifically on conflict within creative process, the author has been referred to (Matusov).

³⁰ (Collins)

³¹ For instance, the ‘found sound’ movement quotes the Futurists and Schaeffer, going as far as Parmegiani and Bayle, but never refers to anything after 1975.

³² (Thibault)

This trace of a human presence on fixed media works, and captured embodied gestures as a mean of testifying that the music is alive, brings an interesting perspective on liveness. In a yet-to-publish paper, Scott McLaughlin and the author have explored a triple definition of liveness: ontological, phenomenological and sociological. The perceived liveness of a performance over a recorded media is a fascinating problem, defying taxonomy, yet is too important a concern for the current generation to be ignored.

3.2 The Aesthetists

How can we define further that third generation? Again, here are the author's observations from within the different scenes observed in more depth during the last years.

One important characteristic of that generation is that the values of the work seem to have shifted from the poietic to the aesthetic process, its reception, with a significant value to the experience by the audience. Once that shift is accepted, a multitude of perspectives are to be taken into account, as the canonical analysis of a work is no longer tributary of its value. A mature poly-perspectivism seems to be a general consensus within that generation, after the reactionary attitude of post-modernism, where everything that was not modern was considered good. The genre-normative modes of listening, so well articulated by Ola Stockfelt³³, offer a good model to visualise the cohabitation of what seem many conflicting musical habits within a single person's playlist. Moreover, being radical is seen as *passé*: this generation is embracing the polymorphic human experience, the richness of the shades of grey between the predictable extremes. In other words: they question how can an artist be radical, in this era of hyper-mediatisation of radical terrorist activities?

The blurry in-between-ness of this generation's musical experiences, with a certain eclectic quality³⁴ to its listening practice, is crossing-over in its creation practice. In-between-ness is embraced, and by doing so is also challenging the clear-cut canonical definitions of the roles of composer, performer, luthier, engineer, musical assistant, etc. The fact that this generation is 'Digital Native', in Marc Prensky's words³⁵, helps to make the technical and aesthetical aspects united to a certain extent; the studio is probably the most explicit example of where this double presence is felt, where the blurriness is the most exacerbated. This de-ghettoization, the blurring the genre/taxonomy boundaries in a mature, crossover, assimilatory way, and the subjectivity of the musical experience are driving forces of the discourse of that generation. They want to reach a wider audience and refuse the need of a PhD to understand the quality of their music; yet they refuse to use populist methods to reach more listeners. In other words, they want to be subtle and democratic, but neither precious nor demagogic.

All these traits observed in the scene define this generation in a very positive, constructive way, proposing an interesting present and future to electronic music in all its diversity; the author used to call that generation post-post-modern, but this term is reductive and is more reactionary; such creative new energy needs a new term: the aesthesist generation, or the aesthesists.

³³ (Stockfelt)

³⁴ The term eclectic was proposed by Simon Emmerson in a colloquium presentation at the CeReNeM, Huddersfield, on the 25th January 2011.

³⁵ (Prensky)

4. Practice-Based Research Outcomes: Four Examples

After this definition of what is immiscible in the different aspects of the current research, and with the biases of the aesthesist generation clearly established, let's examine practical examples where the in-between-ness of considering these dualities (improvisation/fixity, live/recorded, aesthetical/technical, acousmatic/other practices) is embraced as a potent, dynamic system in perpetual dialogue. It is now time for practice-based research to dissolve the carefully thought-of taxonomy.

The following examples are from the four pieces of the aforementioned album, presented in chronological order, as the research in progress slowly unravelled the potential of subversive instrumental use of the studio.

4.1 *Reflets de notre société crépusculaire*

This first piece was a commission of the *Groupe de Recherche Musicale*, in Paris. The piece was set to explore that city's deep political impact on Western concepts of freedom. Paris's music scene is the motherland of what is now called acousmatic, and the host of the world's historical research centre in mixed music, Ircam. It is also the host of a very strong strand of noise music performance, and of a very interesting post-free-jazz scene. Alongside the studio residency in the historical studios at Radio-France, the author used this extended stay in the French capital to develop a third laptop instrument with a collaborator at Ircam³⁶, rehearse with his post-free-jazz ensemble based there³⁷, as well as perform with his contacts in the noise scene³⁸; all these musical influences come across to a certain extent in the work.

