SAMPLING AND THE ‘SOUND OBJECT’ IN CONTEMPORARY SONIC ART

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Master of Arts

An exegesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy.

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DECLARATION

I certify that except where due acknowledgement has been made, the work is that of the author alone; the work has not been submitted previously, in whole or in part, to qualify for any other academic award; the content of the thesis is the result of work which has been carried out since the official commencement date of the approved research program; and; any editorial work, paid or unpaid, carried out by a third party is acknowledged; ethics procedures and guidelines have been followed.

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Nathanael James Bates

30 June 2013
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For Mia:
you don’t know how critical you were in making it possible for me to finish.
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INTRODUCTION TO THE PHD

ABSTRACT

This project aims to develop a working methodology for the use of sampling in the production of new sound works for recording and performance. Sampling is the use of fragments of recorded sound using recording technology that affords high fidelity recording, instant playback, transposition and processing facilities. It is explored in the project works as a medium that challenges traditional notions of composition, score, performance, originality and musical legitimacy.

The research is conducted using the contemporary understanding of sampling as a practice that uses, or reuses, existing music recordings, most often the work of others. However, this research contends that sampling has its origins in musique concrète, the approach to music developed by Pierre Schaeffer from 1948 onwards, that focuses on music made empirically from recorded sound material separated from its source. In contrast to contemporary sampling, musique concrète adopts a much broader palette that includes recordings of ‘non-musical’ sounds of the environment, in addition to manipulated acoustic and electronic instrumental sound sources.

Philosophically, this research develops the position that the tension between sampling sound of recognisable origin and the musique concrète approach of freeing sound from referential allusion is fertile territory for production that does not necessarily require the resolution of the tension.

The research reveals a number of fundamental dualities inherent in the practice of sampling that create similar tensions; tensions between composition and performance, between the original and the copy, and between the producer and the consumer. Embedded within the work produced in both recorded form and in live performance, these dualities are shown to be the grey areas ripe for creative exploration.
INTRODUCTION TO THE EXEGESIS

This research engaged with the following three research questions:

• What is the difference between the contemporary practice of sampling and the compositional paradigms posed by musique concrète?
• In what ways can the tension between composition and performance, created by sampling technology, inform a contemporary sound practice?
• How can this tension, and the relationship between sampling and musique concrète, be translated into a methodology for the execution of work in the practice of sampling?

The research has been conducted through a series of iterations of a recorded work and the adaptation of the work for a series of live performances. The work produced was conceived of as a novel way to investigate the above questions with the exegesis focused on clarifying the fundamental basis for the practical work through reflection and interrogation of the principles involved. Any tendency toward simplification in the exegesis is a result of this concern with fundamentals. During the course of the research the specific research questions expanded to become larger questions that addressed the fundamental principles of my practice. These ‘big’ questions included “what is sound,” “what is music,” “what is recording,” and “what is creativity.” Although much of the consideration of, and writing about, these larger questions has been removed from the final exegesis, these questions continue to serve as philosophical underpinnings of my practice and remain, in essence, unanswered. Or rather, they serve their purpose as motivators for my practice because they are unanswerable. It is by undertaking my practice that the questions are responded to with the knowledge that there are multiple possible answers. Rather than provide definitive answers to the research questions, this research then presents an exploration that can serve as one of many possible answers.

Having said that, a definitive position is established by the results of the research. That position is that the apparent oppositional binaries implied in the research questions, the binaries of contemporary sampling and traditional musique concrète, of composition and performance, of the original and the copy et cetera, can be successfully embraced as dualities.

This embrace of dualities, and the modular nature of a sampling practice, is reflected in the writing of the exegesis. Written in discrete sections and paragraphs, and then ordered and re-ordered in the final redrafting process, the exegesis mirrors the way a sampling practice disassembles and reassembles material, allowing material to be both individual objects and parts of a whole.

Similarly, the subtitles scattered throughout the exegesis, and the way they are used to reference something already familiar whilst simultaneously functioning as signposts for the unfamiliar text that follows them, reflect the duality inherent in a sample. This duality is that a sample is both a record of something past and a birth, or rebirth, of something new into a new context or environment.

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1 Notes explaining the origin of, or reference embedded within, each subtitle are placed in the footnotes to allow for interpretation by the reader, just as samples require work on the part of the listener to make connections.
INTRODUCTION TO THE PROJECT

The principal project undertaken for this research was the plunderphonic\(^2\) recreation of a major musique concrète work using only samples of pre-existing music recordings, specifically iconic rock recordings. The project combines the contemporary understanding of sampling as the plunderphonic reuse of existing recordings with a method based on the less widely practiced Schaefferian notion of the non-referential (acousmatic) sound object.

The initial concept, to produce a ‘cover version’ of a major musique concrète work using samples sourced from popular music, was appealing for many reasons, not least the perversity of it. Firstly, perversity is taken to mean the intention to deviate from the norm, and in this way, the project sought to facilitate new ways ahead in my sampling practice.

Secondly, the project was an opportunity to engage intimately with musique concrète techniques and compositional practice, to in effect ‘learn from a master’ in much the same way that painters, for example, would produce their own versions of Rembrandt works in order to understand how the master’s work was put together and the end result achieved. Musique concrète works are not scored or notated in any abstract fashion for the purposes of providing performers with a blue print for new performances. In musique concrète the score and the realisation of the score are conflated into the one, definitive recorded work. To want to treat a musique concrète work as repertoire that can be made one’s own, whether through a remake or a performance, might seem perverse, and perhaps absurd, to most composers but the project appealed to me as one rich with apparent paradoxes that could embody the very dualities inherent in the practice of sampling.

Musique concrète is largely understood to be composition that eschews conventional pitch and rhythmic relationships, whereas contemporary sampling of existing music recordings often results in works that still adhere to popular music forms. With the principal goal to extend and develop my sampling practice, remaking a musique concrète work offered a novel way to apply the sampling technique of reusing existing musical material to compositions unrestricted by the conventional rules of music. This research looked to the plunderphonic practice of John Oswald as a guide to the reuse of popular music in an avant-garde fine art context.

Thirdly, driven by a strong personal connection with rock music, classic rock recordings were identified as sample sources. Part of the motivation for selecting the genre of rock was to explore how far samples of rock music could be transformed and still retain their ‘rockness’. Although this approach bears some resemblance to what Simon Reynolds coined as post-rock, instead of “using rock instrumentation for non-rock purposes,” (Reynolds, 1994) this project uses fully realised, publicly released rock recordings as raw material. In this way, the project investigates the Schaefferian notion that sounds, despite how they have been transformed and manipulated, carry with them a trace or essence of their source.

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\(^2\) Canadian composer John Oswald coined the term in his essay “Plunderphonics, or Audio Piracy as a Compositional Prerogative” (Oswald, 1985) and meant it to refer specifically to an audio work that was constructed entirely from samples of a single artist without the use of any additional material.
Fourthly, musique concrète is largely understood to involve the use of recordings of so-called ‘non-musical’ sounds and the investigation of their potential musicality and suitability as material for composing. Although there are composers that have used recordings of instruments, even ‘samples’ of other composers’ recordings, to produce musique concrète, these are often seen as exceptions that prove the rule. Again, it was the perversity of the project that appealed: sampling music and transforming the samples into so-called non-musical sounds so that they can then be placed back into a musical composition, albeit a very non-conventional musical composition.

Lastly, the project enabled the exploration of significant dualities inherent in a sampling practice. At the core of this project is a concern with how sampling can engage with a sample’s referential allusion while freeing it from its past to become a sound object in its own right. The results point to this apparent paradox being an inherent duality that does not necessarily require resolution.

There are several other dualities, key concepts of what Aram Sinnreich calls “configurable culture” (Sinnreich, 2010) that are explored in this project. Firstly, the sampler, being a device that facilitates both the recording of audio and the performance of that audio, embodies the tension between sound performance and sound composition. This duality inherent in the sampler is discussed in the chapters on score and performance in Part II of the exegesis. Secondly, the use of the work of others in a remix context explores the consumer/producer divide, and even the artist/audience distinction to some degree. Lastly, this project engages with the concepts of original and copy, and the potential for the distinction between the two to be erased. Traditionally, a musical work is chiefly identified by its harmonic content, thus allowing for the various performances and recordings of the work to remain identifiable as the one work. However, numerous aspects of music and sound production remain available to replicate without the new work being identified as a version of an existing work; aspects such as instrumentation, timbre, rhythm, groove and feel, for example. Even some harmonic content is widely reused in countless new works. For example the twelve bar blues form is continually reused in so-called ‘new’ works. This freedom to replicate aspects of existing compositions enables creative practice whilst protecting copyrights. One could, for example, copy the instrumentation, rhythm, tempo and feel of John Lennon’s recording of “Imagine” (Lennon, 1971) and, as long as the work is harmonically different from the original, the work could easily be established as a new work. In fact, Jet’s “Look What You’ve Done” (Cester, 2003) does exactly that. In this research project, by recreating a sound composition that itself does not rely on the traditional identifiers of music, such as harmonic content, the question “is it a new work” becomes more complex. The results, as discussed in more detail later, suggest that it is irrelevant to continue asking such a question and that it is possible for a work to be both a copy and an original work, to be both old and new at the same time.
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PART I: THE CONTEXT
POSITIONING THE RESEARCH

I Sample Therefore I Am³

This research engages with the contemporary mainstream understanding of sampling as the use of pre-existing recordings in new works. This understanding takes ‘pre-existing’ to mean recordings produced by someone else at an earlier time, and more often than not these recordings are of music. Advances in digital audio technology enabling sampling, and the easy availability of these sampling tools, have fuelled a now widespread sampling culture whilst at the same time prohibitive copyright laws have restrained the creative freedoms and the commercial viability of sampling in audio production. This paradox, that sees greater access to sampling constrained by greater limitations, is further enforced by the simplification of contemporary sampling tools, thus inhibiting artistic freedom whilst simultaneously championing it.

Prior to this research my practice engaged with sampling in a broader sound art context. I used sampling within my sound art practice for many years, sampling from various sources; the recorded music and sound of others, recordings of my own music and sound, and live sampling in performances of spontaneously generated sound. Much of this work with sampling was intuitive in the sense that samples were created in order to generate raw material without a great deal of reflection, pre-conception or pursuit of a specific sonic goal. What was conscious however was the desire for raw material that would provoke and inspire an artistic response within myself. This was preferable to starting from silence, from scratch with a blank canvas, as it were, and was in fact a step toward empirical composing.

This position of richness of material that sampling has continually provided me with is brought to this research, but with the aim to reconcile the broader sound art context with the contemporary mainstream understanding of sampling practice. This research seeks to broaden my work with sampling, to deepen my understanding of it as a methodology and to forge new ways of working that appreciate the history of the practice and its contemporary context.

³ An adaptation of Descartes’ famous philosophical proposition “I think, therefore I am.”
LIMITATIONS OF THE STUDY


This research draws heavily upon developing an understanding of the practices of musique concrète and plunderphonia. However, this research involved only a subjective musicological study as it relates to my practice. In no way does this research claim to have conducted an exhaustive inquiry into the history, philosophy, aesthetics and semiotics, psychology and sociology, acoustics and psychoacoustics, theory and composition of musique concrète and plunderphonia. In both cases these areas have been well researched already.

Similarly, there are two other music genres that this research acknowledges but does not investigate in depth: hip hop and post-rock.

The practice of sampling in hip hop has been well documented, particularly historically and technically. While the influence of hip hop upon the development of sampling technology is fully acknowledged in the exegesis, it was determined that a deeper investigation into hip hop as a sampling practice was not relevant, principally because hip hop is stylistically so removed from the work produced for this research.

Post-rock as a genre has a more difficult relationship with sampling, and although a specific study into sampling in post-rock was not uncovered during this research, again it was deemed peripheral to the central concerns of the study. Suffice it to say that the work produced for this research could be classified as post-rock as it employs the same general aim to extend the sounds of rock beyond established rock forms, not least the strategy of “looking outside rock for different forms of kinetic energy” (Reynolds, 1995). Perhaps not surprisingly, the work produced in this study actually adopts a perverse aim; using rock recordings to examine plunderphonia and musique concrète only to reinject them into rock, which the history and practice of is taken as read. But perhaps this is indicative of the complexity that is post-rock in the way that Simon Reynolds explains “post-rock abandons the notion of rebellion as we know and love it, in favor of less spectacular strategies of subversion” (Reynolds, 1995).

Lastly, this research, being for academic purposes, is not bound by the standard legalities associated with sampling. Within the Australian Copyright Act (1968) students have research and study provisions for ‘fair dealing’ that allow a student to reproduce copyright works for research or study purposes. While this may sound like the opposite of a limitation, it does in fact limit the research to only examine what is possible in a rarefied academic milieu.
SECTION ONE: COMING TO UNDERSTAND SAMPLING

PRACTICING SAMPLING IN A CONTEMPORARY SITUATION

I Think The Sampler Is Dumb

The sampler is mute. Unlike every other musical instrument it has no voice of its own. It requires sound from some other source. Like a lyrebird, the sampler takes the sound of the other and makes it its own in an act of pure mimicry. This is, of course, exactly what the sampler was designed to do: to digitally capture fragments of audio and replay them exactly as they sounded. This is the sampler’s great power, setting it a world apart from all other musical instruments and making it an extremely malleable and powerful composing tool. Unfortunately, sampler manufacturers often provide what are called ‘factory sounds’, a selection of pre-fabricated samples of various common instruments (pianos and drums for example) to counter the silence of the sampler in a potential buyer’s hands. And thus for many a first time user the very power of the sampler is undermined at the outset, as they make the mistake of conceptualising their sampling practice as the extension of existing instrumental skills (as pianist or drummer for example). Syntaur (“Piano Samples for the Ensoniq ASR/EPS,” n.d.) sell such factory sounds for the type of sampler I used in this research, the Ensoniq ASR-10. They promote their range of grand pianos and electric pianos as featuring ”maximum realism and expressiveness” in their quest for excellence in mimicry. A sampled piano is only a convenient facsimile of a real piano and, for the purposes of this research, the banks of pre-fabricated instruments provided were rejected.

The challenge this research tackles is to take the sampler’s ability for simulacra and rigorously apply it to a project that interrogates sounds as objects. With this in mind, to begin sampling then is to decide what to sample in the first place.

Going To Pieces

My position on sampling, as it pertains to this research, was arrived at by identifying what is essential to sampling and what is not. The broader understanding of sampling employed in a sound art context reflects the understanding that sampling enables the capturing of any recordable sound. This stands in stark contrast to the contemporary mainstream understanding of sampling as exclusively the use of pre-existing recordings of music. As evidenced in my practice prior to undertaking this research, sampling could in fact be of one’s own recordings, or sampling can happen ‘live’ (that is, the sampling of any electrically mediated sound not previously recorded), and of course, both these need not be musical in nature.

What remains essential in all these instances of sampling is the fact that a sampling practice is dealing with the past. Philip Brophy characterises sampling as explicitly dealing with the past when he declares that “a sample essentially declares that something happened somewhere else...” (Brophy, 2000). Even live sampling is dealing with sound of the past.

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1 A combination of Descartes and the lyric “I think I’m dumb” from the Nirvana song “Dumb” (Cobain, 1993).

2 The popular idiom referring to an inability to cope.
Sampling and the ‘Sound Object’ in Contemporary Sonic Art

albeit the very recent past. A performance built upon loops of ‘live’ samples, by solo artists such as Imogen Heap and Andrew Bird (Conner-Simons, 2009) and by groups like Battles and Radiohead, remains a practice based upon sound that originated in an earlier moment. As Paul D. Miller (aka DJ Spooky) puts it “Sampling is like sending a fax to yourself from the sonic debris of a possible future” (Miller, 2004).

Miller also considers sampling to be a new incarnation of an age old practice; “creating with found objects” (Miller, 2004) This research, however, challenges that position. Whilst our experience of sound recordings may often be the result of chance ‘findings,’ with snatches of music heard on radios, in supermarkets, passing cafés and on hold on the telephone, our access to sound recordings as raw material is much more expansive and sampling therefore requires a deliberate act of attainment. Furthermore, attaining a sound recording for the purposes of sampling is only the first step. Subsequent steps involve actively editing a recording and extracting the sample from its origin, indeed from its context. In this way sampling is essentially less an act of finding and more an act of creation.

This editing-out-of-context results in another essential element of sampling; its fragmentary nature. Sampling is specifically dealing with small segments, what Chris Cutler calls “vertical slices of sound” (Cutler, 2004). Historically, sampling technology had severely limited storage capacity and it created a fragmentary practice by necessity, but out of this limitation came creative solutions, with sampling being instrumental in the creation of numerous works of various styles. While it is entirely conceivable that technology will advance to such a degree that there will no longer be any appreciable limit to storage, what began as a technological limitation is now largely an aesthetic or practical choice. This research focuses explicitly upon this element of fragmentation and how a sound work can be broken down into its smallest constituent parts.

Sampling then is fragments of the past created, not found, out of sound recordings and removed from their prior context. This context is critical to the contemporary understanding of sampling as it is often tied to the origins of the samples remaining recognisable in the new work, this being critical to how this new work is read. This research, however, examines how sampling might involve samples so small as to be unrecognisable at first, or even at all, or how samples may be manipulated so that their origins become obscured. My piece “Cellblocks,” for example, is constructed from samples of the electric guitar featured in the Velvet Underground’s “Rock & Roll” (Reed, 1970) so small that they no longer even resemble an electric guitar recording, let alone a sample from a specific song or artist. The importance of this prior context then becomes questionable as the artist pushes the boundaries of recognition. This research interrogates this issue by being very deliberate in determining sources from which to sample, and by developing frameworks for the manipulation and subsequent arrangement of samples that consider the recognition of samples as a key aspect of compositional intent.

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7 “Cellblocks” is the seventh track on ROCKreation of the World. See the Appropriate Durable Record.
Fragmentation, by way of examining the smallest possible unit of a sound composition, has been rigorously researched in musique concrète. This research examines the links between sampling and musique concrète by applying the notion of ‘l’objet sonore’ (the sound object) to a plunderphonic sampling practice. Furthermore, the goal of musique concrète to produce music from so-called ‘non-musical’ sounds is investigated as a methodology to fully exploit the sonic potential of samples. This investigation is manifested by undertaking projects that involve sampling existing popular music recordings, manipulating them using musique concrète techniques to examine their potential to be considered ‘non-musical,’ and then reapplying them to a musique concrète compositional framework.

Jeremy Beadle writes that sampling bears similarities to cubism in its quest to find a new way forward by “taking the whole business to pieces” (Beadle, 1993) through deliberate acts of disassembly of materials in order “to look to a past tradition and try to move forward by placing that tradition in a new context” (Beadle, 1993). Similarly, Miller promotes sampling as a radical new practice, inspiringly claiming that “electronic music makers” (Miller, 2004) are more likely to forge ahead in new ways “because they have access to so many cultural products as raw material” (Miller, 2004). This research seeks to find new ways forward by considering the past and the present and reimagining them in new hybrid forms.

The initial challenge then for a sampling practice to address is; “what to sample?”
ESTABLISHING PARAMETERS

Freedom of Choice (Is What You Got) Freedom From Choice (Is What You Want)\(^8\)

When dealing with the question of what to sample one is faced with an abundance of choices. The initial challenge posed by a sampling practice then is how to avoid what novelist Douglas Coupland calls “option paralysis: the tendency, when given unlimited choices, to make none” (Coupland, 1991). Everything audible, or more accurately, anything recordable is potential material for the sampling artist/composer. The sampler can capture a fleeting transient sound, preserving the ephemeral, and release it back into fleeting audibility, not just the once, but over and over again. Once a sound has been captured by the sampler it can either be replayed to sound exactly as it did when it was recorded or it can be transformed, potentially beyond recognition, before being returned to the audible world anew. What’s more, the sampler can fuse sounds together with Frankensteinian sorcery, creating new forms from old, discarded parts. In essence, a sampler can sound just like anything.

Noah Creshevsky calls the almost unlimited freedom provided by modern music technology the “open palette” (Creshevsky, 2007). We work in an age where “our circumstances permit and encourage us to harness all the sounds of the world, and to use these sounds in any ways we like in order to create musical compositions” (Creshevsky, 2007). However, warnings of the dangers of technology that provide an excess of options are heralded far and wide. From producers of popular music recordings like George Martin, who warns of the potential for multi-track recording to encourage recordists to add too many layers (Oppenheimer, 1999), to psychologists and researchers like Sheena Iyengar, who examines the pitfalls of maximising our choices (Iyengar, 2010).

In hindsight, it is clear that my attraction to the sampler prior to this research was largely due to the seemingly unending sonic choices a sampling practice promised; a desire for maximum freedom of choice. I naively believed the maximum amount of freedom would enable greater creativity. Iyengar explains that we are innately compelled to maximise our range of choices, that we have a hard-wired desire to keep our options open. From this comes the perennial rebellion that characterises particular age groups, such as toddlers and teenagers, as we resist external controls put upon our choices. Perhaps the sampler appealed to me because I too was caught up in the throes of a teen rebellion/toddler tantrum response to the strictures of music genre and convention. However, Iyengar’s research demonstrates that keeping options open is also a failure to limit options and that this often causes stress and a decrease in productivity.

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\(^8\) Lyric from the song “Freedom of Choice” (Mothersbaugh & Casale, 1980) by Devo. Released on the album of the same name in May 1980 and as a single in December of the same year.
It seems counterintuitive but restrictions on choice often enable greater satisfaction. Iyengar’s studies show people of religious faith generally have a greater sense of optimism and security, as their religion removes an excess of choice (Iyengar, 2010). Major decisions in their lives are taken care of by the rules of their religion and it could be that having choices limited in this way results in less stress. Iyengar asks critical questions of a society that often blindly sees choice as a positive. We often hear advertisers marketing a product upon the basis of the variety of choice it offers. The sellers of tools for contemporary music making are no exception, with their promises of more tracks, more plug-ins, more processing power and nearly countless options. Because the sampler, by its very design, provides practically unlimited choice, more than can often be navigated, this research project sets specific limits in a considered effort to find a new way forward.

**Eno Is Enough**

Echoing the views of George Martin, Brian Eno has noted that the desire for multi-track recording is an inability to limit oneself and make decisions (Eno, 1996). Importantly though, Eno champions the changes that the modern recording studio have brought to composition. He recognised earlier than most that the ability to work closely with sound in the studio provided for a new way of composing. Writing in 1979, Eno recognised that recording technology enabled a ‘non-musician’ such as himself to engage in composing, and he makes an argument for the recording studio as a tool for overcoming the limitations of conventional composing; “… one becomes empirical in a way that the classical composer never was. You’re working directly with sound, and there’s no transmission loss between you and the sound - you handle it” (Eno, 1979). While working empirically with sound was already a characteristic of improvised music, Eno notes that working empirically with recorded sound enables this method to be brought to composing for the first time. This ability to work empirically with sound as concrete material is manifest in the digital sampler.

Taking the position that the excess of choice stifles creativity yet limitations foster creativity, this research required limitations to be placed upon it. To be specific, the sampler enables an empirical approach to working with sound and can sound like almost anything and yet has no sound of its own. Therefore strategies were sought that would enable the setting of limits, limiting what would be sampled in the first place, limiting how samples would be transformed and limiting how they would be used in a composition.

Brian Eno famously tackled the issue of limiting choices when in the mid 1970s, working with artist Peter Schmidt, he developed *Oblique Strategies*, a set of one hundred flash cards designed to guide the production of art in new ways. Similarly, Eno’s tenure in Roxy Music demonstrated the potential for a particular limitation, specifically his lack of musical training and an inherent disinterest in virtuosity, to enable unique outcomes. In the case of Roxy Music, Eno employed the use of the synthesiser in a rock band in ways that did not mimic existing keyboard playing.

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9 An adaptation of the popular idiom “Enough is enough”, a demand to stop.
10 An online version of Oblique Strategies that enables random selection is available at [http://stoney.sb.org/eno/oblique.html](http://stoney.sb.org/eno/oblique.html) accessed 14/10/2012.
Eno’s example shows that the issue is not simply one of limiting choice, but also addressing our tendency to stick with what we know works, remaining ensconced in existing genres, repeating ourselves, and failing to move forward into new and unfamiliar territory. To advance my sampling practice into unknown territory, to break out of habits and established conventions, I required strategies for navigating choice that are removed from my previous practice.

**Play It Again, Sampler**

Paradoxically, contemporary sampling is becoming more and more limited by the technology made domestically available. Many sampling devices are now overly simplified, perhaps in an effort to maximise the potential market. In the coming chapters I address the specific technical limitations of the sampler used for this research, the Ensoniq ASR-10. It was chosen for this research, despite being nearly two decades old, because it remains more sophisticated than most current models.

In actual fact, any sampler is inherently limited in one important respect. The muteness of the sampler inhibits play. Any other instrument encourages experimentation with sound production and there are numerous examples of works that have been created using improvised or accidental interaction with an instrument. The requirement for the sampler to be loaded with samples prevents spontaneous creation to the extent that one must consciously decide what samples to load or create; to in effect decide how the sampler will sound before it makes a sound.

Musique concrète as a compositional methodology engages the concept of play as a way to explore the musical potential of recorded sounds. Later chapters examine the legacy of musique concrète more closely but suffice it to say that this research aimed at determining a method for creating work with a sampler that utilises play with a similar degree of rigour at some stage in the compositional process.

**Rule Ch-ch-ch-ch Changes**

Managing the plethora of choices is one of the most important issues of contemporary life. We currently find ourselves in an ultra-networked environment with more choice than ever and the greatest ever amount of capacity for self-selection. What becomes critical then are the management systems utilised, which range from subconscious choosing at one extreme, to reflective considered choice at the other. Iyengar describes several strategies to empower one’s choices, three of which have been employed in this research: heuristics, recommendation and categorisation (Iyengar, 2010). Heuristics are simple ‘rules of thumb’ that have developed through personal experience. Recommendation (turning to experts, authorities and peers) is a technique that uses the experience of others as a guide. Categorisation is a tool that contributed to developing my own expertise, allowing me to narrow the choices down to manageable sized pieces. These techniques became manifest as the research progressed and specific processes for dealing with the seemingly unlimited

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11 A reference to the saying “Play it again, Sam” associated with the dialogue directed toward a musician in the 1942 film Casablanca.

12 A reference to the lyric from David Bowie’s “Changes” (Bowie, 1971) released on the album *Hunky Dory* (1971) and as a single in January 1972.
potential of the sampler were developed. Later chapters provide more detail about the following examples but, in general terms, heuristics were relied upon when intuitively matching samples with references, recommendation was utilised in the form of adapting an existing composition as a score and categorisation was employed to sort through samples, reference sound objects and the morphological concepts applied.

Iyengar states that artists and musicians are already using such choosing techniques in their practice (Iyengar, 2010). Fundamental knowledge of the forms, strictures and rules of art or music limits the choices one can make and consequently, seemingly paradoxically, provides the freedom to create. This research engages with the premise of developing one’s own set of ‘rules’ in order to arrive at new creative outcomes.

In the search for self-expression, particularly in the West where individualism reigns supreme, we equate our choices with a statement about who we are. Iyengar explains that music in particular is used in this way. “The less choice serves some utilitarian function, the more it implies about identity, which is why we pay special attention to categories such as music and fashion that serve no practical purpose” (Iyengar, 2010). Naturally, we are attracted to situations that offer a wide range of choice with the idea that we’ll be better able to express our ‘unique’ selves. However, Iyengar points to studies that prove we are inclined to believe we are more unique than we actually are. This research endeavours to address the issue of originality and uniqueness by developing unique specific limitations upon choice rather than simply making choices within an existing framework. Moving the goal posts, in other words, in order to change the game. The perversity of making choices based upon the work of others in order to establish a unique artistic identity is a significant aspect of this research.
EMPIRICAL COMPOSING: A CASE STUDY

The Sampler Speaks To Me

Approaching the sampler laterally, the sampler is not strictly mute at all. It does indeed make its own sounds, as does any physical object in the world. I mean not through the conventional electrical output, but simply acoustically, unplugged, as it were. Tapping, scraping, and stroking all generate a wide range of sounds, and if one totally disregards preserving the device then dropping, dragging, hammering and pounding elicit even more sounds. Such ‘extended techniques,’ that is the adaptation of technology to produce sounds in ways other than those intended by the manufacturer, is a well established practice. Applying extended techniques to playback devices, a category in which one can place the sampler, has been well explored by the likes of Christian Marclay and Otomo Yoshihide in their respective turntable practices (Kelly, 2009).

As a test project for this research, I embarked on a project with the intention of creating works that dealt with the sampler as a sound generating device, wondering if such an approach could lead to a methodology inherent to the sampler. I decided against the extended techniques and processes of Marclay and Yoshihide on the basis that the results would be unremarkable and not specific to the tool I was grappling with. I realised it would sound like the tapping and scraping of any non-descript piece of plastic or metal.

Instead, I commenced with sampling the acoustic sounds of the sampler as it was being operated in the way it was designed to be. I sampled the acoustic sounds created as I used the machine’s switches, buttons, and sliders, as I loaded disks, as the hard drive whirred and as the electronics hummed. Before long I had a collection of samples of sounds specific to the actual sampler in front of me. Many of these did not necessarily remain recognisable as the manipulation of plastic buttons and machine controls once they were sampled.

Tools Maketh the Man

The specific sampler used for this test project, and the remainder of this research, was the Ensoniq ASR-10 (“Ensoniq ASR-10 – Wikipedia, the free encyclopedia,” n.d.), a sampling keyboard produced by Ensoniq, now defunct, between 1992 and 1994. ASR stands for Advanced Sampling Recorder and it was indeed the most powerful sampler of its time. It is a performance orientated sampling workstation with a piano style weighted keyboard. It does not require a computer or additional equipment to realise a complete sound work and it includes a powerful and flexible effects unit, polyphonic aftertouch, an advanced MIDI sequencer, load-while-playing abilities, and a powerful multi-layered synthesis engine.

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13 A reference to the common figure of speech indicating that something resonates with meaning, and a reference to “Speak to Me” (Mason, 1973), the first song on Pink Floyd’s 1973 album The Dark Side of the Moon.
14 A reference to the common saying “Clothes maketh the man” which itself is probably derived from the Shakespearean proverbial saying “Manners maketh the man”.

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The technology itself embodies what Sinnreich calls the “ideological regulation of music aesthetics” (Sinnreich, 2010), in that the device has been designed for specific musical outcomes at the expense of any potential others. With the ASR-10 specifically, producing tonal music is made easier than producing atonal music. For example, the device takes a newly created sample and automatically scales it across the 61 keys (C1 to C6) in conventional harmony, as if it were a conventionally tuned piano except with samples instead of piano strings. In effect, the device pushes one toward composing using the ‘do re mi’ scale no matter what has been sampled in the first instance. Although one can micro-tune samples and create one’s own scale, one has to pre-conceive such a scale and work quite intensely within the editing parameters to achieve this. In contrast, no effort is required whatsoever to tune a sample to make tonal music; the technology does it for you.

As soon as a sample is created one can conveniently perform “Happy Birthday To You” (Hill & Hill, 1893), or any other melody, with the newly born sample. Whether or not the melody remains recognisable as “Happy Birthday To You” 15 is dependent upon the sample having a dominant pitch in the first instance. Nonetheless, the point is that the design of the ASR-10 sampler assumes one wants to apply conventional chromatic scales. Obviously it has been designed for the widest possible market, albeit a Western one, which falls into Sinnreich’s definition of the commercial control of music aesthetics. While it is possible to ‘detune’ the sample and build one’s own scale, it has to be a deliberate act in opposition to the sampler’s chromatic bias.

The result of this pitch bias was that it lead me to focus on the samples that feature a dominant tone, a ‘note,’ and to experiment with melody lines and chords. This was ultimately an unsatisfactory direction in that it did not lead me toward developing the new methodology I was seeking.

Another feature of the ASR-10 that pushes one toward conventional musical techniques is the ability to loop a sample. Looping is, of course, one of the defining characteristics of digital audio production: the ability to repeat a piece of audio exactly, effortlessly and, potentially, eternally. On the ASR-10 sampler looping a sample is made easy, as is altering start and end points for the loop, and switching from having to hold a key down in order to sustain a loop to having a loop play continuously with just a single touch. Just like the pitch bias, this rhythm bias pushes one toward conventionality, this time in the form of regular repetition. However, unlike the pitch bias, it requires just as much work to create simple, but precisely timed, patterns as it does to create complex chaotic poly-rhythms. However, this rhythm bias did lead to a focus on samples with percussive qualities that enabled conventional rhythms. Again, this was ultimately an unsatisfactory direction.

The resulting works feature some slightly unusual timbres and textures but the conventional tonal and rhythmic structures dominate and distract from the timbral qualities. One could imagine this material being recreated in a cover version on piano and percussion and still remaining recognisable because the essential elements of the work are not timbral but harmonic and rhythmic; timbre is secondary. Because the results were unsatisfactory examples of the test project are not included in the accompanying appropriate durable record.

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Gotye Moment\textsuperscript{16}

The results of the test project were disappointingly conventional. Whilst working with these samples of the sampler itself generated rhythms and melodies that would not have otherwise been arrived at, the results were ultimately shaped more by the technology than by creative freedom. This way of empirical composing with the sampler was not fruitful.

Consideration was then given to other artists that are able to successfully compose empirically with a sampler. Melbourne artist Gotye (the performance name of Wouter “Wally” de Backer) recently achieved phenomenal global success with his song “Somebody I Used To Know” (De Backer, 2011), a composition built upon a sample from the 1967 instrumental track, “Seville” (Bonfá, 1967), by Brazilian jazz guitarist Luiz Bonfá (Tingen, 2012). De Backer describes his use of sampling as “an inherent part of my songwriting process” (Wallen, 2012). He explains how he selects what to sample as the search for “the very incidental, secondary, almost forgotten sounds on obscure records” (Wallen, 2012). From here he works empirically, editing and processing samples, creating a foundation upon which to build a composition. His process is consistent with the understanding that sampling is a creative act of work rather than a practice reliant upon found sound.

The difference between this research and Gotye’s practice lies in his intention to create conventional popular music. Therefore, the structures are known prior to composing, and the measures against which a sample can be held to determine its musicality are known. In contrast, my test project was embarked upon in the absence of any specific intention other than to create in new ways. Understandably, the biases of the technology were too strong to resist.

The test project demonstrated that determining what to sample is merely a first step. Just identifying that I would assemble compositions from samples of the sampler was not limiting enough, with a multitude of sounds discovered and numerous directions possible. Perhaps Gotye’s method works for him because he samples from popular music in order to make popular music. The final form is a well-known convention and experiments are easily assessed for suitability. Nonetheless, it became clear that for this research a compositional intention was required, even within an empirical methodology.

The research returned to the initial concept: to produce a recreation of a major musique concrète work using the plunderphonic technique of using only samples of pre-existing recordings of the music of others. This project would resolve both the issue of intent while allowing research into the compositional methodologies and philosophies of musique concrète and how they can be applied to a sampling practice.

\textsuperscript{16} The expression ‘gotcha moment’ refers to journalism that tries to catch someone being contradictory or untruthful. Here it is also used as an approximate homophone for the artist name Gotye, pronounced ‘goh-tee-YAY’.

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SECTION TWO: COMING TO UNDERSTAND MUSIQUE CONCRÈTE

MUSIQUE CONCRÈTE IN RELATION TO THIS RESEARCH

This research takes the position that sampling has its origins in musique concrète, and that an examination of the theory, techniques and contemporary views of musique concrète is critical to contextualising the research.

Concrete and Clay\textsuperscript{17}

Despite it being more than half a century since its inception, there remain conflicting and inaccurate definitions for musique concrète. Like many others, Joanna Demers describes it as an activity that uses "found audio footage" (Demers, 2010). Just as the word ‘found’ is an inaccurate way to categorise all sampling, so too is it an incorrect way to summarise musique concrète. What is integral to musique concrète is the reliance upon recorded sound, whether it be ‘found,’ ‘everyday,’ ‘natural’ or otherwise. However, the term ‘everyday,’ also used by Demers (Demers, 2010), is noteworthy because it alludes to the real issue at the heart of musique concrète; the use of ‘non-musical’ sounds in a musical context.

While John Cage’s ‘4’33” (Cage, 1960), conceived of in 1948, the same year Pierre Schaeffer conceived of musique concrète, opened music up to include chance elements and sounds from beyond the music hall, it was musique concrète that made it possible to work musically with what were previously considered ‘non-musical’ sounds. Demers contends that Pierre Schaeffer “permanently transformed musical aesthetics, introducing the possibility that the sounds of the outside world could be considered as aesthetic objects” (Demers, 2010).

What occurred then was a dismantling of the ontological frame for music. Prior to the electronic era, music was kept separate from everyday life by the frame provided by such things as recognisable instruments, performance traditions and venues, and standard forms and tonalities. The inclusion of previously non-musical sounds undermined the existing frames for the identification of music as music. The platform, the ontological frame, for a musique concrète work is provided by the loudspeaker. Here lies the link between musique concrète and sampling: sample-based work always requires a speaker for it to be received.

However, today, when the vast majority of music is experienced via speakers, some qualification is required. For example, one might argue that a rock concert is also music made for speakers. While loudspeakers are certainly essential they are not the ontological platform upon which the music is presented because rock relies on the more traditional frame of instrumental performance. At a rock concert it would be unlikely for the ‘non-musical’ sounds of musique concrète, amplified through the speaker system, to be heard as music. In musique concrète, speakers are not simply the disseminator of sound, they are the principal platform or ontological frame for the music. Speakers enable the acousmatic premise for musique concrète: the separation of sound from its origin, real or imagined.

\textsuperscript{17} The title of a hit song (Moeller & Parker, 1965) by Unit 4 + 2 released in 1965.
It is important to note another inaccurate assumption about musique concrète; that the practice excludes musical instruments. Some of Pierre Schaeffer’s earliest studies, such as *Suite quatorze* from 1949, were made from recordings of musical instruments. *Symphonie pour un homme seul* (Schaeffer & Henry, 1950), composed by Schaeffer with Pierre Henry in 1949-50, is a 22 minute epic, separated into twelve movements, and while principally utilising the sounds of the human body, it also includes recordings of piano and percussion parts played by Henry. However, these recordings are manipulated and edited in ways that render the sound unlike anything achievable through real time instrumental performance.

It is perhaps these two aspects of musique concrète; the use of ‘non-musical’ sounds and the use of recordings of musical instruments manipulated to sound unlike ‘themselves,’ that have led to the general contemporary view. The dismantled ontological frame continues to be problematic. Many listeners find musique concrète at odds with their understanding of what constitutes music, finding it lacking one or more of the elements that they consider essential to music. The practice therefore is often described as ‘soundscape’ or as sound collage. Similarly, the work undertaken for this research is often received as ‘soundscape’ or a ‘collage of sound effects,’ particularly by those unfamiliar with musique concrète.

This research endeavours to use this contemporary view as a fulcrum upon which to balance, or leverage, the work. Essentially, this project used samples of music, transformed into so-called non-musical sounds, and placed within a musique concrète score. In this way the lines between what is, and what is not, music become so blurred as to become unstable, unreliable and forever questionable.

Additionally, this research is concerned with exploring the plasticity of sound as enabled by the practice of sampling. Pierre Henry has explained musique concrète as interested “in ‘plastifying’ music, of rendering it plastic like sculpture” (James, 1981). This consideration of sound as a sculptural material, coupled with an emphasis upon the importance of play, meaning both the ability to enjoy handling material and the operation of a musical instrument, is the aesthetic basis that musique concrète provided for this research.
MUSIQUE CONCRÈTE THEORY

Whilst this research contends that musique concrète is often misunderstood or ignored, its history is well documented and documenting it further is beyond the scope of this research. However, it is pertinent to consider several key points about musique concrète as a framework for composing, and how it can be connected to a sampling practice.

You Say You Want a French Revolution\(^{18}\)

The loudspeaker is not the only technology critical to musique concrète. Just as important, if not more so, is the technology that enables sound recording and playback. Here lies another critical link between musique concrète and sampling; playback technology adapted to become a musical instrument.

Many decades before a recording device was combined with an instrument in the form of the sampler, and before hip hop adapted the vinyl record turntable into an instrument, Pierre Schaeffer realised that the potential for a new way of making music resided in the relatively new technology for the playback of sound recorded to shellac disc. To begin with recorded sound as raw material meant music could be made empirically from real, recorded sound. It was the technological capacity of the new technology Schaeffer was dealing with to focus on a small fragment of recorded sound that sparked his epiphany. Listening to a locked groove and hearing a sound repeat exactly, and indefinitely, Schaeffer saw a way to examine the material properties of a sound. Familiar with the philosophy of phenomenology of Edmund Husserl (Husserl, 1928), Schaeffer developed a phenomenological approach, suspending the ‘sound object’ and bracketing it out of its context to separate it from associations with its cause or origin. This, he suggested, was possible through what he called ‘reduced listening.’

Schaeffer proposed that reduced listening be applied to recorded sound in order to focus attention on the phenomenon of sound as distinct from identifying causes and meaning. Critical to understanding the concept of reduced listening are the phenomenological concepts of ‘intention’ and ‘epoché.’ ‘Intention refers to the intention the listener brings to listen in a way that does not seek an external object beyond the sound. Epoché refers to the bracketing of the sound out of context (Kane, 2007).

More recently Denis Smalley has addressed ideas about acousmatics and listening in development of his new term, ‘spectromorphology’, terminology specific to contemporary electroacoustic music (Smalley, 1997). Smalley uses the term ‘source bonding’ to refer to all the ways a sound carries with it allusions, both real and imagined, to the world outside a musical composition, the intrinsic-to-extrinsic links between sounds within a work and the sounding world outside. Spectromorphology concentrates on the intrinsic features of sound and, in this way, is Smalley’s renaming, and updating, of reduced listening.

\(^{18}\) A reference to the lyric from The Beatles’ song “Revolution” (Lennon & McCartney, 1968) released in 1968, which is itself related to the musique concrete experiment “Revolution 9” (Lennon & McCartney, 1968) released on the Beatles’ 1968 self-titled LP (popularly known as The White Album).
However, many today consider reduced listening impossible, that it is inevitable that sounds have associations for the listener. Demers makes the point that many composers, even some who studied under Schaeffer, feel that expecting listeners to adopt a reduced listening mode of perception is asking too much (Demers, 2010). On the other hand Daniel Teruggi asserts that it is the composer’s role to transform sounds to the point where the results make this conceptual leap possible for the listener. He states; “If the objective is to ‘erase’ from recorded sounds any referential allusion, tools must strongly affect the essential parameters of sound in order to create a ‘distorted’ perception of them” (Teruggi, 2007).

This research adopts a reduced listening methodology but embraces the potential for samples of music to carry referential allusions, not only to their concrete origins but also to their cultural and social meanings. My piece “Cellblocks” for example, features repeated use of a sample of Bill Haley shouting "Rock!" from Bill Haley and His Comets’ “Rock Around The Clock” (Freedman & Myers, 1954) used repeatedly. For most listeners it remains recognisable as a human voice, and some listeners are able to hear the word ‘rock’ while most are unable to identify it as Haley or identify that it comes from the “Rock Around The Clock” recording. Unlike the Velvet Underground electric guitar sample, also used in “Cellblocks” and referred to earlier, that has lost its reference both to song, artist and instrumental origin, this Bill Haley sample has the potential to retain some or all of its referential associations. The transformations performed on the sample then create distorted perceptions that may or may not transcend referential allusions. This research contends that perception continues to lie with the listener and the composer can only approximate, or generalise, as to what referential allusion remains.