One of the first observations during this stay was the transferable performance fluency on new technology. The author had been by then performing the laptop as an instrument for a decade, and always had a fetish for old analogue synthesisers. When one such old synthesizer, designed by Coupigny, was made available, performing on this equipment was done with a new ease, as if the virtuosity acquired on other technological means brought a fluency that was recyclable: a strong sense of articulated gestures was always present within the sound design.

For instance, the introduction of the piece is a clear articulated four-voice gesture, which comes back again and again; yet it actually never comes again, but it is re-performed, varied multiple times, extrapolated, in the idea of the theme and variations: it is played live, and this liveness is clear on the recording. This idea of making multiple version of the same gesture, at an early stage in the composition process, could be seen as the product of the experience of multiple takes within instrumental studio session. The early exploration of the back and forth process between sound design and performance of studio tools is also clear in this second example: the sub-bass chaotic punctuations within the climax of the second movement. This gesture was added once the movement was almost finished, as its amount of raw energy was unsatisfactory; a real-time overdub of bass guitar punches fixed that problem, a solution which was then further enhanced with the usual deferred-time spectral and dynamic DAW sound manipulation tools: what remains is the urgency of a real performance in the context where it is needed.

³⁶ (Tremblay and Schwarz)

³⁷ <http://www.arscircamusicae.com/>.

³⁸ Mostly with Kasper Toeplitz and David Fenech.

One further idea taken from the popular music world mentioned earlier is the multiple versions of a work. The idea of going back to the essential elements, stripping out weeks of work, is something that many producers have talked about; for instance it has been used extensively by Teo Macero in most of the seminal albums of Miles Davis³⁹. As the first movement was intended to be an alternation of tableaux to give a chaotic-yet-teleological impression, the editor's approach was ideal: it was possible to compose the different tableaux first, each with their variations, to a good degree of finishing, then to experiment with permutations, to finally fix one version of the editing and modify and/or readjust the elements according to the definitive timeline. To make this possible, the different tableaux were rendered to files, and only these temporary files were permuted. The plan was to keep the edit decision list and assemble the final version with its constituent material in a new DAW session, to allow the contextual modifications of all the layered materials. What was not planned was that 14 versions of the permutations were needed to achieve the desired effect. If it had not been of the explicit testimony of significant music producers regarding this trial-and-error approach, self-confidence would have been lost long before the end. Interestingly, once the form was finally decided, some variations were completely discarded, a critical distance in line with a producer's role more than the composer's attachment to its material: it was as if the manipulation of ideas as single elements made the long hours of their production disappear: they became objects to be used or discarded.

4.2 *Ces énigmes lumineuses*

The second piece was a commission of *Miso Music Portugal*. It was a calm stay by the seaside, with large amount of family time, where the omnipresent waves and the pace of life resonated with a recent interest in ambient music. Two other musical obsessions of the time were Bjork's pop-glitch ethereal music, and Jonty Harrison's masterpiece *Klang*. A collaboration with the sound art laptop duet @c also brought different esthetical questions to the table, mostly about their approach of pre-prepared material for live improvisation practice on the laptop. The resulting piece is the most instrumental and lyrical of the album; as the second one in the year-long project, the idea of performing the studio, back and forth between sound design, performance, mixing, overdubbing, editing, was to be explored further, and all cross-genre musical taboos were to be confronted. The form was to be kept simple: a rondo, in homage to an historical form used in so many musical styles.