**Acousmatic For the People**

The erasure of referential allusion relies upon the acousmatic situation; the separation of sound from its origin, real or imagined. It can be argued that the notion of acousmatic listening, as defined by Schaeffer, is the basis for absolute music. From Beethoven to Stockhausen, absolute music aims to escape associations with the world outside itself, aspiring to be completely self-contained. In many ways it is at odds with the natural human tendency to attribute sources, and subsequent meanings, to the sounds we hear. However, it relates back to the ontological frame that makes it possible to receive sound as music in the first place: the transcending of the everyday sound world. Listening to music is listening to a self-referential medium that is patently incapable of describing anything. Or rather it was until the advent of sound recording. It was this crisis of representation brought to music by sound recording that created the right conditions for Schaeffer’s challenge: how can recordings of non-musical sounds become music? As explained earlier, phenomenology provided the answer; sounds need to be bracketed out of context, examined as objects and modified to suit a musical purpose. This is at the heart of the musique concrète challenge; how to alter the perception of so-called ‘everyday sounds’ in order for them to be received as music.

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19 “Cellblocks” is the seventh track on *ROCKreation of the World*. See the *Appropriate Durable Record*.

This research seeks to extend the musique concrète challenge into a contemporary sampling practice to become the following: how to alter the perception of recorded musical sounds in order for them to transcend or retain their referential allusions? This may seem like an impossible paradox but in actual fact, as evidenced by this research, creating a sample inherently forces a sound into such an acousmatic situation that the effort to retain referential allusion can be as equally arduous as attempting to remove it.

**The Sound Object of My Affection**

Perhaps the most significant theory Schaeffer developed is the concept of the ‘l’objet sonore’ (the sound object). By separating the recorded material from its origin, through reduced listening, one is left with the sound object. Further transformations and iterations of the object may retain its singular identity or it may generate new sound objects. These iterations and transformations are often created through a process of play and exploration as the focus is on the *perception* of the sound over and above the *pre-conception* of the sound.

The sound object is the ‘smallest’ possible perceivable unit of a sound work, which Michel Chion describes using a series of denials (Chion, 1983). It is not abstract, it is concrete, and therefore is not analogous or comparable to a musical note or any symbol which notates it. It is a whole entity and not a ‘grain’ or ‘particle’ of sound. Though manifested as a recording it is not the piece of media that holds the recording. It is not the fragment of tape, nor the digital file, nor the sample. It may have originated from a musical instrument, or several instruments, but it is not the instrument that was played; that is, it is not the source or cause. It is singular, in that it is not an incidence of perception. The one sound object can be repeated and perceived multiple times, from multiple ‘angles’ as it were, but the object retains its singularity. A sound object is identifiable and examinable objectively, that is, it is not the result of a subjective state of mind.

This research finds that the concept of the sound object can be a very relevant consideration within a sampling practice. Within this project the concept of the sound object became the pragmatic tool with which I could analyse and break down the existing musique concrète work into re-makeable parts. This process is explained in greater detail in later chapters.

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21 A reference to the common expression referring to a lover thus alluding to the tendency to ‘bracket out’ a singular person from all others around them.
MUSIQUE CONCRÈTE TECHNIQUES

In the previous chapter it is suggested that musique concrète adapted playback technology for the purposes of creating a musical instrument. Ultimately, Schaeffer believed that these efforts failed. However, this research considers the possibility of the sampler as an instrument for contemporary musique concrète.

We Have the Technology

The legacy of musique concrète is perhaps as much technological as it is theoretical. Daniel Teruggi writes; “Technology was the issue for Schaeffer, or to put it in a more poetical way, a new sound-based music needed new instruments for its development” (Teruggi, 2007).

Working as a radio engineer in Paris in the 1940s, Schaeffer accidentally created a locked groove on a shellac record he was working with. The continuous loop of sound surprised him because it sounded like the smooth sound of an oboe, a surprise because the original recording was a bell sound. The accidental locked groove had truncated the initial attack of the bell leaving the body of the sound to continue, potentially forever, causing Schaeffer to reconsider what he was hearing. He realised that the recording of the bell, and the way it was transformed in playback, the way it transformed the way he listened, could be the basis for a new way of making music.

Looping was an essential technique in the early years of musique concrète, as it altered the listener’s perception and disconnected the sound from its origins. Daniel Teruggi notes that the generation of repetition was a key strength of Schaeffer’s discoveries. “Repetition gives birth to the first ‘genes’ of music and shows a path towards musical construction” (Teruggi, 2007).

This research has found that the sample can take fascination with repetition to a micro level. A fragment of sound can be repeated an extreme number of times within the one composition, each one technically identical and yet each repetition a new sound event. This is quite unlike a performer repeating a gesture on a traditional instrument. No matter how skilled the instrumentalist, each reiteration will actually be unique. Each crack of the drum and each striking of the piano key will inevitably be slightly different from the last, as is confirmed by the simplest examination of audio waveforms. The sampler however, creates a new situation, taking advantage of the technical capacity to repeat a sonic moment exactly as it sounded previously, thus turning the listener’s focus toward context; when the repetition occurs in a composition and with what other elements it is combined. For example, in my piece “Set Lists” there are several repetitions of a sample from AC/DC’s “For Those About To Rock (We Salute You)” (Young, Young & Johnson, 1982) that clearly declares itself a sample. The exactitude of each repetition overrides the variations in volume, length and even pitch, perhaps because it is a vocal sample, our ears being very attuned to the voice.

22 A reference to the pop culture catch phrase that originated in the opening sequence for the television series The Six Million Dollar Man (1974 – 78), spoken with the accompaniment of various electronic sound effects.
23 “Set Lists” is the fifth track on ROCKreation of the World. See the Appropriate Durable Record.
Rapid technological advances in sound recording in Europe during and after the second world war provided the right conditions for Schaeffer’s ideas to blossom. Needle and groove technology was quickly superseded by magnetic tape. Tape enabled greater flexibility in terms of playback manipulation but more importantly it afforded easy editing by enabling the edit. Editing sounds recorded to tape enabled physical bracketing, the creation of more sound objects, and deeper analysis of the material properties of sounds. Michel Chion emphasises the importance of the edit, stating that musique concrète was invented:

First and foremost as a music based on editing. One ‘snatched’ an acoustic sound – most of the time created for that purpose – from its cause-and-effect context, and worked with it as a recording where it became orphaned from its original context. (Chion, 1982)

This editing process was called ‘sound sample extraction,’ a for-telling of the modern day digital sampler.

Although Schaeffer was influenced by the montage techniques being developed in cinema, he quickly rejected a literal ‘cinema for the ear’ based upon the use of what he called anecdotal sound; identifiable sounds assembled in a narrative, documentary fashion. He developed the intention to create music, fully understanding that music is a purely abstract art form that does not specifically describe or depict anything.

**Computer World**

From the beginning Pierre Schaeffer lamented the limitations of his available tools and dreamed of an instrument specifically for the ‘playing’ of musique concrète. Teruggi provides this extract from Schaeffer’s journal:

4 June 1948: There is no specific instrument to play musique concrète. That is the main difficulty. Or else we should imagine a huge cybernetic machine, capable of satisfying millions of combinations, and we are still not there. As long as I only have two of four shellac players, with which I can only realise approximate junctions, I will remain a terrible prisoner of a discontinuous style, where everything seems cut-off with an axe. Is there any possible compromise? (Teruggi, 2007)

The computer, with its enormous editing, copying and recombinating powers, would seem to be the ultimate tool for musique concrète, and the sampler, a type of computer dedicated to editing, copying and recombinating recorded sound, would be the ideal musique concrète instrument. However, Schaeffer was to ultimately reject this view of the sampler, as is discussed in later chapters. With the advent of the computer came the incredible power of cut-and-paste digital technology, yet surprisingly Schaeffer was resistant to the adoption of computing technology at the GRM. At the UNESCO Music and Technology conference in Stockholm in 1970 Schaeffer presented a negative and pessimistic assessment of computers in music production (Risset, 2008). He viewed using a computer as encouraging the pre-conception of composition, thus derailing empirical composing. As computing became more and more integrated with music production, and everyday life, the GRM accepted the inevitable but only in ways that remained true to the Schaefferian ethos of making through listening (Teruggi, 2007).

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25 Groupe de Recherches Musicales, the collective Schaeffer founded, now part of the INA (Institut national de l’audiovisuel).
Always an institution that developed devices in-house rather than adopting mass produced products, the GRM’s work with computers evolved into the software available today called GRM Tools, originally released in 1991 and now available online.\footnote{www.emf.org} While there is no doubting the power of GRM Tools plug-ins, they proved unsuitable for this research for a number of reasons. Firstly, using them took production out of the sampler environment as work had to either be transferred to computer or signal routed from the sampler through a computer. Such a scenario removed the focus on performability that became a significant part of the project. Keeping the work within the sampler environment kept the focus on the ‘playing’ of samples as opposed to the post-performance processing of ‘recorded playing.’ These issues are discussed in more detail in later chapters. Lastly, using GRM Tools as they were intended interfered with the express goal to remake the sound objects identified within the original musique concrète work. While there was a significant degree of experimental play involved in the project in order to identify processes that could transform samples into the desired result, ultimately the goal was to recreate the sound of an existing work. This project only required the tools to exploit the plasticity of recorded sound toward that end, whereas GRM Tools are designed to promote play without a pre-conceived sonic outcome. In essence, the project work for this research subverts the musique concrète premise that sound is explored empirically prior to abstract conception, because the aim was always to mould sound to fit a particular shape, rather than letting exploration determine outcomes.
MUSIQUE CONCRÈTE AND THIS RESEARCH IN SUMMARY

Concrete Break Musique

Musique concrète was intended by Schaeffer to be a new way of composing that would renew and revitalise the conventions of western music by inverting the abstract-to-concrete process. Instead of composing in the abstract and notating it on paper for it to be performed on conventional instruments, this new methodology begins with the collection of actual sound recordings, then through manipulation and transformation of actual concrete sound arrive at composition. Aside from the already discussed issue of the deciding what to sample, the sampler enables such an empirical compositional methodology.

The acousmatic situation, arrived at through reduced listening, enables sound objects to be disconnected from the external world. However, in this research project the ‘external world’ is a musical world, and therefore relies upon a plunderphonic premise as much as an acousmatic premise. The following chapter explores plunderphonia in greater detail but suffice it to say in the simplest terms this project can be summarised as follows: samples of recorded music manipulated in order to de-emphasise their musical qualities, essentially rendering them sound ‘effects,’ and then placed within a musique concrète compositional framework. For example, in my piece “First Good Vibrations” a sample of electric guitar taken from AC/DC’s “Rock n Roll Ain’t Noise Pollution” (1981) is used to punctuate the shimmering textures that have built over the first two minutes. However, in this new context, it possibly no longer resembles an electric guitar, despite it retaining both the tonal and textural qualities of the original sample.

This application of a musique concrète aesthetic is how this project differs from conventional sampling. Gotye, for example, samples conventionally harmonic and rhythmic music in order to produce conventionally harmonic and rhythmic music. Other artists sample non-musical sounds and produce conventionally harmonic and rhythmic music, and many avant garde composers sample non-musical sounds and produce musique concrète. This research strives for a new approach: music samples made non-musical in order to produce musique concrète.

Musique concrète’s dismantling of the ontological frame for music and the crisis of representation brought to music by sound recording create the platform for this research. This research takes the position that music is a way of listening, more so than a way of sounding. During this research the work was presented to those unaware of musique concrète and they often summarised the project as the sampling of conventionally harmonic and rhythmic music to make sound ‘effects.’ It is through the realisation that my works do not attempt to present intelligible sonic representations of real world phenomena (that is sound effects) that listeners begin to realise that the work requires a musical way of listening. The listener begins to ‘forget’ what has been sampled and the external world alluded to, or what real world event the sound now resembles, and begins to appreciate the sound for its material qualities. However, the question whether or not such forgetting is truly possible remains, and is in fact the crux of the research.

27 A reference to the sampling of the ‘break’ – the instrumental or percussion section or interlude during a song.
28 “First Good Vibrations” is the third track on ROCKreation of the World. See the Appropriate Durable Record.
SECTION THREE: COMING TO UNDERSTAND PLUNDERPHONIA

PLUNDERPHONIA IN RELATION TO THIS RESEARCH

This research embraces the contemporary mainstream understanding of sampling as the reuse of the work of others. In a sound art context such a practice is understood as plunderphonia. An examination of the underpinnings of plunderphonia and contemporary variations of the practice are critical to contextualising this research.

Somebody's Sound I Used To Know

Perhaps in response to the contemporary culture of easy access to digital media, sampling as a creative practice has become increasingly limited technically and legally. Sinnreich outlines three methods used to regulate the production of contemporary music: legal, ideological and commercial (Sinnreich, 2010). While this research is chiefly concerned with the ideological, or to my mind philosophical, there can be no doubting the impact of the legal and commercial methods of music regulation upon the practice of sampling. The technical limitations of the modern day domestic sampler are a result of what is deemed commercially viable in the mass market. Sampling activity is also limited by the legal restrictions that determine what sample based music can be commercially released. As a result sampling has become much more limited as a tool to explore and develop new methods of sound and music making than it was two decades ago when the sampler was in its golden age. At that time sampling technology and culture was being pushed and shaped by a major development in contemporary music; hip hop.

Hip hop followed a similar technological trajectory to musique concrète in that it progressed from vinyl to digital, growing out of the impulse to turn music playback devices into music production tools. Seemingly blithely unaware of musique concrète, hip hop also began with the turntable but, critically, hip hop skipped the magnetic tape phase that was so essential to the development of musique concrète, and instead moved straight to digital sampling. Once hip hop had established itself as a popular form and access to advanced studio tools was granted, digital sampling became the principal tool. Full advantage was taken of advances in digital sound production, pushing the development of sampling technology and ultimately contributing to the mass production of the sampler for the domestic market. Thus the commercial success of the digital sampler owes a great deal to the popularity of hip hop.

It is out of hip hop that comes the commonly understood definition of sampling: the reuse of recognisable fragments of the recorded music of others. This kind of sampling has infiltrated many other genres of music and at the fine art end of the spectrum is plunderphonia. Canadian composer John Oswald coined the term in his essay “Plunderphonics, or Audio Piracy as a Compositional Prerogative” (Oswald, 1985) and meant it to refer specifically to an audio work that was constructed entirely from samples of a single artist without the use of any additional material. The term has broadened to now

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29 Gotye’s “Somebody I Used To Know” (De Backer, 2011) was released locally in 2011 and in the US in 2012. It is a composition built upon a sample from the 1967 instrumental track, “Seville” (Bonfá, 1967), by Brazilian jazz guitarist Luiz Bonfá.
include various sound collage practices, often featuring extensive use of spoken word taken from news reports, educational films and documentaries. Tellingly, Oswald’s own work avoids this approach, except for his 1975 work “Power” (Oswald, 1975). This piece sees the combination of Led Zeppelin’s guitars with the vocals of a Southern US preacher, resulting in a work not unlike the hip hop that was to come later.30

Despite the expansion of the term plunderphonia to cover various practitioners, Oswald remains the principal exponent. Much of his work departs from conventional musical preoccupations such as harmony, melody, meter and rhythm. What remains consistent within all Oswald’s atonality and fracturing of the accepted tenets of music, is his dependence upon the ‘plunderphone.’ As the smallest unit of a sound work, the plunderphone is Oswald’s equivalent of musique concrète’s sound object. However, it differs in one key aspect: a sample is judged suitable for a plunderphonic practice upon the basis of its recognisability. In fact, Oswald’s practice relies even more heavily on recognition than hip hop does. Oswald explains that a “plunderphone is a recognizable sonic quote, using the actual sound of something familiar which has already been recorded. Whistling a bar of "Density 21.5" is a traditional musical quote. Taking Madonna singing "Like a Virgin" and rerecording it backwards or slower is plunderphonics, as long as you can reasonably recognize the source” (Oswald, 1999).

Oswald pushed plunderphonic recognisability to its limits with his 1993 work Plexure. Breaking his own rule of only sampling the work of a single artist, Plexure includes over one thousand samples of pop music condensed into a nineteen and a half minute work. With the samples appearing so fleetingly, the work is Oswald’s attempt to explore “the threshold of recognizability” (Oswald, 1999).

In a different way, the work within this research also explores the issue of recognition of sources. Firstly, the project was realised without concern for source recognition. Then it was reworked with full attention given to retention of source recognition. Finally, a third iteration of the project was produced that attempted to blend the two approaches.31

Plunderphonia is also set apart from other sample based practices, such as hip hop, by not adding new material. In most other popular music composition that employs sampling, the sample takes on a role secondary to the new, original, additional material. Gotye’s “Somebody I Used To Know” (De Backer, 2011), mentioned earlier, is a good example. The project work undertaken for this research is strictly plunderphonic in this way. No new material was generated. Only samples from specific sources were used. For example, my piece “Shout Out 1” uses only six samples to produce the three and a half minute piece.32

30 Run-D.M.C.’s rock-rap fusion in the song “Walk This Way” (Perry & Tyler, 1986) introduced the melding of rock and hip hop to mainstream audiences.

31 The production of the three iterations of ROCKreation of the World is discussed in Part II of this exegesis.

32 “Shout Out 1” is the tenth track on ROCKreation of the World. See the Appropriate Durable Record.
Close examination of the work of John Oswald reveals many instances of the application of musique concrète techniques; variances in turntable speed, sliced analogue tape, fragments of sound recordings loaded into a sampling keyboard, and so on. However, with his express aim to preserve the referential allusions, it is difficult to find instances where Oswald is applying an acousmatic mindset. His goal is to create works that depend upon the listener recognising the origin(s) of the sounds and appreciating the transformations performed. Recognition of the source is critical because the transformations are the very point of the resulting works. For example, Oswald’s “Pretender” (Oswald, 1988) relies upon the listener appreciating the pitch alterations performed on Dolly Parton’s voice. Oswald’s skill and craft in this work are apparent in his ability to keep the instrumentation, rhythm, lyrics, and even the vocal melody, of the original largely intact.

Oswald’s later work has departed from a strictly plunderphonic premise. Instead of using the well-known recorded music of others, Aparenthesi (Oswald, 2003) is a thirty minute piece that combines various recordings, from pianos to helicopters, thunderstorms to a solitary mosquito, all ‘tuned’ to A or one of A’s harmonics, in an experiment with timbre, dynamics, and layering. By tuning all sources in this way, the issue of pitch development is removed, allowing the focus to turn to other sonic characteristics. Paradoxically, by perversely adhering to the conventional notion that pitch is central, pitch itself has been nullified. Aparenthesi sees Oswald move his plunderphonic practice closer to a musique concrète practice. Perhaps it is no longer even appropriate to call his work plunderphonia, particularly given the use of non-musical sounds instead of the sampling of music.

In summary, a plunderphonic practice is dependent upon the listener being familiar with the source material and, despite how much it has been transformed, still being able to recognise the material that has been ‘plundered.’ The transformations are therefore limited in that they must allow the material to retain its recognisability.

Therefore, the project work produced for this research pushes plunderphonia in new directions. In one way, the works produced are strictly plunderphonic in the way that sample sources were restricted to a particular genre of music recording and in the way that no new material was added. In another way, the works challenge the current understanding of what constitutes a plunderphonic practice, particularly in the first iteration where simulacra was determined to be more important than retaining source recognition.

In a more complex way, this research grapples with the questions of originality and artistic validity posed by plunderphonia. Plunderphonic works establish themselves as new works by audibly revealing the source material and the extent to which that source material has been transformed, thereby sonically demonstrating their originality. Thus, plunderphonia differentiates itself from piracy. While some continue to take offence to the practice of ‘plundering’ in the first instance, I contend that it is undeniable that a plunderphonic practice involves a significant degree of work and creativity. Interviews with Oswald, and his own writings, including the extensive liner notes he includes in many of his releases, reveal a rigorous approach to composing. But my project, in using plunderphonic methods to recreate an existing composition and to, in effect, mimic the sound of someone else’s work, further challenges the question as to where does originality in plunderphonia begin and outright copying or piracy end.
THIS RESEARCH IN A BROADER PLUNDERPHONIC CONTEXT

The notion of plunderphonia can be broadened to encompass a wide range of contemporary practices. The cultural context in which contemporary artists find themselves, is based upon easy access to digital media that often overrides the anachronistic restrictions placed upon creative practice by laws, technology and ideologies. The tracing of the history of the reuse of existing material in art is beyond the scope of this exegesis but certain examples serve as touchstones for this research.

I Come From A Land Down Plunder

Taking a broader view of sound in the fine arts, this research found a parallel with the literary ‘cut-ups’ made by William S. Burroughs, in collaboration with Brion Gysin, that involved cutting up and rearranging text, sometimes from an external source such the newspaper. Gysin is notable because he extended his interest in cut-up text to audio editing, most famously in his work “Pistol Poem” (Gysin, 1960) that involved editing together tape recordings of various gun shots. Burroughs himself wrote about the transformative power of tape editing in the epilogue to The Ticket That Exploded (Burroughs, 1962), his novel that itself was written using the cut-up technique. Coming from a writer’s point of view, and with an obsession with language, Burroughs marvelled at the new ways words could be heard when recorded. “…it’s all done with tape recorders … consider this machine and what it can do … It can record and play back any number of times you can study and analyze every pause and inflection of a conversation…” (Burroughs, 1962). He goes on to discuss tape techniques such as speed variance and reverse, all the while focused on the “hidden meanings” revealed in the process.