The obvious guitar and bass lines were indeed performed, but at different moments, and in different ways: sometimes unaltered, sometimes repeated many times to get a perfect version, sometimes highly edited, post-processed and subverted. That way, a single chord became raw material to be edited in a glitch manner, and a guitar strumming was used to link all the parts in ways where the illusion of liveness is omnipresent. A more subtle performance, linked to instrumental practice, is the glitchy sampling of the music box, heard in the introduction and many more times later. A custom sampler-type instrument was designed in Supercollider, to allow the expected control of pitch and amplitude, but more importantly the density of the randomised iterations and the amount of attack to be taken out from the notes. This allowed a very gestural performance of the idea, which was then rehearsed and recorded in multiple instances, depending on the context.

A more focused idea was to explore single parameter performances. For instance, the lfo-speed of the harmonic background of the last section has been performed, whilst all its notes'

³⁹ For very interesting first-hand account on this, please see the series of interviews available online at (Macero).

position, duration and amplitude had been very carefully sequenced. Another example is the long padded section's granulation parameters, which were carefully selected and stored in presets, yet the interpolation between two settings was performed live to keep the material moving; their mixing was also performed and recorded, including volume, reverberation and filtering, in what becomes a counterpoint of parameter performances. Interestingly, an audio bounce of these gestures were very often used as raw material for further non-real-time processing, keeping some of the gestural elements of the original performance; this conclusion is in line with most literature on the *séquence-jeu*. The last echoes of the melody, at the very end of the piece, give a good example of such transfer, where the timbre is extensively transformed yet the gesture retains the performed phrasing.

4.3 For Ever Soon an End

The third stay was in Berlin, whose rich past was inspirational, not unlike Paris, yet its effervescent cultural scene gave a feeling that all was possible: enough of the city needs revamping to give artists a space to dream its future. And it shows: its musical scene is extraordinarily rich. Apart from the obvious omnipresent German orchestral and operatic tradition, one can also explore the latest cutting-edge collaborations of the improvisation scene, in what was dubbed Berlin Reductionism, and the extended stay was a good opportunity to explore that practice, as well as performing electroacoustic improvisation in duet with Helena Gough. Again, all these influences come across strongly in the work.

The *Technische Universität Berlin*'s studios have a great analogue synthesiser, which became the main instrument of the piece. It was to be balanced with the contemplative exploration of the sound of footsteps in pebbles, which will be described further later on. The back and forth process of sound design and overdubbing is omnipresent in the piece, and every new performed layer, be it a synthesiser sound or a laptop instruments, were tested against each other in a sort of meta-climax placed far down the timeline: this meta-climax was not to be part of the piece, but simply a test ground. That way, tuning of the different part, their rhythmical phasing interaction, their timbral and orchestral placement in what would become the fully orchestrated sections, were tested at the onset. Moreover, that process was both a useful inspiration and a clear helper to stay focus on the restricted soundworld that was one of the musical aims of the piece, quite at odds with the author's usual plethora of material.

In more details, the synthesised bells phasing of the introduction, which comes back regularly as a leitmotiv, was recorded over itself. Intonation, noisiness and density were performed, and these organic micro-fluctuations bring this texture to life. Later on, the high-pass filter cut-off as well as the reverberation level were also performed; interestingly, the performance of the latter two parameters was then dismissed at the profit of more automated gestures, allowing more artificially-controlled slow ones. Using both methods when needed had become by this stage of the sabbatical year a natural in-between practice.

Such a hybrid practice reaches its apotheosis in the second movement's composition process. The footsteps, recorded in a public park in the early morning to avoid the noise of cars passing by, were not remotely performed in the order they are in the piece. It is in the studio that their organisation became clear: the first movement became about hesitation; the second about a gradual acceleration, with pauses in between moments of assertive walk, where silence and steps take the reverse role than they had in the first movement; the third movement is a swift walk back home, assertive in its own way. Walking gestures were therefore classified that way, and placed in the timeline accordingly.

More specifically, on the second movement, a realistic walk was assembled on the timeline, to be sonically and formally interesting; then the idea of performing an auto-spacialised set of resonators became clear. A Supercollider instrument was design to do so, and all the notes in its pool were carefully tuned on elements of the meta-climax described above; the intonation was mostly done by ear as most of the synthesisers were not tuned to equal temperament. The next step in the composition was a live coding performance, playing the amount of resonance, the number of notes in the pool, and the threshold of the auto-panning and note picking mechanisms; this was recorded thrice with the footsteps as input, and the best version was kept. There was a teleological agenda to that section, which was to progressively restrain the number of notes up to the point where the steps reach their fastest pace, then to release them all back much quickly as a form of resolution; that agenda was used to drive the performance, yet the assessment of which version was better was done by sheer taste. Once the version was decided, ideas from the fixed improvised performance emerged, then were extrapolated and enhanced in different ways. There was much randomness in the live coding session: note choice, order, resonance and loudness, as well as many intuitive gestures; those who were potent came across much clearer after repeated listening, and the idea was then to highlight certain features that were inspiring, or needed a little help: one could call this empirical studio orchestration of a fixed improvisation, not dissimilar to the 2004 studio experiments of the author's post-free-jazz ensemble [iks]⁴⁰.

To get to the final sound world of that second movement, different back and forth methods of studio performance were used. For instance, a note that emerged clearly, and that was common to the phasing bells, simply called for that bell to be copied back. A more complex extrapolation was when an emerging gesture that needed a little enhancement was bounced and sent to a granulation instrument, which was then performed ahead of the note as a kind of long pre-echo of its sustain part; interestingly, in the heat of the moment, the gesture went too far, playing back a shimmering iteration of the attack. That performance error fitted perfectly that musical moment, and was kept as a magic moment: had this gesture been perfectly sequenced, the happy mistake, as many inspiring others, would have not had happened.

4.4 *Les trois petits c...*

The fourth and final piece of this year-long project was a commission by Belgium's *Musiques et Recherches*. The studio is set in the countryside, and it was again a very peaceful family moment before returning to Huddersfield where the piece was finalised. The highlight of that stay was many fantastic discussions with Annette Vande Gorne about what makes acousmatic what it is, and about the importance of voice and text in fixed-media music. Mme Vande Gorne was already working for many years on her acousmatic opera, making this reflection highly articulated and nuanced, and in direct line with the project to be composed over there: a triple language Hörspiel-influenced musical storytelling. The idea was to use a non-professional narrator to keep a certain freshness of the gesture. In the studio, the narrator was told to do many things, the most potent of which was to tell a simple story, the *Three Little Pigs*, without saying the word 'pig'. The initial idea was to trigger natural laughter, but the simple charm of the narrative, over-imposed to itself in three different languages, became poetically charged, and was used as the main compositional binding device.

⁴⁰ In this album, the ensemble was in residency for a full month in the studio at Université de Montréal. The group used the studio to compose, improvise, perform, edit, overdub, orchestrate, in very different ways for each piece. For more information see ([iks]).

At that point in the project, the studio methods were thoroughly fluid. The coda of this fourth piece is probably the moment where they all come together in a complex counterpoint. At that moment there is an improvised re-harmonisation of the hummed melody leitmotiv by the massive synthesised bass part, itself a sampler instrument made from a rendering of a previous part of the piece; similarly, the highly edited crescendo of harsh digging sounds, used as percussions is taken from a *séquence-jeu*, then superimposed with many performed parameters: mixing, filtering, reverberation, etc.

But along with this now proven methodology is a further subversion of studio gestures, where the parameter performance is explored further: automatic feature extractions of gestures are used to decline a set of parallel orchestrations. For instance, granular waves of notes, in progressive widening intonation whilst answering the penultimate build-up, had its grain density mapped to the loudness of the harsh iterative build-up, whilst the widening of the pitch was performed manually. This organically links the performance of the granulator to the other gesture it is mapped to. One step further in this feature mapping exploration is the iterative doubling of the hummed melodic line by glitchy toy piano sounds. This was done through a subversion of the author's latest laptop instrument earlier mentioned, which is using audio mosaicking to transfer bass guitar performance virtuosity into granular control gestures through concatenative synthesis⁴¹. In this case, the bass guitar input to the patch was replaced by a feed from the vocal track, and the re-synthesising corpus was made from toy piano sounds previously used in the piece. At this point, the whole year's research came to its natural conclusion, where the computer was interactive with itself, with the composer as producer, using the studio as his composition instrument.