The parallel with this research is the concern with the ability for sound recordings that already hold a certain meaning to reveal alternative ways of hearing and yet retain some essence of their origin. Burroughs and Gysin used recordings of a voice speaking text in order to hear alternative text. Alvin Lucier’s “I Am Sitting In A Room” (Lucier, 1969) used recordings of human speech in order to hear the acoustic properties of a room. Diana Deutsch used recordings of speech in a piece entitled “But They Sometimes Behave So Strangely” (Deutsch, 2003) to hear the musicality of everyday speech. All of these examples influenced this research by virtue of the use of musique concrète techniques of manipulation to reveal new ways of hearing existing material without obscuring their origins, in these cases recordings of human speech.

More recently, cut-ups and plunderphonia have emerged in the genre called mashups, bootlegs or bastard pop. Some of the simplest examples simply combine an a cappella version of one song with an instrumental version of another song. For example, the Evolution Control Committee’s Whipped Cream Mixes (1994) features the rap vocals from Public Enemy’s “Rebel Without a Pause” (Ridenhour, Sadler, Shocklee & Rogers, 1987) over the top of Herb Alpert’s “Bittersweet Samba” (Lake, 1965), or more recently, Girl Talk released All Day (2010), an album constructed from three hundred and seventy two samples, as a free download online. Other works are more akin to Burroughs/Gysin in that...

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A reference to the 1981 song “Down Under” (Hay & Strykert, 1981) by Men At Work, a work that was ruled in 2010 to have infringed the copyright of the song, “Kookaburra Sits in the Old Gum Tree” (Sinclair, 1932).
they focus on the text; i.e. the words spoken or sung are edited and recombined, often with humorous results. These works are often satirical, sometimes editing and recombining the recorded spoken words of controversial political figures. A well-known example in Australia is the work of Pauline Pantsdown,\(^{34}\) a parody of federal politician Pauline Hanson that feature humorous remixes of Hanson’s anti-immigration speeches.

Another way to understand contemporary forms of plunderphonia is as remixes. Echoing Lawrence Lessig’s view that a remix culture is desirable (Lessig, 2008), and possibly inevitable, many commercial recording artists sanction, promote or even commission, plunderphonic mashup remixes of their work. Despite the compelling argument made by Kirby Ferguson that all new material remixes existing material (Ferguson, 2013), there remains a legal distinction between approved remixing and unofficial use of copyrighted material. This is a controversial area because of the widespread view amongst mashup practitioners that a mashup is essentially a subversion of the original and that official permission can only result in undermining the subversive power of the remix. Officially approved plunderphonia is often seen to be of lesser artistic merit due to the assumption that effort has been made to avoid any kind of transformation detrimental to the sanctity of the original, such as mockery or parody. Obviously, the point at which remixing becomes defacement or vandalism of the original work is subjective, and the over-protection of the original artist is often seen as an inhibitor to creativity.

For these reasons, it was important that the work undertaken for this research was not officially approved or cleared by the copyright holders of the works sampled. However, it should be noted, that this is a privilege held by virtue of the fact that the work is academic research. Were the work produced outside academia, or should any attempt be made to publish the works publicly, the same legal restrictions ‘unapproved’ mashup artists must contend with would apply. One can therefore understand the temptation to only work on officially approved projects.

In summary, what remains critical is that mashups are plunderphonic in the sense that the key to the success of the works lies in the listener’s ability to recognise what has been sampled and to realise the, often incongruous, combinations that the artist has created. To do this, mashups generally retain recognisable popular song form and often retain the recognisable timbres of popular music. This research explores whether this focus on retaining recognition inhibits the potential to apply musique concrète principles, such as the sound object, to a sampling practice.

Thus the project, with the aim to remake a musique concrète work, moves away from being strictly a mashup but remains akin to so-called abstract mashups, such as John Cage’s multiple radio work *Imaginary Landscapes* (1951), the early turntable work of Christian Marclay, or even The Beatles’ “Revolution 9” (Lennon & McCartney, 1968), a collage of various appropriated spoken word recordings, classical music and sound effects that totally eschews the popular music form the group had taken to such heights.

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\(^{34}\) Satirist Simon Hunt released singles under the name Pauline Pantsdown in 1997.
Two Parts Beat As One\textsuperscript{35}

Of all the influences and pre-cursors for this research, two specific works stand as beacons, like lighthouses on opposite headlands, as this intrepid research explorer leaves the calm waters of the bay and looks out upon the open ocean ahead. Although not encountered until after commencement of the project, and therefore not a direct influence upon the conception of this project work, the two works highlight the goals and the aesthetic spirit of the research, and therefore provide a greater understanding of the context. These two works are Danger Mouse’s Grey Album (2004) and Francis Dhomont’s Frankenstein Symphony (1997).

The Grey Album is an ‘old-school’ mashup work in that Danger Mouse (Brian Burton) takes the rap vocals from Jay-Z’s Black Album (2003) and combines it with samples from The Beatles’ self titled 1968 album, commonly referred to as the White Album. The most exciting parallel found in this work was that the Beatles samples were edited and manipulated to match the forms and textures of the instrumental backings of the original Jay-Z album, the parts that Danger Mouse had actually removed. In this way the Grey Album is essentially a remake of the Black Album using only Beatles samples (and Jay-Z’s original vocals).

Dhomont’s Frankenstein Symphony is very much a musique concrète work. However, it is unique in that it is a collage of musique concrète works by twenty-two composers into four seamless movements. Inspired by a request for Dhomont to produce a compilation, the work is a result of Dhomont’s belief that taking works out of context would be detrimental and therefore creating a new context was required. Amongst the works encountered during this research, this is the closest to a musique concrète remix that was found. While it seems plunderphonic in intent, the lack of recognisable familiar material renders the result more a totally new work than a remix. Produced with the blessing of all twenty-two composers, one feels that there are private ‘jokes’ throughout the work, as only the original creator and Dhomont himself would be familiar enough with the sources to realise the transformations achieved in the edit. But in this way, a wholly plunderphonic work is presented as a wholly new work.

\textsuperscript{35} A reference to the U2 song “Two Hearts Beat As One” (Hewson, Evans, Clayton & Mullen, 1983) which is also the popular expression, often mistakenly attributed to poet John Keats but now believed to have been written by Austrian playwright Friedrich Halm.
SUMMARY: MUSIQUE CONCRÈTE VS. PLUNDERPHONIA

ACOUSRATIC MEETS REFERENTIAL

When developing sound objects for composing musique concrète, Daniel Teruggi states that “the objective is to ‘erase’ from recorded sounds any referential allusion” (Teruggi, 2007). When developing plunderphones for composing plunderphonia, one bears in mind that, as John Oswald states, “a major ingredient in perceiving any plunderphonic piece is the recognizability of the source in transformation” (Oswald, 1999). These two approaches to the use of fragments of recorded sound seem at odds. Plunderphonia, with its reliance upon the samples remaining recognisable, is arguably the antithesis of musique concrète and the acousmatic situation.

Francisco Lopez makes a similar argument in his essay “Schizophonia vs l’objet sonore: soundscapes and artistic freedom” (Lopez, 1997). In what can be characterised as Schaeffer versus Schafer, Lopez contends the concept of the sound object (l’objet sonore) and ‘schizophonia,’ the negatively loaded term R. Murray Schafer devised for the separation of sound from its source (Schafer, 1969), are “antagonistic conceptions of the same fact” (Lopez, 1997).

However, in establishing the context for this research, the adversarial attitude of Lopez was resisted. The proposition at the heart of this work is; must a sampling practitioner choose one way or the other? In fact, when working with samples, the grey area between acousmatic and referential may have the potential to be a fertile area for exploration. This project work is an exploration of the viability of exploiting the tension between the two.

An Ex Sample

Before discussing the project work in Part II of this exegesis, the following theoretical example will further explain this tension between acousmatic and referential, and the potential for creatively exploiting it.

Consider the making of a sample of the striking of a single piano key, the note ringing out with sustain and slowly dying away. Then consider the simple act of editing this sample, beginning with the removal of the initial attack, the first few milliseconds of the sound. As Pierre Schaeffer demonstrated in his experiments, often the removal of the attack very quickly renders the source instrument unrecognisable. By editing sounds recorded to magnetic tape, Schaeffer removed the attacks of piano and bell sounds and discovered that when the tape was played listeners could no longer differentiate the piano sounds from the bell sounds. In this example of a piano sample without the attack, the recording of a piano is no longer recognisable as a piano, and as such becomes acousmatic for the listener.

Consider now a second attempt at editing the sample. Returning to the unedited piano recording, this time the latter part of the sample, the body and decay, is edited out. The sound will still be instantly recognisable as a piano because the crucial attack remains, but a

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36 A homophone for ‘An Example’ referencing the ability for a sample to carry with it a reference to its ‘former life.’
significant portion is now missing. The listener recognises a piano but hears that it has been edited and notices what is not heard more prominently than what is heard.

Thus the same sample, simply edited in two different ways, causes the two different ways of listening: acousmatic and referential. The former presents a sound isolated from its source, from its cause, leaving the listener to focus on the material of what remains. The latter immediately establishes the cause of the sound only to cut it short, defying expectations, leaving the listener to become conscious of what is unheard, and thus conscious of the transformation. The former forces a listener into reduced listening, the latter leaves the listener locked in causal listening.

However, this referential reading of the second edit of the piano sample is dependent upon the listener being familiar with the sound of a piano key as it occurs acoustically, naturally as it were. Only then will the listener notice that the decay that must occur, by the laws of nature, has been cut. Therefore the retention of referential allusion is entirely dependent upon the prior experience of the listener. Plunderphonia adds additional layers of complexity to this situation. If, for example, the piano sample in question is the piano glissando from The Beatles’ 1964 recording “Rock And Roll Music” (Berry, 1957), then the resulting edits, both the first and second, would potentially be affected by a listener’s familiarity with the original Beatles recording, and all the cultural baggage that accompanies that. The first edit no longer necessarily becomes acousmatic, and the second edit no longer necessarily remains purely ‘a piano cut short’ but has the potential to be recognised as that particular recording of a piano from The Beatles’ “Rock And Roll Music.”

Considering the issues above, it becomes clear as to why plunderphonia focuses on popular music, as it has to contend with what the listener is or is not familiar with. Whereas the appeal of musique concrète composing becomes clear, as the acousmatic situation liberates the composer and the listener from this concern.

Making a sample, recording a fragment of sound, plucks a moment of time out of the air and turns it into an object, an alchemical turning of the ephemeral into the corporeal. Recorded sound documents the sonic result of an activity, but recorded sound also disconnects sound from this activity, from its cause. However, our sonic experiences and our auditory memories fight to maintain the connections between sounds and their origins. The sampler embodies this tension between sounds retaining referential allusions and sounds being freed from their origins. The composer working with samples must acknowledge that the listener will be torn between the natural tendency to ascribe origins to sounds and the lack of provenance provided by sampled sounds.

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[37] A sample of the piano from The Beatles’ “Rock And Roll Music”(Berry, 1957) is used several times in the project. It is used most notably in the fifth track of the ROCKreation of the World iterations, which is called “Set Lists” on the first iteration, “sets of configurations” on the second and “The Setup” on the third. See the Appropriate Durable Record.
PROJECT OVERVIEW

The principal project undertaken throughout this research was the production of a plunderphonic remake of a major musique concrète work using samples sourced from popular music recordings, combining the contemporary understanding of sampling as the reuse of the existing works of others with the Schaefferian notion of the non-referential (acousmatic) sound object.

By utilising both plunderphonic and musique concrète techniques, the project sought to explore the tension between sampling sound of recognisable origin and sound freed from referential allusion. Because a sampler is both a recording device and a playback device it can record sound played on itself, blurring the line between capturing device and musical instrument. And because a performance recorded on a sampler can be re-performed exactly as it was just heard, the distinction between live performance and playback of a recording is also blurred. In the following Part II of this exegesis the processes involved in making the works are described in detail, accompanied by discussion of the issues of the sampler as an instrument and performance with a sampler inserted at the relevant points.

The stages of the project can be summarised as follows:

1. **The Score**: Selecting a work to remake and converting it into a score.
2. **The Sampling**: Selecting sources to sample from and generating samples.
3. **The Re-Creation**: Transforming samples through play and re-creating sound objects.
4. **The Re-Composition**: Performing re-creations and reconstructing through layering and mixing.

The major musique concrète work selected for recreation was Bernard Parmegiani’s *La Création du Monde* (1986). The music recordings selected for sampling were twenty iconic rock recordings including songs by Elvis Presley, The Beatles, Led Zeppelin, KISS and AC/DC.

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38 My translation of the title is The Creation of the World. Full details are included in the following chapter.
39 A full list of all the samples sources is provided in Appendix D.
STAGE ONE: THE SCORE

SELECTING A WORK TO REMAKE

We Want the World and We Want it Now

The major musique concrète work selected for recreation was Bernard Parmegiani’s *La Création du Monde* (Parmegiani, 1986). It was selected for a number of reasons.

At seventy-three minutes long, and in three movements, it is a substantial work able to withstand intense scrutiny through repeated listenings, and has sufficient variation for the study of various musique concrète techniques. More importantly, it contains almost no recognisable sources. While it is tempting to assume that much of the work originated with white noise and other synthetically generated audio, it is difficult to confirm by simply listening to the final recordings released, particularly given Parmegiani’s penchant for transformation. Because this research involved ignoring sources, real or imagined, in order to focus on recreating timbre and form, *La Création du Monde* was identified as an excellent choice to remake. Had I selected *Symphonie pour un homme seul* (Symphony for One Man Alone) (Schaeffer & Henry, 1950), it would have been very difficult to ignore the numerous sounds of the human body recognisable throughout the composition. For example, a clearly recognisable recording of a vocal gasp would have been almost impossible to recreate without searching for a sample of a vocal gasp or a sample that sounds *like* a vocal gasp. As discussed in earlier chapters, such a focus on a sound’s cause or origin is a move away from an acousmatic practice.

Because of the abstract nature of *La Création du Monde*, choosing it to recreate mounts a challenge to the current understanding of what constitutes a plunderphonic practice. Despite intending to sample exclusively from a particular genre of recorded music, a particularly plunderphonic method, the first iteration of this project sought to transform samples in order for them to resemble sound objects within *La Création du Monde*. This often resulted in the source no longer remaining recognisable. For example, in my piece entitled “Wet Signals” there is a sample of the snare drum from Elvis Presley’s “Jailhouse Rock” that has been so radically transformed as to no longer be recognisable as a snare drum. Therefore, the question posed by this work is “does a work remain plunderphonic when the transformations erase sample recognition or does the source material retain an essence of its character despite the extent of the transformations?” Only the first iteration of this project posed this question, therefore it was realised that a second iteration of the work, and later a third, produced with greater emphasis on retention of sample recognition, was required in order to provide comparison.

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40 Lyric from “When the Music’s Over” (Morrison, Manzarek, Krieger & Densmore, 1967), recorded by The Doors.
41 “Wet Signals” is the eighth track on *ROCKreation of the World*. See the *Appropriate Durable Record*.
42 The same sample, manipulated differently, is used in my piece “Set Lists,” track five on *ROCKreation of the World*, and retains greater resemblance to a snare drum. See the *Appropriate Durable Record*.
43 See *ROCKreation of the World II* and *III* in the *Appropriate Durable Record*.
Other factors influenced the decision to select *La Création du Monde*. Of all the renowned musique concrète composers, I have only had the good fortune to meet Bernard Parmegiani (b. 1927). I organised his first and only visit to Australia in 2003 where he presented several multi-channel acousmonium concerts and artist talks. Witnessing these events and exploring his recorded works developed my love for musique concrète.

The first Parmegiani work that I owned and became intimate with was *Pop’eclectic* (Parmegiani, 1999), a collection of four pieces from 1966 to 1973 and released on CD in 1998. Unusually, the pieces incorporate recognisable recordings of music and recognisable musical instruments. Particularly relevant is “Du pop à l’âne” (Parmegiani, 1968), a collage of various popular recordings including rock and orchestral recordings. My research revealed this Parmegiani work as arguably the most plunderphonic work by any of the major musique concrète composers, making Parmegiani an apt choice for my project.

More importantly however, *La Création du Monde* is an outstanding example of Parmegiani’s fascination with transformation and metamorphosis. Again, the choice was ideal as this research is also chiefly concerned with transforming sound.

*La Création du Monde Closer*\(^{44}\)

\[La Création du Monde\] Closer\(^{44}\) was the second and final studio album by Joy Division released in 1980, as well as the title of unrelated songs by Nine Inch Nails (Reznor, 1994) and Kings of Leon (Kings of Leon, 2008).

Cover art features images provided by the Southern European Observatory and colour processed by the IT department of the Observatory of Meudon - Jean-Marie Malherbe.

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\(^{45}\) Cover art features images provided by the Southern European Observatory and colour processed by the IT department of the Observatory of Meudon - Jean-Marie Malherbe.
What is pertinent to this research is the way sounds arrive, emerge, transform and resolve. Parmegiani brilliantly creates movements to and from chaos and structure, the organic and the synthetic, space and density, singularity and multiplicity, tension and release, stasis and movement, and diminuendo and crescendo.

The first movement, called “Lumière noire” (Black light), features three pieces. “Moins l'infini” (Minus infinity) commences with an echoing or repeating explosion that reoccurs throughout the piece while various delicate sounds scatter and profligate. “Instant 0” (Moment zero) appears with clouds of noise gushing across the stereo image and a gathering storm of buzzes and hums. “Premières forces – Premières formes” (First forces – First shapes) closes the first movement and features the emergence out of the chaos of some semblance of structure.

The second movement, “Métamorphose du vide” (Metamorphosis of the void), begins with “Lumiére” (Light), a dynamic soundscape of broadband noise gestures that transitions into the next piece, “Jeux de configurations” (Sets of configurations). Here the suggestion of forming structures continue and relations between sounds develop as they emerge from chaos. “Échos/mélopées” (Echoes/chant) is one of the few tracks to feature a harmonic base, albeit a drone of high discordant glassy tones over which shrills and buzzes repeatedly call out.

The third and final movement, “Signes de vie” (Signs of life), is nearly as long as the first two movements combined, and includes six pieces. “Cellules” (Cells) is a delicate gentle piece of subtle movements and gestures, mimicking life emerging at a cellular level. “Aquatisme” (Aquatic) has a watery characteristic with suggestions of droplets and flowing streams. “Polyphonie” (Polyphony) is a frantic, busy track with multitudes of chattering sounds filling the sound stage, seemingly in conversation and, at the same time, in blithe ignorance of each other. “Expression 1” builds the tension with discordant tonal material combined with noise elements and leads to “Expression 2,” where a mass concert of sound swells and pulses in complex cycles. “Expression 1” and “Expression 2” complete the sense that forms have been created out of the cosmic forces and that the organisms and environments that constitute the contemporary world are interconnected as a teeming ecosystem.

Technically, the work finishes there, as the final piece, “Réalité” (Reality), is really a coda. It sounds like a field recording of a single person approaching the microphone and passing it by in a slight flurry of sound, suggesting perhaps a move from the fantastic imaginings of the previous seventy-one minutes to the real sonic world.

One can see from my efforts to analyse La Création du Monde how difficult it is to avoid describing sound through attribution to sources, real or imagined.

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46 All track title translations are mine.
47 Needs no translation.
48 Needs no translation.
CONVERTING THE WORK INTO A SCORE

Identify Yourself

La Création du Monde underwent considerable analysis as part of this research. The original stereo album was edited and segmented digitally to allow for closer examination of the concrete sound. Ninety-three sound objects were identified. In determining what constituted a sound object, the guiding principle was that the sound had to be individual, both in terms of how it sounded and how it might be recreated with a sample. In some cases sounds were determined to be a compound sound or to consist of multiple parts. For example, I named the fifth sound object identified in the first piece “Moins l’infini” ‘slow creak’ and determined it to consist of two parts, each having different characteristics. First there is the slow creaking, a dry brittle sound, but accompanying that is a light reverb wash that then thickens as the composition progresses. It was clear that the recreation would involve making two parts. Whether this would be solved by treating the same sample in two different ways or by using two different samples was not decided at this stage. All that was decided was that the two sounds were to be considered aspects of the one object.

Some sounds were identified as sounds that repeat but with minute variations or permutations. Decisions and judgements had to be made as to whether or not several sound events could be classified as just the one performable sound object, possibly undergoing some kind of transformation over the duration of its appearance in a piece. Such transformations and variations over time were analysed for their ability to be recreated via performance parameters. For example, I named the very first sound object identified ‘burst repeating.’ I decided that this sound object consisted of a pulse that fades, rather than a single burst that repeats eight or so times, each time at a lesser amplitude.

An important limitation aimed at further reducing the complexity of the recreation was to keep the number of sound objects to a minimum. In most cases it was possible to restrict the maximum number of simultaneously occurring sound objects to three, and the maximum number of sound objects per piece to an average of ten. Ten is only two more than the eight ‘instruments’ that the ASR-10 sampler can accommodate simultaneously. Later, I would be able to arrange these instruments so that all eight were playable at once. Whilst this was not necessary for the recording phase of the project, it facilitated live performances based upon the same palette of sounds created for each piece, performances which, in their own way, informed the process, as is discussed in later chapters.

Charts were then created that outlined how each sound object entered and exited the composition, and transformed over time. These became the templates for the re-composition phase. Figure 1 in the Appendices shows the chart created for the re-composition of the first track “Moins l’infini” and used in creating “Out of Time” in the first iteration of ROCKrèation of the World, “minus infinity” in the second and “Before Time” in the third.

49 A reference to DIY (Do It Yourself) and also the title of the 1979 album by the O’Jays.
50 See the list of sound objects identified, and the diary notes describing the process of recreation, in the Appendices.
51 See the list of sound objects identified, and the diary notes describing the process of recreation, in the Appendices.
52 See the list of sound objects identified for the each of the pieces in La Création du Monde in Appendix B.
Filling in the Name

As sound objects were identified they were spontaneously named, as seen in the lists and charts attached in the Appendices. The purpose of naming them was to help mentally differentiate them and to aid in cataloguing them in memorable ways. Spontaneity, therefore, was critical as the first name thought of, no matter how ridiculous, was usually the most memorable. However, it is worth noting that many of the names invented refer to a fictional sound source. This is consistent with what Demers noted, as explained earlier, that many of us struggle to break free from the referential allusions of sounds. Even the knowledge that Parmegiani’s sounds are not intended to be sound effects mimicking real world acoustic events, could not prevent my imagination from creating phantom causes. For example, sound objects were given names such as ‘car start,’ ‘dogs bark’ and ‘night owl’. Other names invented refer to the behaviour of the sound rather than an imagined source, for example ‘shimmer,’ ‘plops’ and ‘sizzling flicker.’ Later, when work in progress was presented in live performance, some listeners used a similar spontaneous naming of sounds as a way to discuss my performance with me. People referred to ‘champagne corks,’ ‘splashes’ and ‘thunder,’ and they did so without pause to consider that these sounds were fabricated from materials quite unlike the sources they imagined. It was generally assumed that I was working with recordings of these things.

Our tendency to attribute causes to sounds is well understood by musique concrète composers. When Bernard Parmegiani presented an artist talk in Melbourne in 2003 he played a study that had never been released before or been included in a finished composition. Just before hitting the play button, he explained that the source was a ping pong ball. This confused and frustrated me. I felt denied the opportunity to listen to the study oblivious to the sound’s cause and I felt confused as to why Parmegiani, clearly an adherent to the Schaefferian aim to eradicate referential allusion, would find it necessary to make such an announcement. Eventually I realised that the pronouncement was made to actually remove the initial, and completely natural, question that would occur in listeners’ minds, “what is the source of that sound,” so that we would focus on the sound itself. Later, as I undertook this research, I came to the conclusion that Parmegiani’s proclamation was even more than that. Consistent with the musique concrète goal to redirect the listener’s attention, he was also not about to pretend the sound did not have a source. Reduced listening is not a denial of causes and signifiers, but rather a focus on the musical qualities of sounds over and above causes.

For this research, the naming methods employed were pragmatic and did not adversely influence my thinking or the ability to focus on the material properties of the sounds I was working with. I did not need to know how Parmegiani created his sounds in La Création du Monde, and it did the project no harm to allow my imagination to run with its impulse to invent causes. In fact, it enabled easier management of so many different sounds in so many different configurations, whereas calling them ‘sound $x$’ or ‘untitled #x’ would have only created enormous confusion.

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Are You Keeping Score?\textsuperscript{54}

The identification of sound objects in the first eleven tracks of \textit{La Création du Monde} resulted in a chart for each track,\textsuperscript{55} essentially indicating when a sound object would arrive and exit, with markings loosely describing the way the sound changed or behaved over time. These charts became the score. Creating a score for a musique concrète work is essentially a perverse act, considering musique concrète conflates the score and the recording. However, despite Schaeffer’s goal to reinvent the compositional paradigm as one based in empirical composing, recording has not necessarily made scoring redundant.

Traditionally, a score is an abstract set of instructions for the concrete realisation of a sound composition, typically via instrumental performance. Prior to recording, new works were announced and stipulated through the written score. The score was the definitive version of a composition as each live performance would be transient and lost to the ether. Performances are also prone to a myriad of variables and inconsistencies in execution. Recording performances therefore, is not always the perfect way to preserve compositions.

These variables were championed by the pioneering work of John Cage, as the notion of composing was broadened to include chance elements. But this only further cemented the score as the definitive text, as recordings of aleatory compositions could never capture the infinite possibilities suggested in the score. Recordings tie down chance elements to specific, concrete sound. Even Brian Eno, who championed the recording studio as a tool for empirical sound composition, notes the positive differences that scoring can have on the results. Eno explains that:

> When music is generated by a group of people playing, everyone tends to play most of the time. With scoring, you’re more likely to use instruments when you need them. No one feels bad about standing around for three-quarters of an hour and then going ‘bong’ on a timp if that’s what the score demands. This is why scored music is more ‘colouristic’ and contoured than most pop – whole sections come and go; the dynamic and timbral ranges are very broad. (Eno, 1996)

In this research a score for \textit{La Création du Monde} was reverse engineered by analysing the recording which was an essential process for the commencement of the project. The score enabled organising the re-creation and understanding the complex relationships between sound objects. Reverse engineered scoring developed a deeper understanding of the Parmegiani composition, shedding light on the complex relationships and giving some insight into how Parmegiani may have arrived at them. Later, a more empirical approach was adopted as sound was played with experimentally in order to determine the plasticity of the various samples. Much like Stravinsky advocating for composing to involve direct contact with a musical instrument as opposed to purely composing in the abstract (Gardner, 1993), this research developed a dual methodology that saw a combination of scoring and empirical composing. In this way, the brain conceived of ideas that improvising with material alone could not, and play with materials generated ideas the brain would not have arrived at alone.

\textsuperscript{54} A reference to a negatively loaded question suggesting tabs are being kept on the value of the give and take in a relationship.

\textsuperscript{55} See Appendix C.
STAGE TWO: THE SAMPLING

SELECTING SOURCES TO SAMPLE FROM

Solid Rock\textsuperscript{56}

Like most of us, I grew up immersed in popular music, and my particular brand of popular music was rock, my first love. It provided not only the soundtrack to life, but in fact some of life’s most magical moments. It is the genre that inspired me to want to make music myself and ultimately, in a circuitous way, to undertake this research. Whilst my attraction to it was intuitive, I subsequently came to appreciate that rock was a form that developed in combination with the development of recording. As explained further below, rock was born because of recording and recording developed the way it did because of rock. Critically, it is because I fell in love with rock that I became fascinated with recording and both recording and rock have exerted a powerful influence over my practice ever since. More specifically, my practice has developed to be less interested in rock form, personal expression, and the cultural meaning vested in rock, and more involved with investigations into the sonic qualities of rock.

It is these factors above that prompted the decision to choose iconic rock recordings as the source for the samples required for this project. The inextricable connection between recording and rock, together with my artistic interest in exploring the material qualities of the sound of rock, made this sample source decision so fitting, as is explained further below.

Put Another Record On The Jukebox Baby\textsuperscript{57}

Rock and roll was born as a hybrid “mixture of various styles and idioms – blues, R&B, gospel, country, jazz” (Zak, 2001). Many of the early rock and roll pioneers were only exposed to these influential forms through recordings (Lippman, 1992). However, these seminal forms that gave birth to rock and roll were based upon a tradition of live performing. Rock and roll was the first popular music to come into existence as a primarily recorded form (Zak, 2001).

From the first attempts to record the blues of the deep-south to current day rock productions, one can see the thread of recording technology weaving its way through rock. It was recordings of the blues that inspired white musicians to adopt and feed the emerging form. It was the emergence of a record buying public hungry for the new sounds of rock and roll that spawned the birth of a rock recording industry. It was the sounds, and how they were captured, at Sun Studios in Memphis that enabled an unknown Elvis Presley to be crowned the ‘king of rock ’n’ roll’ within just a few years. It was how microphones changed sounds, it was how recorded sounds could be combined in a studio, and it was the ability to play these recordings outside the performance venue, on the car radio, on the jukebox, in the home, that enabled the phenomenal spread of rock across the world.

\textsuperscript{56} A reference to a good foundation, and the title of the debut single (Howard, 1982) recorded by Goanna and released in 1982.

\textsuperscript{57} A reference to the lyric “Put another dime in the jukebox, baby” from the song “I Love Rock ’n’ Roll” (Merrill & Hooker, 1975) made famous by the Joan Jett and the Blackhearts recording, released in 1981.
Whilst performance energy was also a critical aspect of rock, it was the ability of a recording to take the energy of a shouting vocalist, a screaming guitar amp and thundering drums and transform it all into a portable, manageable container. Theodore Gracyk explains how new works of rock are “stipulated and disseminated by a process of recording, labelling, and releasing them” (Gracyk, 1996).

**Always Forever Now**

The ways recording technology has changed music forever is manifest in rock. The mass production of recordings enabled an incredible level of access to the emerging new music. More radically, recording became a compositional tool, a central aspect of rock. As the primary experience of music shifted from live performance to the recorded form, so too compositional methods changed. Many rock recordings involve numerous performances, recorded at different times, overlayed, edited, and altered in numerous ways. It has gotten to the point that making a music recording and playing music live, even of the same composition, are two entirely different processes. Mirroring a sample based practice, Evan Eisenberg notes that “studio recordings … record nothing. Pieced together from bits of actual events, they construct an ideal event” (Eisenberg, 1988).

Recording, and the subsequent alterations that can be made to a recorded performance, means that when we listen to a rock recording we cannot even be sure if we are listening to an instrumental performance or not. The link between the performance of music and the consumption of music via recordings has been broken, and the emphasis has shifted from performance to composition. As Albin Zak points out, we are now more concerned with the sound of the recording than with the sound of the performance (Zak, 2001).

Before the advent of recording, the experience of music was always via performance (Shuker, 2001). By and large these performances were by people, although some mechanical devices were developed that removed the human element. For example, the pianola is a mechanical piano that reproduces compositions by reading rolls of paper punched with holes. As a roll feeds through the device it effectively tells the pianola which notes to play and when, a precursor to the sequencer. But the failure of the pianola to become the standard way of listening to music, to effectively replace human performers, and the later virulent success of recordings of music performances, show that human performance is a highly valued aspect of music. We don’t want to hear mechanical reproductions of the tunes we love. We want to hear our favourite performers performing them. However, this has come to embody a great irony: we will listen repeatedly to the same recording of our favourite performer rather than listen to new performances by that same performer.

The sampler embodies and emphasises this paradox. A sample can be a recording of a performance that is itself re-performed within another recording. It creates a feedback loop around the question of “performance or recording,” a duality that this project exploits, as explained in detail in the coming chapters.

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58 The title of a song (Eno, Hewson, Evans, Clayton & Mullen, 1995) recorded by Passengers.
Between Rock and a Concrete Place\textsuperscript{59}

As already discussed, musique concrète composition does not reside in a written abstract but in the actual sound recording. The definitive version of a musique concrète composition is the recorded work, echoing the way rock also stipulates new work in recorded form.

While musique concrète is different from rock in that it has freed composition from any reliance upon performance skills, musique concrète still identified performance as an essential element of music. This is addressed by musique concrète performances often taking the form of spatial diffusions over multi-speaker systems. Scores for diffusions are rare because they are specific to the system and space where the diffusion takes place. This continues the tradition of empirical composition into empirical performance. Furthermore, the composer often diffuses their own work, drawing upon their unchallengeable familiarity with the material. This merging of composer with performer is noted by Teruggi who states that “the composer has the double responsibility of being the creator of his own sounds as well as the creator of his music, within a working situation in which he is permanently listening to sound…” (Teruggi, 2007).

Again, one can notice striking similarities with rock. Rock also regularly combines composer and performer, and often involves empirical composition. Rock compositions are often inspired or generated by an initial period of ‘jamming’ or improvising with sounds and instruments. Rock also regularly eschews the score with rock performers priding themselves on memorised compositions.

Keepin’ It Real, Man\textsuperscript{60}

What drives my interest in rock the most, in regard to this research, is the fascinating tension that exists in the practice. Much rock music is at pains to differentiate itself from pop music on the basis that pop music revels in the artifice of studio recording and is unashamedly commercial, seemingly at the expense of creativity. This attitude puts rock in a constant state of anxiety about recording because the ideology of rock is predicated on authenticity; an authenticity that crafted, constructed recordings undermine at the same time that they perpetuate. Roy Shuker explains that:

To identify particular artists with either pop or rock ‘n’ roll attempts to keep commerce and artistic integrity apart on a central yardstick. It was part of a tendency in the 1980s (and still evident) to view popular music in terms of a series of dichotomies: mass versus community/local; commerce versus creativity; manufactured versus authentic; major record companies versus independents. This approach was a legacy of the mythology of ‘rock’ which was a product of the 1960s, when leading American critics – Landau, Marsh, and Christagau – elaborated a view of rock as correlated with authenticity, creativity and a particular political moment: the 1960s protest movement and the counterculture (for example, Marsh 1987). (Shuker, 2001)

\textsuperscript{59} A reference to the well known phrase ‘between a rock and a hard place’.

\textsuperscript{60} A reference to the popular expression that claims authenticity.
Rock is a fascinating tight rope walk; a music form created and sustained through a recording practice, one that has become increasingly ‘unreal’ and distinct from live performance, and yet idealised as ‘real’ music that articulates genuine real-world experiences through authentic performances. While many find the use of samples in rock abhorrent, the use of a sampler to explore the sonic qualities of rock is entirely logical in this project.

To focus on the actual sonic material of rock, one could do as Eric Tamm does and set aside the view of rock “as a genre determined by the demographics of record consumption, the verbal content of the songs, or the political stance of the musicians” in order to consider rock as “a complex of musical style characteristics” (Tamm, 1989). In particular, Tamm notes that rock is:

based on a set of textural norms involving a prominent vocal line with an accompaniment in which electric bass and drum kit are indispensable, electric and/or acoustic guitars are nearly indispensable, and other instruments such as keyboards (acoustic and electric piano, organ, synthesizer, and other electronic keyboards such as the mellotron), brass, woodwinds, and assorted percussion, are prevalent but not indispensable. (Tamm, 1989)

Tamm uses this characterisation of the elements of rock in order to discuss Eno’s progressive rock albums from 1973 to 1977 by posing the question “how far can those characteristics be diluted or extended before the music ceases to be rock” (Tamm, 1989). In this research, when considering the sources from which to sample, the above list of textural elements was noted and the very same question was applied to a sampling practice. By using samples of rock, this research explores how diluted or extended these rock characteristics can become before the music ceases to be recognisable as having originated from rock.

Simon Frith notes that:

For most rock fans there’s a deep-rooted sense of difference between “real” musical instruments – guitars, drums, sax, piano, voice – and false ones, electronic devices of all sorts. The rationale is straightforward: musicians can be seen to work on real instruments, there is a direct relationship between physical effort and sound. (Frith, 1990)

The sampler then is anathema to rock. While the question as to how to address the sampler as a performing instrument is tackled in the coming chapters, suffice it to say that the use of a sampler to make rock seems an appropriate way to further explore the tension already inherent in rock; the quest for authenticity whilst using a medium of fabrication.

Out of this thinking came the idea to apply a rock approach to an iteration of the project. Deviating from the strict replication of the Parmegiani composition, this third iteration involved applying rhythm and metre where possible, exploring the potential for samples collected from rock sources to go through the transformation stages and return to rock form. It also became apparent that the great rock tradition of naming new albums by simply using Roman numerals was perfectly apt.61

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20 Golden Greats

Twenty tracks was determined as a suitable amount of sources that would provide the variety and diversity required to remake ninety-three sound objects. Considerable time was spent researching ‘best of’ lists and sales charts online before deciding upon a fairly subjective list. Chart histories of sales were determined to be too unreliable in indicating how familiar a listener would be with a song. For example, Led Zeppelin’s “Stairway To Heaven” (Page & Plant, 1971) is well known and easily recognised despite not charting well upon its release because it was never released as a single. On the other hand impressive sales do not necessarily guarantee a song’s iconic status or its potential to be easily recognised from hearing a small fragment. As ‘best of’ lists are so notoriously subjective it seemed logical to make my own subjective list, but with particular criteria in mind.

Obviously, each track selected had to generally adhere to familiar rock instrumentation, form, rhythms, textural norms etc. Attempts were made to accommodate a range of artists across a wide period of time. Perhaps the absence of any track post-1995 is the result of the need for a significant amount of time to have passed for a song to become a classic. The short list was culled further by imposing the dictum that the song must have the word ‘rock’ in the title, preferably also sung within the recording. This may also account for the lack of tracks from the last twenty years in the final list, as using the word ‘rock’ so blatantly in a song title or lyric has become passé. However, suspecting that it may be useful to sample vocals, I decided to restrict vocal sampling to the word ‘rock’ being sung or spoken. This intuition proved to be correct. The Parmegiani sound object I titled ‘shout,’ because it sounded like a vocal shout, was recreated with a sample of Bill Haley singing ‘rock’ in “Rock Around the Clock” (Freedman & Myers, 1954).

While the library of sample sources was intended to stay within the bounds of what constituted the elements of rock, there were two occasions when samples were made outside these bounds: speech and crowd noise. The restricting of vocals to the word ‘rock’ became useful again. The spoken introduction to the Ramones’ “Do You Remember Rock ’n’ Roll Radio?” (Hyman, Colvin, & Cummings, 1980) was sampled and used to recreate the sound object ‘voice.’

Considerable deliberation was given to sampling sounds that fell outside standard rock sounds. In conclusion, it was decided that it was justifiable to sample anything that appeared on an iconic rock recording, no matter how peculiar. However, another justification for sampling crowd noise was developed. Brophy notes that the use of crowd noise on rock recordings has a history of being artificially added to re-create the feeling of a live concert (Brophy, 1987). But whether real or virtual, the presence of crowd sounds on a rock recording is another demonstration of the rock impulse to symbolise authenticity. To therefore sample the crowd from Lou Reed’s live recording of “Rock & Roll” (Reed, 1984) and use it in this highly constructed project seemed very appropriate. This particular sample was used to recreate the white noise swirls at the beginning of Parmegiani’s “Instant 0.”

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62 A reference to numerous greatest hits albums released by particular artists, such as The Beach Boys (1976) and The Shadows (1977).
63 The Bill Haley sample was used in “Shout Out 1” on ROCKreation of the World, “expression 1” on the second iteration and “The Express 1” on the third. See the Appropriate Durable Record.
64 See Appendix B for the list of sound objects recreated and the pieces they were used in.
GENERATING SAMPLES

Take a Free Sample

The following stage was not arrived at easily. Initially, it was felt that the re-creation process would simply involve listening to the rock tracks and identifying moments that texturally and timbrally match the sound objects already identified in *La Création du Monde*. However, this process very quickly became too difficult. It was a mistake to presume that minimal transformation would be required. Additionally, the idea that such a matching process would be successful neglected to account for the value of empirical composing and the essential musique concrète method of play.

Therefore, it was determined that a process for generating samples was required. It was decided to begin creating sound objects out of the twenty rock tracks without specifically aiming to emulate particular sound objects. This would then provide inspiration for the later re-creation of each Parmegiani sound. To do this, a system was employed that is a modified version of the process advocated by Terence Dwyer in *Composing With Tape Recorders: Musique Concrète For Beginners* (Dwyer, 1971).

Dwyer proposes gathering a library of sounds by classifying sounds by their manner of production as follows: *Tones, Mistones, Pseudotones, Sones*. Dwyer then provides for further classification by *duration* (short, long, fading or tremelo) and *pitch* (high, medium or low). Despite this seemingly non-acousmatic method of basing the classification on the means of production, this methodology actually goes some considerable way toward categorising sounds based upon their material qualities, over and above their causes or sources. Adopting this method, one begins composition by conceptualising sounds based largely upon timbral qualities.

For this project Dwyer’s classification system was modified to become:

1. **Tones**: Single note sounds made by a musical instrument or voice playing normally, as pure as possible.
2. **Mis-tones**: Sounds made by a normally tonal musical instrument or voice where tonality is absent or (usually) unimportant, such as feedback or glissando.
3. **Multi-tones**: Multi-note (chord) sounds made by a single instrument or voices or combined instruments and voices.
4. **Sones**: Atonal sounds made by anything. Sones may still be produced by a musical instrument but are not tonal in any way, for example, snare drum hits and solo drum fills, but crowd noise and speech also falls into this category.

This resulted in a matrix of forty-eight individual sound objects. In the process of making a sample for each of these, I created sixty-three samples and this became my library of samples for the project. The full table is included in Appendix E.

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66 A reference to the way that some retail outlets for products such as cosmetics offer samples free of charge.
STAGE THREE: THE RE-CREATION

TRANSFORMING SAMPLES

Come Out and Play

In this research a significant amount of empirical play was undertaken, with each of the sixty-three samples created in the previous stage undergoing some form of processing. This experimentation was all done within the synthesis engine of the ASR-10 sampler, utilising the editing, layering and processing capacities of the device, together with the in-built effects unit. All these transformations involved performing, and these performances were recorded to hard disk. The recorded performances were subsequently layered and juxtaposed to further explore the compositional potential of the various elements under construction.

Play is a very important part of musique concrète. The double meaning of the verb ‘play,’ the same in French as it is in English, was deliberately engaged by Schaeffer, referring to both activity as a form of enjoyment and recreation and operation of a musical instrument. In this way, musique concrète advocates a significant degree of improvisation as part of the composing process.