5. Conclusions

5.1 Technological Recommendations

Techno-fluency is often seen as a lesser feature of the composer, dirty-handed and of second order. The aesthesist generation, with its multifaceted practice, is challenging this division and ranking. As seen in the previous section, the creative possibilities offered by a disappearance of the separation of most studio roles are endless, a phenomenon again quite common in the popular music world, where a producer is frequently a composer and an engineer. An interesting parallel can be made if we refer to acoustic composition and orchestration: the latter is the *techne* that deals with the pragmatic concerns of the limits of the instruments and of ensemble practice, and can be delegated to someone else when it stays within the conventional uses; but Maurice Ravel, to name but one, is a prime example where both are cross-pollinating within the same creative process, multiplying the possibilities endlessly. Therefore, the first technical recommendation is to develop virtuosic knowledge of the studio and of the musical performance of all its apparatus. Nowadays this implies the obvious musical manipulation, routing and subversion of hardware equipment, but also its virtual counterpart in the realm of the multi-application workflow, as well as the design of custom virtual instrument to fit a given musical need.

On a more pragmatic technical level, recording performances on the laptop instrument is at times better done in native format (usually at 32bit floating points precision), as a perfect performance might have distorted in a single moment, which is easy to fix in floating point

⁴¹ (Tremblay and Schwarz)

format. Custom design of simple plugin (through Sonicbirth or Native Instruments' Reaktor) is also very potent, as it allows keeping the performance of the music within the DAW session for future reference and modifications. Performing as many parameters as possible, on faders or other physical control device, is also a very good practice: a very subtle physical sensibility can be developed, and then mapped to many parameter, therefore recycling the acquired virtuosity. Touch-screen interfaces are also interesting, and despite the fact that they do not offer the level of physical resistance and feedback of a real fader, they allow other modes of performance, like trills of fade positions, to name only one.

The last technical recommendation is to keep a clear versioning discipline, with multiple backups. This ability to undo indefinitely should give the user a potentially endless freedom of experimentation, and allow direct, concrete comparisons of gestures, or even full movements. It also frees the composer of the anxiety of the error, allowing one to take bold executive decisions, to follow an intuition that might take one outside of its comfort zone towards unexpected grace... yet it keeps track of where things went pear shape, if that is where these decision led to, allowing to then explore different avenues.

5.2 Overall Conclusion

The instrumental use of the studio, with back and forth fluidity, seems to help carry a sense of liveness and performance in the works presented. It implies a certain technical mastery, though this request is not foreign to any other instrumental practice. The principal gain from this instrumental approach is that it keeps the practice-based research of music making within the empirical world, allowing rapid prototyping of musical ideas. Using the studio as a composition tool is powerful and contemporary, and allows the listener's judgement to be at the forefront. Brainstorming is kept as a fluid process, without the hindrance of long production process, and this swiftness is a key element to keep the music alive, with a sense of performance to it. Critical improvisational practice allows that immediacy of judgement over different versions, yet with enough instrumental control to give the ability to reproduce and improve gestures. Fluency on technology is gained, and so are survival skills in finding quick solutions to real-time problems and formal dead ends. It brings back an explicit, documented human intervention in the studio, but also keeps the editing and perfecting power of the DAW: it allows the composer to choose the level of the ontological liveness, for phenomenological liveness's sake, amongst other intended results.

We saw this project as the child of its time, the aesthesist era, as it explores and embraces in-between-ness in all the duality presented, in effect mixing what was considered, not so long ago, immiscible.

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