In the early 1990s the GRM produced a list of ‘morphological concepts:’ ten categories of actions that can be performed to manipulate sounds (Teruggi, 2007). They were intended to form a link between the technology of the pre-digital musique concrète studio and any contemporary device being utilised for the creation of musique concrète compositions. They are as follows:

1. **Sound isolation and observation**: Recording, listening to sound images.
2. **Sound editing**: Cutting-out, incrustations, loops, time inversions, substitutions.
3. **Dynamic modifications**: Amplitude modulation, actions on potentiometers, noise reduction or elimination, compression, expansion.
4. **Speed modifications**: Speed variations, phase variations, Doppler effect.
5. **Time modifications**: Time stretching, time contraction, time freezing, loops, time inversion.
6. **Spectral modifications**: Filtering, resonant filtering, harmonisation, ring modulation, spectral interpolation, analysis-resynthesis.
7. **Density modifications**: Shuffling, feedback, multiplication.
8. **Order of events modifications**: Shuffling, editing, sound inversions.
9. **Space modifications**: Panning, circling, Doppler effect, reverberation.
10. **Sound addition**: Mixing, sound interleaving. (Teruggi, 2007)

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67 A song (Holland, 1994) by The Offspring released in 1994 with its own plagiarism controversy. The similarities between the two-bar Arabian guitar phrase repeated throughout “Come Out and Play” and the guitar solo in “Bloodstains” (Palm, Rodgers & Miller, 1979), a song by Agent Orange, caused the copyright owner of “Bloodstains” to contend that The Offspring had ‘sampled’ Agent Orange.

68 Note the appropriate duality of recreation/re-creation. ‘Recreation,’ meaning a refreshing of strength and spirit, and ‘re-creation,’ meaning to create something anew, are often interchangeable in this project.
All the above processes are possible when working with samples and this project utilises them all. Attached to this exegesis is Appendix B; a list of sound objects re-created with the right hand column indicating the morphological processes used for each re-creation.

In summary, the samples were all experimented with within the ASR-10 environment in order to develop the following:

- A reduced listening/acousmatic state,
- the point at which a sample loses its referential allusion,
- performable parameters, and
- the potential for combination and juxtaposition with other samples.

As each experimentation was recorded as an improvised performance, the performable potential of each sample was explored, and ‘pseudo-instruments’ began to emerge. Performance and instrument are discussed further in coming chapters.

The results of this play period became the groundwork for the re-creation phase. These results were compared to the score for:

- timbral matching,
- form matching,
- potential for further morphing to match form and timbre, and
- potential for further performability to match form and timbre.
RE-CREATING SOUND OBJECTS

Re-make/Re-model

At this stage, the raw improvisations were ready to be used as the starting points for the object-by-object recreation of sound objects. It became necessary to name the samples with a numerical prefix based upon the date of production, as the process simply began with the first sound object and moved sequentially through the score. This became the SAD (Sound a Day) project, which involved extensive writing in diary/blog format, and is included in full in Appendix F. The numbered samples would then correspond with entries in the blog, which also notes the sample source. This became a critical tool in enabling later backtracking and the ‘undoing’ of transformations in order to restore some sample ‘visibility’ for the plunderphonic iteration of the work, ROCKreation of the World II. The names using imagined sources and behavioural descriptions were retained because they remained the most memorable naming method.

At the end of this re-creation stage, all ninety-three sound objects had been re-created as performable samples, with some additional samples on the B-list should the A list samples prove unsuitable. On the ASR-10 these performable samples are called ‘instruments,’ or, in musique concrète terms, they could be considered ‘pseudo-instruments,’ as is discussed in the coming chapter on the instrument.

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69 The title of the opening track (Ferry, 1972) on Roxy Music’s eponymous debut album released in 1972, which incidentally starts with a musique concrète introduction; a short collage of cocktail party noise.
THE SAMPLER AS INSTRUMENT

The Instrument is Dead, Long Live the Instrument\(^{70}\)

The re-creation stage of this project raised questions about the status of the sampler as an instrument. Joanna Demers writes that, prior to electronic music, musical instruments were capable of establishing the frame for music:

Consider that before the advent of electronic music, the sound of almost any instrument or singing voice would alert listeners within a short amount of time that they were hearing a musical sound and not, say, a sound of nature, chance, or a non-artistic machine. The timbres, attacks, structure, and syntax of pre-electronic music all work together to underscore music’s status as a special type of organized sound that is separate from the sounds of everyday life. (Demers, 2010)

A sampler is capable of capturing any recordable sound and putting that sound at the fingertips of a performer. But the very nature of the sampler causes the sound emanating from a sampler to be of questionable origin. If the sound resembles a known musical instrument then the sampler quickly establishes the same frame as a traditional instrument. But if that sound is what is generally understood as ‘non-musical’ then the sampler fails to identify itself as a musical instrument and fails to establish the musical frame. This research ponders how the sampler can function as a musical instrument when working with sounds that no longer resemble music.

Instruments are devices that have stopped evolving. They evolved over many years, developing organically in tandem with their environment. Their development was determined by many factors, such as availability of suitable materials, how robust and durable the instrument was, how transportable it was, what sounded pleasing in the spaces the instrument was used, how much demand from listeners there was to hear more, and so on. Instruments also developed by responding to the experiences of musicians mastering them. As instruments developed they became increasingly difficult to play and the notion of the specialist musician was born. At some stage an instrument stops evolving, reaching a peak of design and becoming a classic. The focus then moves from the evolution of the instrument to the evolution of the player and to the music produced by the instrument. No matter how challenging an instrument may be to learn, it resists technical modification as the onus passes to the musician to master technique. As a player’s abilities develop, any frustrations with the limitations of the instrument are redirected into attempts to develop new music, new styles, and new techniques. Also, commercial forces have considerable bearing in standardising instruments and making the classic form widely available.

The sampler then is not strictly an instrument in that it has not ceased to evolve, and by its very nature never will. It can never become a ‘fixed,’ classic instrument because its very nature is to be chameleon-like. The sound it produces and how that sound is performed is totally variable. Instead, a composer must create their own unique set of sounds and ways to perform those sounds, and in this way ‘fix’ (or ‘concrete’) the sampler, possibly only for one particular composition or performance.

\(^{70}\) A reference to the traditional proclamation that declares that the throne shall never be empty. I am suggesting here that as long as there is music there will be instruments. Also, The Queen is Dead is the title of an album by The Smiths released in 1986.
In the current electronic age, this urge to create new music and new sounds has seen a resurgent interest in instrument making. This impulse has seen many attempts, usually as one-off instruments, mastered by few, if any, musicians. None seem to reach their design peak. One could argue that the last truly classic instrument \(^7\) invented was the theremin (“Theremin – Wikipedia, the free encyclopedia”, n.d.), a truly electric instrument and the only instrument that requires no physical contact. In fact the theremin almost transcends classicism in that it has never settled as one particular physical form but as a concept. It is the operating principle that remains consistent, and thus, one can download circuit diagrams from the internet and build one’s own theremin and, no matter how it physically looks, it will still be consistent in how it is played and the sound it produces. Demers also points out that the theremin is an early example of what she calls “black box” instruments, a category in which she includes samplers and most electronic instruments, and is defined by their rendering of sound creation invisible (Demers, 2010). Invisible sound creation naturally lends itself to the acousmatic.

Pierre Schaeffer imagined the sampler before one ever existed (Emmerson, 2007). The following writing comes from Schaeffer’s diary entry dated 23 April 1948:

> Let there be an organ of which the stops each correspond to a disc player of which one would furnish the fitted turntable at will; let us suppose that the keyboard of this organ sets the pickups into action simultaneously or successively, instantly and for the duration that one wants … one obtains, *theoretically*, an enormous instrument capable not only of replacing all existing instruments, but of every conceivable instrument, musical or not, of which the notes do or do not correspond to the pitches given in the range. (Schaeffer, 1952)

Curiously, when interviewed for a popular electronic music magazine in the 1980s, both Schaeffer and Pierre Henry were ambivalent toward the digital sampler:

> Schaeffer may get his wish with the abundance of digital samplers on the market, taking sounds from the acoustic world with their harmonically richer structures, and manipulating them into new shapes. Yet, when queried about it, neither Schaeffer nor Henry seemed very interested in the new technology. (Diliberto, 1986)

Perhaps too much time had passed after Schaeffer’s 1948 wish for a musique concrète instrument to the eventual emergence of digital sampling in the late 1970s. By then, his thinking and the devices developed at the GRM were travelling down paths that no longer needed an instrument. In *Traité des objets musicaux* (Schaeffer, 1966) Pierre Schaeffer ultimately decides to avoid the term ‘instrument’ and differentiates musique concrète from earlier compositional practices by referring to the technology developed at GRM as “machines à sons” (Schaeffer, 1966). “Sound machines” \(^7\) seems more apt now that music technology has broken free of the academy and become broadly commercially available. The machines now available, the ubiquitous laptop and the vast array of digital sound production tools, are complemented by the shift amongst contemporary musicians from consumers of music technology to producers of music technology, and all the grey areas in

\(^7\) I’m discounting the synthesiser here on the basis that it is a sound creation technique rather than an instrument. Hence the ‘technique’ of synthesis can be applied to a keyboard interface, or internally on a sampler or laptop.

\(^7\) My translation.
between. A contemporary sound artist is just as likely to adapt, modify and rebuild equipment (including software) as they are to utilise an existing classic instrument.

Pia van Gelder, a Sydney based electronic media artist, centres her practice around live electronic audio and video performance using devices of her own making. In a 2011 ABC Classic FM radio interview, she explained how she used to call herself an instrument builder until she realised that she made machines that are distinct from musical instruments. She explained the distinction:

Well, an instrument is something that a human has total power over, depending obviously on your skill. But a machine, for me anyway, suggests that it has some power of authorship. It is able to generate its own output without dependence on a human user. (Adams, 2011)

It is an interesting, but ultimately difficult, distinction to make. After all, starting the machine requires human input. Nonetheless, under van Gelder’s definition, a pianola is not an instrument but a machine, and it is no different to a phonograph, CD player or laptop computer. They are all machines that play music but they are not instruments on which one can play music. Not so the sampler. A sampler, a type of single purpose computer, can be both a machine and an instrument. It can play music, like a machine, and it can be played, like an instrument, and sometimes it does this simultaneously.

Interestingly, in van Gelder’s interview, the follow up question was as to whether the sound she produces with her machines is music or not. She deferred to the ear of the beholder, preferring instead to label it broadly as sound or just art. What is clear is that the status of the device used to produce sound does not help determine if what is produced is music; it does not necessarily provide the frame. A DJ lowers a needle onto a record or presses play on a CD player. Music spews forth but the DJ is activating a machine, not playing an instrument. But then the DJ mixes in another record, then scratches the first record, then flicks the fader between one source and another. Undoubtedly, this turns the turntable into an instrument, the DJ an instrumentalist, and the resulting sound music. While for many, this remains questionable, and the sampler only adds further complexity to this situation, but what remains undeniable is that it is a performance.

In the next chapter consideration is given to the nature of performance and the potential for any sound to be received musically, simply by being in a performance situation.
STAGE FOUR: THE RE-COMPOSITION

PERFORMING ON A SAMPLER

Performance Anxiety

During this research, further exploration of the sampler as an instrument was undertaken through a series of live performances across Australia. Many of these were presented in multi-speaker configurations, drawing upon the long-standing musique concrète tradition of spatialisation in performance. These performances were more a testing ground for the pseudo-instruments than the compositions. The blueprints for the compositions were the charts developed as scores for Parmegiani’s La Création du Monde. In performance these structures were loosely applied, allowing for improvised passages upon each sound object/pseudo-instrument. The goal was to ensure the performative aspects of the pseudo-instruments were engaging and avoided sounding as if sounds were simply being turned on and off. I was also curious as to how recognisable the sources were for audiences.

In summary, the performances were presented using the palette of sounds developed during the re-creation process and the scores developed during the scoring process. They were also defined by:

• performing only on the ASR-10 sampler,
• exploring the grey area between playing back a recording and performing a sample,
• adapting the score to accommodate improvised passages, and
• gauging audience ability to recognise source materials, either explicitly or generically.

Feedback was generally positive but, to give some indication of the extremes, below are excerpts from two reviews, one positive and one negative. Gail Priest positively reviewed my performance in Sydney on 12th July 2008:

There were two outstanding performances across the festival. One came from national festival director Nat Bates. Lit from behind, seated at a keyboard, Bates starts with a dramatic stadium rock sting. Using an antique Ensonique ASR10 sampler, he takes the iconic sounds of epic rock—cymbals, drums, grand full band stabs—and explores them as artefacts. By using the sounds minimally and deftly spatialising them, he lets us hear beyond the cliché to the timbral and textural essence of the sounds themselves. A cymbal plays out longer than is physically possible, cycling around the speakers: we identify it as a cymbal yet hear beyond it to the metal, to the computer bits that stretch it, to the room it was recorded in and the one in which it is played. It’s ear and mind expanding—an exploration of both the sound of a sound, and an interrogation of the meanings and associations imposed on it. The combined result of this sustain and suspense is intriguingly cinematic, even noirish. As a dramatic conclusion Bates triggers a final rock stab and a seemingly infinite reverb rings out…it’s still going as he leaves the stage. (Priest, 2008)

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Kit Webster, an undergraduate at RMIT University at the time, reviewed my next performance, presented a week later in Melbourne on 17th July 2008. Webster commented upon what he heard as errors, which in actual fact were deliberate gestures and edits designed to make the use of samples as transparent as possible:

> The fidelity of his sounds were something lacking. There was a very evident bit reduction from down pitching his samples too much and also that reverberant clicking sound you sometimes get when a reverb parameter gets changed or buffer underrun. I was sitting behind Byron and could see his head slightly tilt every time this happened. (Webster, 2008)

Webster clearly believed he was not alone in his negative assessment of my performance. I was well aware of the bit reduction and the ‘click,’ and was using them as deliberate artefacts of the instrument, in the same way breaths are a part of singing, or fret squeak on an acoustic guitar is part of the sound of the instrument. In effect, I was concerned with establishing the musical frame by audibly pointing to the sampler as an instrument for performance.

Alternatively, one could view these so-called ‘errors’ as a sign that a risk had been taken, and that therefore a live performance was indeed taking place. Australian composer and performer Jon Rose considers risk an essential requirement for a performance. Rose says:

> I think that’s the thing that still is possibly the most important thing about performance. People have got to see and hear that you have the chance of failure. They’ve got to see that you really are trying for something. And in some ways that’s been the problem with the laptop performance. It’s that nothing happens, and it’s kind of like, the audience is there because there could be something happen. Something could go wrong. Something extraordinary could happen. (Adams, 2011)

Sarah Keith presented a paper at the 2010 Australasian Computer Music Conference at the Australian National University in Canberra that addresses the issue of laptop computer performances from an academic point of view (Keith, 2010). It does so from the position that it is a problem that needs solving or reconciling. Issues listed include the perception of effortlessness, non-liveness, obscurantism, counterfeit and the questionable role of the artist or author in the performance. Potential solutions are raised such as developing expressivity and virtuosity, or screen projection or other additional ‘audience- scrut able’ additions to the performance. But essentially these are all centred around the critical aspect of the audience’s ability to perceive risk, that which Keith describes as the ‘human element.’

Such concerns perhaps unnecessarily problematise Pia van Gelder’s performances, when in fact van Gelder is quite comfortable with the ‘problems’ raised and the tension created by her devices and performances. She makes a machine, arguably a creative act in itself, then uses it to present a performance of sound (and image) leaving issues of authorship, composition and musicality to the audience.
A sampler performance can be received in the same way, embracing the tensions inherent in the technology and creating contrast, interest and mystique within and around the performance. But to utilise this tension effectively it is important to be cognisant of the larger issue of the musical frame discussed earlier and summarised by Demers in neutral terms: “The true issue here is how electronic music is dismantling the various cultural and aesthetic habits that frame a performance as separate from the outside world” (Demers, 2010).

**Showbiz**

Performance is transient, beginning, unfolding and ending within a unique moment in time. It is this ‘in the moment’ aspect that Rose is alluding to when he talks about risk. It is Keith’s ‘human element’ that brings variables to the moment; those aspects that could be different in each performance. There is an electric charge in the atmosphere when a performer faces an audience. Curiously, there is a corresponding electric charge when recording a performance. I call it the ‘red light syndrome.’ It seems whenever my performance is being recorded I am suddenly less technically capable than I was in rehearsal despite the absence of an audience. It is a common phenomenon amongst performing artists undertaking recording, and similar to the experience of ‘dry mouth’ most of us have when faced with public speaking.

Another way to consider this charged performance situation is to consider it as unique by virtue of it being a shared experience occurring at a particular time and place. It is worth noting that in arguably the most individualistic era in human history, when any piece of music can be experienced individually at any time (even concert footage), live performances are still highly sought after experiences. Evidently there is still much value held in the shared experience.

This research began to make me consider my own sampler performances as events at which I am sharing. However, rather than the way in which a conventional musical performance shares a compositional construct with an audience, which brings with it issues of authorship and performance skill, sampler performances could be considered the sharing of sound. This deliberately deflects attention away from who created the sound, or who performs it, and onto the sound itself, not in terms of its source but in terms of its material: what it is made of, what it feels like to experience that sound at a particular time and in a particular place, and what it means to share that experience with others. Questions arise such as, “why this sound” and “why now,” and subsequently, “why is it being followed with this next sound, or silence.” Clearly this is composition, the selection and arrangement of sonic material, but it also remains in the grey area between playback and performance. A performance on a sampler comes alive in this grey area, conflating issues of ‘liveness’ and ‘non-liveness.’ The ultimate irony then would be to make a recording of a live performance on the sampler, and then to incorporate that recording in another live sampler performance, which is itself recorded and then reused, a potentially unlimited feedback loop of ‘live’ and non-‘live.’

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74 The title of the debut album by Muse released in 1999.
On U2’s 1988 album *Rattle and Hum* (U2, 1988), a double album featuring a combination of live concert recordings and studio recordings, there is a forty-three second excerpt of “The Star Spangled Banner” (Smith & Key, 1780/1814). It is actually a recording of the famous Jimi Hendrix performance at Woodstock in 1969. But on *Rattle and Hum* it has been recorded as it was ‘played’ over the sound system at a U2 concert in 1987. Were another rock band to ‘play’ this U2 recording as part of their live show, record it and release it as a live recording, the ‘live recording’ effect would be tripled. This process could be endlessly repeated by a string of performers.  

The sampling of the sounds of a live rock concert, such as in the project proposed above, and in this research project, further explore the issue of live/non-live, utilising the importance of live recordings to the rock myth of authenticity. Philip Brophy connects rock’s conflation of live and non-live with musique concrète’s conflation of score and realisation:

> In the sense that musique concrete fostered the notion that magnetic tape compositions were neither an interpretation nor a performance but a realization of the two, live recordings could be said to be neither a performance nor its reaction but an idealization of the two. The "live recording" thus materially executes the predominant desire of a live performance: that the music, performer and audience become one. (Brophy, 1987)

One of the curious paradoxes of rock is the desire to replicate the sound of recordings as accurately as possible in live performances. Obviously, this is due to the fact that in rock, as mentioned in earlier chapters, recordings are central to the identification of musical works. But it creates dilemmas for live performances. Questions arise around which parts of the recordings can be performed live and which need to be presented in playback. Everything from fairly generic drum machine patterns to backing vocals have been relegated to playback in a live performance, whether via sequenced synthesisers or pre-recorded material. In some ways this desire to keep it as live as possible mirrors the concerns voiced by Keith’s paper mentioned earlier. If the means of production are not made visible to an audience, performances risk being received as counterfeit. Whether academic computer music or rock, the shared view is that the playback of pre-recorded material in a live performance is fraudulent.

This research has led me to develop a view contrary to Rose. My view is that the straight playback of recordings could be a legitimate performance. Despite involving only the playback of recorded work, there is often the palpable electricity of performance in the air in the many student review/assessment sessions I get involved in. I have conceptualised a series of events involving the playing back of the same recording to different audiences in different places. From an audience’s point of view, the playback would seem to be concerned with the recorded material as a fixed invariable, but when witnessing several of these events consecutively one may begin to notice the differences between events, all energised by the electricity of the performance situation. Perhaps the limitation is that these could only happen once before the electric charge is spent. Multiple events in the same location, potentially to the same audience, would test this.  

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75 This concept for a project is referred to in the conclusion to this exegesis.
76 This concept for a project is referred to in the conclusion to this exegesis.
Perversely, it is this very electric charge that brings undone many a laptop performance. Audiences are energised by the promise of a performance but the risk taking, that Rose considers so critical, is too opaque for the charge to be kept alive for long, and the audience quickly becomes frustrated. If the event were clearly framed at the outset as a playback presentation then perhaps this frustration would be nullified.

Interestingly, I see some major similarities between the straight playback of recorded material and John Cage’s famous ‘silent’ piece 4’33” (Cage, 1960). Both require no real performance from the performer as both are process music. Both cannot really be rehearsed, despite the fixed nature of the performance, because it is the actual moment of performance in the presence of an audience that constitutes the event. Both neither require, nor allow, a response from the performer to the audience reception. Finally, both defy audience expectations about what constitutes a performance, and I suspect playback presented as performance would challenge the audience more than the ‘silence’ of 4’33”.

**Fake it Until You Make it**

Studies show that people hate so-called ‘piped’ music, despite the ubiquity of recorded music played in public spaces (Sloboda, 2009). Live music in public, such as busking, is not only more tolerable but people are actually drawn to it. The differences are that listeners, and observers, can identify exactly where the music is coming from, who is responsible for producing the music, the intent of the musicians, and the knowledge that the music will stop, that it will not play potentially forever like ‘piped’ music could.

People also hate being tricked into believing a pre-recorded performance is live. Audiences scan the presentation for the link between the sound and the actions of the performer. As Demers notes: “… even if electronic music contains sounds that are attributable in an abstract sense to some source, the experience of watching that sound being performed often reveals a gestural synapse between the performer’s actions and the sounds he or she produces, as well as a temporal synapse (if the effect is pre-recorded) between the present and the past moment in which the sounds were first created” (Demers, 2010).

Pre-recorded material brings tensions to any performance. My performances utilise these tensions by using a sampler. While there is a tendency to receive my performances as music because the setting establishes a musical performance frame, the issue of which sounds I am causing and which are just playback remains unsettled. The ASR-10, with its keyboard interface, provides some advantage because it looks like an instrument, and audiences can often see me working on it like a musician. The recorded works however do not have this advantage. As noted earlier, when we listen to a contemporary recording, we cannot be sure if we are listening to a performance on an instrument or not. The sampler embodies and emphasises this paradox. A sample can be a recording of a performance that is itself re-performed within another recording. It creates a feedback loop around the question of “performance or recording.”

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77 The common catch phrase that advocates behaving confidently in order to generate real confidence.
This question is posed, for example, in my recreation of the piece “Jeux de configurations,” entitled “Set Lists” on ROCKreation of the World. The piece commences with the ‘strum’ sound object. It has been re-created using a sample of a performance of a guitar strum from the KISS song “God gave Rock ‘n’ Roll to You II” (Ballard, Stanley, Simmons & Ezrin, 1991) but it appears unadulterated in my composition, almost as if I am playing the guitar. The fact that it is a sample is not apparent to the listener until it starts to reappear, clearly identifying itself as the same recording. This is made even clearer when the sample is transformed in pitch and truncated, revealing itself to be not a real guitar performance but a sample of one, even if it remains unclear as to whether I have sampled my own guitar playing or not.

In a live performance on a sampler every sound emitted is clearly out of time and place. Even if one were to strum a guitar into a microphone and sample it live, on the spot, every replaying of that sample is clearly disconnected from the moment of the initial guitar performance. In the second iteration, ROCKreation of the World II, this disconnect is highlighted by undoing the manipulations to allow for as much sample visibility as possible.

**Space is the Place**

My live performances were heavily influenced by the acousmonium, the musique concrète speaker orchestra. John Dack notes that “… the notion of performance is so central to the musical experience that even in the earliest works of musique concrète a desire for real-time interaction can be identified” (Dack, 2009). This interaction evolved into what is now more widely known as spatialisation or diffusion. Simon Emmerson describes active diffusion as an act of interpretation, adapting a studio composition to the sometimes radically different listening space of the audience. Logically then, one can consider the loudspeaker a musical instrument “more or less actively engaged in interpreting the sounding result” (Emmerson, 2007).

In September 2001, Daniel Teruggi, current head of the GRM, performed a spatial diffusion of musique concrète works at Immersion 2 at RMIT University’s Storey Hall, Melbourne (Mowson, 2001). Complemented by an array of local artists, all diffusing their own works, the event demonstrated the diversity of approaches to composition and diffusion for loudspeaker orchestra. At the same venue less than two years later, another speaker orchestra event was staged. Bernard Parmegiani presented a live diffusion of several major works as part of the fourth annual Liquid Architecture Festival, which I was co-directing at the time (Sellars, 2003). From a centrally located mixing console, Parmegiani took material directly from a single stereo CD and expertly channelled and moved sound around the sixteen speaker system. As if the reliance upon a simple stereo source was not surprising enough, Parmegiani conducted the entire performance referring only to a few scribbled notes he had made during rehearsals. Undoubtedly a benefit of his intimate knowledge of his own compositions, it was also a definitive example of the classic musique concrète attitude to live presentation. A concert is a specific event for a specific system in a specific space and it is done in the moment, by ear. It is not the realisation of an abstract composition dictated by a score.

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*78 The title of the 1973 Sun Ra album.
RE-COMPOSING THE SCORE

Compose Yourself79

Composing with sound objects can be simply summarised thus: recorded sound is broken down into individual sound objects and these are analysed, transformed and synthesised to reveal their musicality. Analysis, through repetition and reduced listening, will reveal characteristics that allow a composer to sort objects into categories as ‘pseudo-instruments’ or genres of sounds. Further transformation and synthesis may be required to either bond sounds within groups or separate sounds out into separate groupings.

Beyond these processes of sound object identification, transformation through play, and categorisation, Schaeffer did not elaborate much on the implementation of his theories. He presented his research as the starting point from which composers need to carry forth. Some have criticised his research as only a basis for listening and not a basis for composition. Demers expands this further to say: “When post-Schaefferians reject reduced listening, they also reject the position that a composer can control everything about the listening process; this has led most post-Schaefferians to regard listening as an embodied, intentional activity rather than the reflective discipline Schaeffer imagined” (Demers, 2010).

But others, such as Francisco Lopez, have proposed that musique concrète has enabled listening itself to be the focus of composition:

For composing, the only thing you need is a system to listen to sounds in such a way. That’s it. That’s what creates the music, not the fact that you are recording or doing something with the sounds or the instruments. I think that’s irrelevant. And it is becoming more and more irrelevant now that we can use all sounds, any sounds. (Lopez, 2004).

The sampler, as already discussed earlier in this exegesis, enables the use of any sound in a composition, and enables the activation of any sound as a performable sound object. What becomes key is the activation of listening.

This research aligns with the Lopez claim that perceiving sound as music is dependent upon listening: music is a way of listening, more so than a way of sounding. The most direct way this maxim has been employed in this research is to have a sample repeat. A repeated sample is very easy for the listener to identify as the very same sample being repeated, whether it be looped immediately or replayed after a short interval. This quickly switches the focus in the listener from asking “what is it I am listening to” to asking questions such as “is it different to the previous iteration,” and questioning its role in the composition. These questions are indicative of a musical way of listening. There are many examples of this throughout the works, including the very first sample used in ROCKreation of the World. The ‘repeating burst’ sound object reappears throughout the first few minutes of “Out of Time,” encouraging the listener to perceive it as a musical gesture more so than a sound effect. Tension is created here by the fact that it is a sample of a musical gesture, AC/DC’s “For Those About to Rock (We Salute You)” (Young, Young & Johnson, 1982), manipulated to de-emphasise its tonal and rhythmic qualities, and then used in the composition in a way that

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79 Another reference to a DIY approach.
tries to re-establish, or re-invent, it as a musical gesture. Such tensions, or dualities, are numerous throughout my works.

The final stage of the project works involved recording performances of each sound object/pseudo-instrument on the ASR-10 workstation, and layering them as per the score created in the first stage. The issues with performance discussed in the previous chapters informed this re-composition phase. Incorporation of the artefacts of the sampling process, or ‘errors,’ was used to signify and make transparent the acts of sampling. By performing on the sampler, risk taking and the charged atmosphere of the ‘red-light syndrome’ was activated. The sampler was engaged with as an instrument and ‘liveness’ was captured. Random parameters were incorporated into the programming of the performable aspects of ‘pseudo-instruments’ in order to overcome the potential for a computer-based performance to lack risk. For example, the sound object I entitled ‘metallic fragments’ was programmed on the ASR-10 with a random pan setting, adding unpredictability to the performance. Even when a single sound was required it was played ‘live’ as an overdub in the recording process, rather than programmed with a MIDI note-on trigger, thus engaging with the issue of playback as legitimate performance.

**Stuck in the MIDI With You**

The ASR-10 utilises MIDI (Musical Instrument Digital Interface) to control all aspects of sample performance. MIDI is control information only. It is not audio, and by itself makes no sound. Returning to the pianola analogy used earlier, MIDI is like the piano roll for a player piano; it provides control information for what note to play when, for how long, at what volume, and with what sound. The sound itself originates from, or is stored, elsewhere. MIDI data can be sent from the ASR-10 independently of any audio signal from the sampler. For this project, certain MIDI data generated by the ASR-10 performances was recorded into Pro Tools hard disk recording software at the same time that the resulting audio was recorded. Returning to the pianola analogy again, the situation would be the same as punching a new pianola roll by recording the movements of the keys at the same time that a recording was made of the sound produced by the pianola hammers hitting the strings. For this project, the data recorded was note-on/off, note duration, and any modulation data and key pressure or velocity aspects of performances.

It was these MIDI recordings that enabled the second and third iterations of the project to be created: ROCKreation of the World II and ROCKreation of the World III. After returning a degree of sample visibility to the samples or after different transformations had been applied to the samples, the MIDI performances recorded for the first iteration were played back into the sampler and the resulting audio recorded. The general principle in the second iteration was to pull back on the sample transformation so that the source of the sample was more recognisable. In a few rare instances the sample had to be replaced because the original sample was itself unrecognisable with regards to its source.

---

81 ‘Metallic fragments’ can be heard in “Out of Time”, the first track on ROCKreation of the World. See the Appropriate Durable Record.
82 A reference to the song titled “Stuck in the Middle With You” (Rafferty & Egan, 1972) recorded by Stealers Wheel.
83 See the Appropriate Durable Record.
The recreations of “Moins l’infini,” as they appeared in the Pro Tools Edit window, are shown here in figures 1 and 2. Figure 1 is the session for the first iteration, “Out of Time,” and figure 2 is the session for second iteration “minus infinity.”

Fig. 1: “Moins l’infini” remade as “Out of Time;” ASR–10 performances recorded as audio.

Fig 2: MIDI data from ASR-10 performances of “Out of Time,” recorded and used to make “minus infinity.”
The screen shots illustrate how the score, in terms of the temporal positioning of events, was retained while the differences in sample visibility are evident in the final works. For the third iteration, in this example “Before Time,” the score was much more loosely utilised while the samples are mostly returned to the transformed versions of the first iteration, as can be seen in figure 3 below.

Fig. 3: “Moins l’infini” remade as “Before Time;” shown as edited audio.

The screen shot above shows the differences in the third iteration of the works. With the explicit goal to achieve a rock result, performances were often heavily edited or sections looped, and aligned to a tempo grid or click track. However, as can be seen by comparing the three figures above, the original score was still used as a basic template for the combinations of sounds, and the general timing of entry to and exit from the composition.

**New Waveforms**

During this entire re-creation/performance stage another method of performing a score was used, one not conceived of during the scoring phase. With the aim of the first iteration to recreate *La Création du Monde* as accurately as possible through performances, the score charts proved to be lacking in detail. To solve this, the original Parmegiani tracks were digitally imported into the Pro Tools sessions and were sometimes played in the background as new performances were recorded. Being able to watch the waveforms of the original compositions onscreen enabled the pre-empting of the timing and intensity of the forthcoming gestures that were being re-created.

---

83 See “Out of Time,” the first track on *ROCKreation of the World*, and “minus infinity,” the first track on *ROCKreation of the World II*.
84 See *ROCKreation of the World III* in the *Appropriate Durable Record*.
85 A reference to the highly influential, if somewhat ambiguous, genre of the 1980s; new wave.
86 See the scores in Appendix C.
However, there are some problems with doing this I became aware of. Analysing audio visually can overshadow listening. Among the lessons learnt from musique concrète was that listening is paramount. Sound objects are perceived and understood through listening, not through signal or spectral analysis. While one can perceive some qualities of a sound visually, such as duration and amplitude, ultimately what is seen is secondary to what is heard. Working in the digital audio realm one quickly learns that most graphic waveforms look remarkably alike. Two different waveforms can appear to have the same amplitude, but upon listening to them one may sound louder than the other. As explained in a 2012 Sound On Sound article about crafting loudness in mixes, the perceived loudness of a particular sound is dependent upon the psychoacoustic aspects of the human hearing system:

Loudness seems such a simple concept: the higher the acoustic level, the greater the excursion of the eardrum, and our brains interpret this as meaning louder. So, you push a fader up or apply an EQ boost and things get louder; drag it down or cut frequencies and things become quieter. But our perception of loudness depends on much more. It’s perfectly possible for two pieces of audio that a meter tells us are equal in level to be very different in perceived volume. (Houghton & White, 2012)

Ultimately, this project sought to produce audio for a listener who will not be watching the waveforms. Working with audio and having the ability to see what is coming next, even if it is simply the ending, is an experience far removed from that of the listener who is unable to tell what is coming next. In the Pro Tools software environment there are two principal windows: Edit and Mix. While it is possible to view them onscreen simultaneously, the most common practice is to toggle between the two. In the Edit window one can see the whole piece displayed graphically and can therefore see, without hearing a nanosecond of sound, an overall structure and the total length of the piece. In the Mix window there is no static graphic representation of the sound. Amplitude is the only parameter displayed and only in real time in the form of level meters. Only when audio is playing will the level meters display a real time graphic of amplitude. For this reason mixing always took place with only the Pro Tools Mix window displayed. This aural experience, where future sonic events cannot be anticipated based upon a visual representation, is much more akin to what the prospective audience will experience and therefore a far preferable way to make production decisions.

Neuroscientist Daniel Levitin notes that it requires one particular region of the brain to process structure when conveyed over time and a different region when that structure is conveyed all at once, such as in visual art (Levitin, 2006). In order to assess an audio experience when accompanied by a visual representation of its structure, such as with graphic waveforms, we have to think differently to when we simply experience audio without any accompanying visual representation. By working within the ASR-10 sampler environment, a device that does not enable any visual representation of sound, and by working mostly within the Mix window in Pro Tools, this project was able to focus attention on sound in real time without being influenced by visual representations. However, the graphic waveforms became very useful for recreating passages of the Parmegiani work in live performance, effectively augmenting the score charts developed earlier in the project.
THE RESULTS

Results May Vary

The principal work produced as a result of this research was a faithful remake of Bernard Parmegiani’s La Création du Monde remade with samples of iconic rock recordings entitled ROCKreation of the World. Below is an outline of how each piece was re-created.

Lumière Noire

1. “Moins l’infini” (5:31): Ten recreated objects, each performed one at a time in passages on the ASR-10, and assembled as ten tracks within Pro Tools.
2. “Instant 0” (4:46): Eight recreated objects, each performed one at a time in passages on the ASR-10, and assembled as eight tracks within Pro Tools.
3. “Première forces - Première formes” (7:35): Thirteen recreated objects, each performed one at a time in passages on the ASR-10, and assembled as thirteen tracks in Pro Tools.

Métamorphose du vide

4. “Lumière” (11:34): Eleven recreated objects, and one effect patch, each performed one at a time in passages on the ASR-10, and assembled as twelve tracks within Pro Tools. One sound object passage/track continues into “Jeux de configurations.”
5. “Jeux de configurations” (5.54): Eight recreated objects, each performed one at a time in passages on the ASR-10, and assembled as eight tracks within Pro Tools.
6. “Échos/mélodées” (5:48): Nine recreated objects, each performed one at a time in passages on the ASR-10, and assembled as nine tracks within Pro Tools.

Signes de vie

7. “Cellules” (6:24): Eight recreated objects, each performed one at a time in passages on the ASR-10, and assembled as eight tracks within Pro Tools.
8. “Aquatisme” (7.57): Fourteen recreated objects, each performed one at a time in passages on the ASR-10, and assembled as fourteen tracks within Pro Tools. The objects/passages 'drain atmos' and 'water running' reappear in the final few minutes and continue into “Polyphonie.”
9. “Polyphonie” (6.19): Thirteen recreated objects, each performed one at a time in passages on the ASR-10, and assembled as eleven tracks within Pro Tools.
10. “Expression 1” (3.24): Six recreated objects, each performed one at a time in passages on the ASR-10, and assembled as six tracks within Pro Tools.
11. “Expression 2” (7.18): Eleven recreated objects, each performed one at a time in passages on the ASR-10, and assembled as fourteen tracks within Pro Tools.
12. “Réalité” (0.55): A ‘field’ recording of a performance on the ASR-10 but with the volume turned down to minimum. In other words, a recording of the keys being manipulated, referencing both the original Parmegiani piece and my work sampling the sampler discussed in the Empirical Composing: A Case Study chapter.

87 The title of an album by Limp Bizkit released in 2003, and a suggestion that the value of this project is all in the ear of the beholder.
ROCKreation of the World

Back in Black Light (17:52)
1 “Out of Time” (17:52)
2 “Zero” (4:46)
3 “First Good Vibrations” (7:36)

Transformers (23:17)
4 “White Light” (11:35)
5 “Set Lists” (5:54)
6 “Feedback Loops” (5:48)

Live Signs (31:57)
7 “Cellblocks” (6:22)
8 “Wet Signals” (7:53)
9 “Polyrock” (6:14)
10 “Shout-out 1” (3:18)
11 “Shout-out 2” (7:18)
12 “Is This the Real Life?” (0:55)

A reference to the AC/DC song “Back in Black” (Young, Young & Johnson, 1980) from the album of the same name. The final song on the album, “Rock and Roll Ain’t Noise Pollution” (Young, Young & Johnson, 1980), the highest charting song on the album, is sampled extensively in my work.


A reference to the 1972 Lou Reed album Transformer.

A reference to the Velvet Underground song “White Light/White Heat” (Reed, 1970) released on the album of the same name.

A reference to the common practice at rock performances to refer to the program of songs to be performed as a ‘set list.’

A reference to the squeals that can occur if the pick up of an electric guitar is close to the amplifier speaker that it is sending signal to. My work samples the electric guitar feedback in The Pixies’ “Rock Music” (Thompson, 1990).

A reference to the practice of augmenting live recordings with sounds of crowds; signs of live performance.

A reference to the “Jailhouse Rock” (Leiber & Stoller, 1957) that features the lyric “everybody in the whole cell block was dancin’ to the jailhouse rock.” I have sampled the 1957 Elvis Presley recording in my project.

A reference to the common audio production practice of referring to signal passed through an effects processor as a ‘wet signal.’

A reference to the band Polyrock, an American post-punk/New Wave band formed in New York City in 1978 and active until the mid-1980s. Strongly influenced by minimalism, the group’s only album (Polyrock, 1980) was produced by the composer Philip Glass.

A reference to the practice of naming people on radio as a way of acknowledging their influence. My project samples the radio announcer speaking on the Ramones’ recording “Do You Remember Rock ‘n’ Roll Radio?” (Hyman, Calvin, & Cummings, 1979) Shout-outs are also a form of homage or tribute, in much the same way that sampling in contemporary music is often intended to be an acknowledgement of respect to those sampled.

In addition to the above, this is also referencing the song “Shout!” (Isley, Isley & Isley, 1959) recorded by Johnny O’Keefe.

A reference to the opening lyric of the Queen song “Bohemian Rhapsody” (Mercury, 1975).
ROCKreation of the World II

The second iteration of the work produced as a result of this research was a plunderphonic remake of Bernard Parmegiani’s *La Création du Monde* using the same samples of iconic rock recordings as used in the first iteration. Using the already recorded MIDI performances, this iteration of the project involved returning the samples to more recognisable states while retaining a formal resemblance to the Parmegiani score.

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**black light**\(^{103}\) (17:35)
1 “minus infinity” 5:24
2 “moment zero” 4:45
3 “first forces / first shapes” 7:26

**metamorphosis of the void** (22:38)
4 “light” 11:11
5 “sets of configurations” 5:50
6 “echoes/chants” 5:37

**signs of life** (32:07)
7 “cells” 6:25
8 “aquatic” 7:53
9 “polyphony” 6:18
10 “expression 1” 3:18
11 “expression 2” 7:18
12 “reality” 0:55

**72:22**

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\(^{103}\) All titles are simply English translations of the Parmegiani titles but all in lower case, in the style of John Oswald’s compilation 69plunderphonics96 released in 2001. Unfortunately, most online listings for Oswald’s release, such as Wikipedia, Amazon and Discogs, do not maintain the lower case naming convention, perhaps due to a default convention to title case all track titles.
ROCKreation of the World III

The third iteration of the work produced as a result of this research is a post-rock remake of Bernard Parmegiani’s *La Création du Monde* using the same samples of iconic rock recordings. This iteration discards the recorded MIDI performances and applies a loop-based, rock remix approach. The basic relationships between sounds, both vertically and horizontally, are retained while standard tempi and meters are applied.

<table>
<thead>
<tr>
<th>Track Titles</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under Black Light</td>
<td>17:36</td>
</tr>
<tr>
<td>1 “Before Time”</td>
<td>5:27</td>
</tr>
<tr>
<td>2 “The Big Bang”</td>
<td>4:43</td>
</tr>
<tr>
<td>3 “First Force”</td>
<td>7:26</td>
</tr>
</tbody>
</table>

| Transforming the Void         | 23:11      |
| 4 “The Light”                 | 11:34      |
| 5 “The Setup”                 | 5:54       |
| 6 “Echoes”                    | 5:37       |

| Life Signs                    | 32:00      |
| 7 “Cell Walls”                | 6:25       |
| 8 “Liquid Architecture”       | 7:53       |
| 9 “The Polyphonic Spree”      | 6:15       |
| 10 “The Express I”            | 3:17       |
| 11 “The Express II”           | 7:15       |
| 12 “The Real Thing”           | 0:55       |

*Track titles, though referencing the work of others in many cases, are generally intended to simply sound like typical rock song titles.*
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**THE CONCLUSIONS**

*The End is the Beginning is the End*\(^{105}\)

This research resulted in the development of a sampling methodology that explores the issues raised in the research questions, namely the tension between a contemporary plunderphonic practice and an acousmatic practice based on musique concrète, and the tension between composition and performance inherent in sampling technology.

The key findings are that this tension, created by apparent polar opposites, does not necessarily require resolution as such, but can in fact create fertile territory for creative exploration. The fundamental tensions inherent in the practice of sampling, between composition and performance, between the original and the copy, and between the producer and the consumer, can be embraced as dualities. This embrace of dualities is consistent with the modular way a sampling practice can disassemble and reassemble material, allowing material to be individual objects and parts of a whole simultaneously. The issue of originality is rendered moot in the same way that a sampling practice produces works that are both old and new at the same time.

The significance of the study resides in the way it addresses the contemporary shift toward configurable culture. As the distinction between the author and the public continues to erode, meaningful ways forward for artists need to be developed. While the issue of ownership may become much more fluid, what remains inescapable for the sound artist is the natural human tendency to seek to ascribe sources to sounds. Our ears evolved to assist survival and provide information about that which is unseen. Listening for pleasure and listening for the purposes of intellectual consideration are relatively new cultural developments that are at odds with our evolved tendencies. But the determination to know what causes a sound, where it originates and who is responsible, is becoming increasingly irrelevant to contemporary sound practice. How sound artists and composers can reconcile contemporary remix culture with innate behaviours is a great challenge moving forward.

But the continuing dismantling of the myth that artistic endeavour involves unique genius and occurs in isolation is an inevitable cultural evolution. The attribution of art works to individuals and the imposition of copyright seem destined to be relatively short-term cultural practices that human culture will soon shrug off. Nonetheless, as music continues to expand to embrace all sounds, listening must still grapple with the impulse to ascertain origins, and work toward a musical way of listening that focuses upon sonic material.

The limitations of these research findings are a result of the freedom from legal and commercial restrictions that this study enjoys. How the methodology developed can be applied in the current commercial art climate remains unexplored. Future research would be well advised to investigate the limits of the current legal frameworks, including Creative Commons,\(^{106}\) in order to ensure that what artists and audiences want their art to be able to do is permitted and viable.

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\(^{105}\) Title of the Smashing Pumpkins song (Corgan, 1997).

\(^{106}\) Creative Commons licenses communicate which rights are reserved and which are waived. They enable creators to empower consumers or other creators with the ability to reuse material free from commercial compensation.
Other future research was suggested in the exegesis by way of particular projects that could extend the ideas and issues raised. These include the proposal to continually re-record Jimi Hendrix’s Woodstock performance of “The Star Spangled Banner” (Smith & Key, 1780/1814) played through concert sound systems,107 and the project that proposed presenting playback of a recording as a performance across multiple venues on multiple occasions.108 There is also considerable scope to further explore ways to adapt and replicate existing works in novel ways, ways that are undoubtedly already being utilised but are less widely discussed for fear of legal recriminations.

If the twentieth century was chiefly concerned with progress toward more and more freedom, artistic, economic, social, moral, intellectual and spiritual, then the twenty-first century must address the consequences. For artists raised and educated on the Jacques Attali premise that “the artist was born, at the same time as his work went on sale” (Attali, 1977), the future is a site where the new artistic freedoms of configurable culture will clash with the establishment rights of the artist to commercially exploit his or her art. But perhaps this clash will not result in victory to one side or the other but in a hybrid form that embraces a dual perspective.

107 See page 61.
108 See page 61.
REFERENCES

Exit Music (For a Film)\textsuperscript{109}


\textsuperscript{109} Title of the Radiohead song released on their album OK Computer (Radiohead, 1997).


REFERENCES


DISCOGRAPHY

The Song Remains the Same


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Smith, J., & Key, F. (1780/1814). The Star Spangled Banner [Recorded by Jimi Hendrix]. On Live at Woodstock [CD]. New York: MCA.


Sun Ra. (1973). Space is the Place [CD]. Santa Monica: Impulse!


Young, A., Young, M., & Johnson, B. (1981). For Those About to Rock (We Salute You) [Recorded by AC/DC]. On *For Those About to Rock We Salute You* [CD]. Sydney: Albert.

THE APPENDICES
# APPENDIX A

*La Création du Monde* track list

<table>
<thead>
<tr>
<th>Track</th>
<th>Duration</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Moins l'infini</td>
<td>5:27</td>
<td></td>
</tr>
<tr>
<td>2. Instant 0</td>
<td>4:43</td>
<td></td>
</tr>
<tr>
<td>3. Premières forces – Premières formes</td>
<td>7:26</td>
<td></td>
</tr>
<tr>
<td>4. Lumière</td>
<td>11:34</td>
<td></td>
</tr>
<tr>
<td>5. Jeux de configurations</td>
<td>5:54</td>
<td></td>
</tr>
<tr>
<td>6. Échos/mélopées</td>
<td>5:37</td>
<td></td>
</tr>
<tr>
<td><strong>Métamorphose du vide</strong></td>
<td><strong>23:11</strong></td>
<td></td>
</tr>
<tr>
<td>7. Cellules</td>
<td>6:25</td>
<td></td>
</tr>
<tr>
<td>8. Aquatisme</td>
<td>7:53</td>
<td></td>
</tr>
<tr>
<td>9. Polyphonie</td>
<td>6:15</td>
<td></td>
</tr>
<tr>
<td>10. Expression 1</td>
<td>3:17</td>
<td></td>
</tr>
<tr>
<td>11. Expression 2</td>
<td>7:15</td>
<td></td>
</tr>
<tr>
<td>12. Réalité</td>
<td>0:55</td>
<td></td>
</tr>
</tbody>
</table>

**Signes de vie** (32:00)

<table>
<thead>
<tr>
<th>Track</th>
<th>Duration</th>
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</thead>
<tbody>
<tr>
<td>13. Cellules</td>
<td>6:25</td>
<td></td>
</tr>
<tr>
<td>14. Aquatisme</td>
<td>7:53</td>
<td></td>
</tr>
<tr>
<td>15. Polyphonie</td>
<td>6:15</td>
<td></td>
</tr>
<tr>
<td>16. Expression 1</td>
<td>3:17</td>
<td></td>
</tr>
<tr>
<td>17. Expression 2</td>
<td>7:15</td>
<td></td>
</tr>
<tr>
<td>18. Réalité</td>
<td>0:55</td>
<td></td>
</tr>
</tbody>
</table>

**Total: 72:53**

Released in 1986.
Label: INA-GRM – INA C 1002, M10 – 275 532
Format: Vinyl
Country: France
Reissue CD Released: 2000
### APPENDIX B

#### Sound object list

<table>
<thead>
<tr>
<th>Sound object I identified and named in Parmegiani work</th>
<th>Source from which I sampled to begin sound object recreation</th>
<th>My recreation with creation date prefix</th>
<th>Morphological concepts applied</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Moins l’infini (Minus Infinity) 5:31</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>001 burst repeating</td>
<td>AC/DC For Those About to Rock (We Salute You)</td>
<td>20091215 burst repeating</td>
<td>1, 3, 5, 6</td>
</tr>
<tr>
<td>002 metallic fragments</td>
<td>AC/DC Rock and Roll Ain’t Noise Pollution</td>
<td>20091216 metallic fragments</td>
<td>1, 2, 3, 9</td>
</tr>
<tr>
<td>003 spinner cut short</td>
<td>The Pixies Rock Music</td>
<td>20091217 spinner cut short</td>
<td>1, 4, 6, 9</td>
</tr>
<tr>
<td>004 whizzing glissando</td>
<td>Lou Reed Rock &amp; Roll (live)</td>
<td>20091218 whizzing glissando</td>
<td>1, 4, 5, 6, 9</td>
</tr>
<tr>
<td>005 slow creak</td>
<td>Lou Reed Rock and Roll (live) Bill Haley and His Comets Rock Around the Clock</td>
<td>20091219 slow creak</td>
<td>1, 2, 3, 4, 5, 6, 9, 10</td>
</tr>
<tr>
<td>006 screeching reverb</td>
<td>KISS Rock and Roll All Nite (live) The Pixies Rock Music</td>
<td>20091220 screeching reverb</td>
<td>1, 2, 4, 5, 7, 10</td>
</tr>
<tr>
<td>007 doppler moped</td>
<td>Lenny Kravitz Rock and Roll is Dead</td>
<td>20091221 doppler moped</td>
<td>1, 2</td>
</tr>
<tr>
<td>008 lofi crunch</td>
<td>Led Zeppelin Rock and Roll</td>
<td>20091222 lofi crunch</td>
<td>1, 6</td>
</tr>
<tr>
<td>009 bubblewrap pops</td>
<td>The Clash Rock the Casbah</td>
<td>20091223 bubblewrap pops</td>
<td>1, 4</td>
</tr>
<tr>
<td>010 bidirectional whip</td>
<td>KISS God Gave Rock and Roll to You II</td>
<td>20091224 bidirectional whip</td>
<td>1, 5</td>
</tr>
<tr>
<td><strong>Instant O (Time O) 4:46</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>011 hiss and whoosh</td>
<td>Lou Reed Rock &amp; Roll (live)</td>
<td>20091225 hiss and whoosh</td>
<td>1, 6, 9</td>
</tr>
<tr>
<td>012 sizzling flicker</td>
<td>Led Zeppelin Rock and Roll</td>
<td>20091226 sizzling flicker</td>
<td>1, 3, 9</td>
</tr>
<tr>
<td>013 descending jet engine</td>
<td>AC/DC For Those About to Rock (We Salute You)</td>
<td>20091227 descending jet engine</td>
<td>1, 2, 5, 7</td>
</tr>
<tr>
<td>014 low buzzing whoosh</td>
<td>Lenny Kravitz Rock and Roll is Dead</td>
<td>20091228 low buzzing whoosh</td>
<td>1, 4, 5, 8</td>
</tr>
<tr>
<td>015 tense insect shrill</td>
<td>Chuck Berry Rock and Roll Music</td>
<td>20091229 tense insect shrill</td>
<td>1, 5</td>
</tr>
<tr>
<td>016 static burst</td>
<td>The Pixies Rock Music</td>
<td>20091230 static burst</td>
<td>1, 2</td>
</tr>
<tr>
<td>017 radio tuning</td>
<td>AC/DC For Those About to Rock (We Salute You)</td>
<td>20091231 radio tuning</td>
<td>1, 3, 6</td>
</tr>
<tr>
<td>018 sparkling flicker</td>
<td>The Pixies Rock Music</td>
<td>20100101 sparkling flicker</td>
<td>1, 4</td>
</tr>
<tr>
<td><strong>Première Forces - Première Formes (First Forces - First Shapes) 7:35</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>019 flaring gong</td>
<td>Lenny Kravitz Rock and Roll is Dead</td>
<td>20100102 flaring gong</td>
<td>1, 2, 3, 4, 6</td>
</tr>
<tr>
<td>020 sucking sizzle</td>
<td>Led Zeppelin Rock and Roll</td>
<td>20100103 sucking sizzle</td>
<td>1, 3, 4, 9</td>
</tr>
<tr>
<td>021 rain on roof</td>
<td>The Velvet Underground Rock &amp; Roll</td>
<td>20100104 rain on roof</td>
<td>1, 4, 5, 6</td>
</tr>
<tr>
<td>022 rising woody bass tone</td>
<td>KISS God Gave Rock and Roll to You II</td>
<td>20100105 rising tone</td>
<td>1, 4, 6, 8</td>
</tr>
<tr>
<td>023 creaky old boat</td>
<td>Bill Haley and His Comets Rock Around the Clock</td>
<td>20100106 creaky old boat</td>
<td>1, 2, 3, 4</td>
</tr>
<tr>
<td>024 duck quack</td>
<td>AC/DC Rock and Roll Ain’t Noise Pollution</td>
<td>20100107 duck quack</td>
<td>1, 2, 4, 5</td>
</tr>
<tr>
<td>025 loop slutters</td>
<td>AC/DC For Those About to Rock (We Salute You)</td>
<td>20100108 loop slutters 1</td>
<td>1, 2</td>
</tr>
<tr>
<td>026 kick</td>
<td>Gary Glitter Rock and Roll Part II</td>
<td>20100109 kick</td>
<td>1, 2</td>
</tr>
<tr>
<td>027 glass rattle</td>
<td>Bill Haley and His Comets Rock Around the Clock KISS God Gave Rock and Roll to You II</td>
<td>20100110 glass rattle</td>
<td>1, 2, 3, 10</td>
</tr>
<tr>
<td>028 bubbling pops</td>
<td>Gary Glitter Rock and Roll Part II Bill Haley and His Comets Rock Around the Clock</td>
<td>20100111 bubbling pops</td>
<td>1, 4, 8, 9, 10</td>
</tr>
<tr>
<td>029 resonating buzz</td>
<td>The Ramones (Do You Remember) Rock ’n’ Roll Radio? Led Zeppelin Rock and Roll</td>
<td>20100112 resonating buzz 2</td>
<td>1, 4, 8, 9, 10</td>
</tr>
<tr>
<td>030 wide ambient tone</td>
<td>KISS God Gave Rock and Roll to You II</td>
<td>20100113 wide ambient tone</td>
<td>1, 3, 4, 9</td>
</tr>
<tr>
<td>031 impact with dungeon echoes</td>
<td>Led Zeppelin Rock and Roll</td>
<td>20100114 impact with dungeon echoes</td>
<td>1, 2, 9</td>
</tr>
<tr>
<td><strong>Lumière (Light) 11:34</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>032 snare mist 1</td>
<td>AC/DC Rock and Roll Ain’t Noise Pollution</td>
<td>20100115 snare mist 1</td>
<td>1, 2, 3, 5, 6</td>
</tr>
<tr>
<td>033 snare mist 2</td>
<td>The Pixies Rock Music</td>
<td>20100116 snare mist 2</td>
<td>1, 2, 3, 5, 6, 9</td>
</tr>
<tr>
<td>034 distant bird cries</td>
<td>Lenny Kravitz Rock and Roll is Dead</td>
<td>20100117 distant bird cries</td>
<td>1, 4, 5, 9</td>
</tr>
<tr>
<td>035 bass burble</td>
<td>Lou Reed Rock &amp; Roll (live)</td>
<td>20100118 bass burble</td>
<td>1, 2, 3, 4, 6</td>
</tr>
<tr>
<td>036 snare mist 3</td>
<td>Elvis Presley Jailhouse Rock</td>
<td>20100119 snare mist 3</td>
<td>1, 2, 4, 5</td>
</tr>
<tr>
<td>037 distant animal cries</td>
<td>AC/DC Rock and Roll Ain’t Noise Pollution</td>
<td>20100120 distant animal cries</td>
<td>1, 5, 6, 9</td>
</tr>
<tr>
<td>038 lava rain</td>
<td>Bill Haley and His Comets Rock Around the Clock KISS God Gave Rock and Roll to You II</td>
<td>20100121 lava rain</td>
<td>1, 3, 4, 6</td>
</tr>
<tr>
<td>039 tonal build</td>
<td>The Beatles Rock and Roll Music</td>
<td>20100122 tonal build</td>
<td>1, 3, 5, 6, 10</td>
</tr>
<tr>
<td>040 dog bark</td>
<td>Bill Haley and His Comets Rock Around the Clock</td>
<td>20100123 dog bark</td>
<td>1, 2</td>
</tr>
<tr>
<td>041 feedback sparkle</td>
<td>The Pixies Rock Music</td>
<td>20100124 feedback sparkle</td>
<td>1, 5, 6</td>
</tr>
<tr>
<td>042 descending backmasking</td>
<td>Lenny Kravitz Rock and Roll is Dead</td>
<td>20100125 descending backmasking</td>
<td>1, 3</td>
</tr>
<tr>
<td>043 new resonance</td>
<td>Tonal build - The Beatles Rock and Roll Music KISS God Gave Rock and Roll to You II Feedback sparkle - The Pixies Rock Music Descending backmasking - Lenny Kravitz Rock and Roll is Dead</td>
<td>(3 objects through effect)</td>
<td>1, 2, 4, 6, 10</td>
</tr>
</tbody>
</table>
Jeux de Configurations (Sets of Configurations) 5.54

<table>
<thead>
<tr>
<th>No.</th>
<th>Configuration</th>
<th>Artist(s)</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>044</td>
<td>strum KISS God Give Rock and Roll to You II</td>
<td>20100127 strum</td>
<td>1, 2, 4, 7</td>
</tr>
<tr>
<td>045</td>
<td>plops Gary Glitter Rock and Roll Part II</td>
<td>20100128 plops</td>
<td>1, 2, 3, 4, 9</td>
</tr>
<tr>
<td>046</td>
<td>distant piano tinkle The Beatles Rock and Roll Music</td>
<td>20100129 distant piano tinkle</td>
<td>1, 3, 6, 9</td>
</tr>
<tr>
<td>047</td>
<td>close piano tinkle The Beatles Rock and Roll Music</td>
<td>20100130 close piano tinkle</td>
<td>1, 2, 4, 5</td>
</tr>
<tr>
<td>048</td>
<td>short howl with delay AC/DC For Those About to Rock (We Salute You)</td>
<td>20100131 short howl with delay</td>
<td>1, 2, 4, 5</td>
</tr>
<tr>
<td>049</td>
<td>buzzing distortion Lou Reed Rock &amp; Roll (live)</td>
<td>20100201 buzzing distortion</td>
<td>1, 3, 6</td>
</tr>
<tr>
<td>050</td>
<td>rolling glass Elvis Presley Jailhouse Rock</td>
<td>20100202 rolling glass</td>
<td>1, 2, 3, 4</td>
</tr>
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</table>

Échos / mélodie (Echoes / chant) 5.48

<table>
<thead>
<tr>
<th>No.</th>
<th>Configuration</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>051</td>
<td>chant The Rolling Stones It’s Only Rock and Roll (But I Like it)</td>
<td>20100203 chant</td>
</tr>
<tr>
<td>052</td>
<td>alarm AC/DC Rock and Roll Ain’t Noise Pollution</td>
<td>20100204 alarm</td>
</tr>
<tr>
<td>053</td>
<td>R2D2 The Clash Rock the Casbah</td>
<td>20100205 R2D2</td>
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</tbody>
</table>

Cellules (Cells) 6-24

<table>
<thead>
<tr>
<th>No.</th>
<th>Configuration</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>054</td>
<td>reverse squeaks The Velvet Underground Rock &amp; Roll</td>
<td>20100206 reverse squeaks</td>
</tr>
<tr>
<td>055</td>
<td>keys jangle The Velvet Underground Rock &amp; Roll</td>
<td>20100207 keys jangle</td>
</tr>
<tr>
<td>056</td>
<td>dogs bark Bill Haley and His Comets Rock Around the Clock</td>
<td>20100208 dogs bark</td>
</tr>
<tr>
<td>057</td>
<td>snare splashes Queen We Will Rock You</td>
<td>20100209 snare splashes</td>
</tr>
</tbody>
</table>

Aquatisme (Aquatic) 7.57

<table>
<thead>
<tr>
<th>No.</th>
<th>Configuration</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>058</td>
<td>insect buzz 1 Bill Haley and His Comets Rock Around the Clock</td>
<td>20100210 insect buzz 2</td>
</tr>
<tr>
<td>058b</td>
<td>drain atmos Lenny Kravitz Rock and Roll Is Dead</td>
<td>20100211 drain atmos</td>
</tr>
<tr>
<td>059</td>
<td>droplet Lenny Kravitz Rock and Roll Is Dead The Clash Rock the Casbah</td>
<td>20100212 droplet 1</td>
</tr>
<tr>
<td>059b</td>
<td>car start The Ramones (Do You Remember) Rock ‘n’ Roll Radio?</td>
<td>20100113 car start</td>
</tr>
<tr>
<td>060</td>
<td>distant train Led Zeppelin Rock and Roll</td>
<td>20100114 distant train</td>
</tr>
<tr>
<td>061</td>
<td>insect buzz 2 The Ramones (Do You Remember) Rock ‘n’ Roll Radio?</td>
<td>20100215 insect buzz 2</td>
</tr>
<tr>
<td>062</td>
<td>fluoro hum Gary Glitter Rock and Roll Part II</td>
<td>20100216 fluoro hum</td>
</tr>
<tr>
<td>063</td>
<td>water birds Lenny Kravitz Rock and Roll Is Dead</td>
<td>20100217 water birds</td>
</tr>
<tr>
<td>064</td>
<td>drain variations Lenny Kravitz Rock and Roll Is Dead</td>
<td>20100218 drain variations</td>
</tr>
<tr>
<td>065</td>
<td>running water Elvis Presley Jailhouse Rock</td>
<td>20100219 running water</td>
</tr>
<tr>
<td>066</td>
<td>sucked thump The Pixies Rock Music</td>
<td>20100220 sucked thump</td>
</tr>
<tr>
<td>067</td>
<td>pipe knocking Bill Haley and His Comets Rock Around the Clock</td>
<td>20100221 pipe knocking</td>
</tr>
</tbody>
</table>

Polyphonie (Polyphony) 6.19

<table>
<thead>
<tr>
<th>No.</th>
<th>Configuration</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>068</td>
<td>swimming drone The Velvet Underground Rock &amp; Roll</td>
<td>20100222 swimming drone</td>
</tr>
<tr>
<td>069</td>
<td>shimmer KISS Rock and Roll All Nite (live)</td>
<td>20100223 shimmer</td>
</tr>
<tr>
<td>070</td>
<td>siren 1 The Velvet Underground Rock &amp; Roll</td>
<td>20100224 siren 1</td>
</tr>
<tr>
<td>071</td>
<td>siren 2 AC/DC For Those About to Rock (We Salute You)</td>
<td>20100225 siren 2</td>
</tr>
<tr>
<td>072</td>
<td>metal stutter 1 The Velvet Underground Rock &amp; Roll</td>
<td>20100226 metal stutter 1</td>
</tr>
<tr>
<td>073</td>
<td>metal stutter 2 The Beatles Rock and Roll Music</td>
<td>20100227 metal stutter 2</td>
</tr>
<tr>
<td>074</td>
<td>metal stutter 3 AC/DC For Those About to Rock (We Salute You)</td>
<td>20100228 metal stutter 3</td>
</tr>
<tr>
<td>075</td>
<td>spitting 1 AC/DC Rock and Roll Ain’t Noise Pollution</td>
<td>20100301 spitting 1</td>
</tr>
<tr>
<td>076</td>
<td>frog Bill Haley and His Comets Rock Around the Clock</td>
<td>20100302 frog</td>
</tr>
</tbody>
</table>

Expression 1 (Expression 1) 3.24

<table>
<thead>
<tr>
<th>No.</th>
<th>Configuration</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>077</td>
<td>surface sizzle The Ramones (Do You Remember) Rock ‘n’ Roll Radio?</td>
<td>20100303 surface sizzle</td>
</tr>
<tr>
<td>078</td>
<td>expression drone 1 AC/DC For Those About to Rock (We Salute You)</td>
<td>20100304 expression drone 1</td>
</tr>
<tr>
<td>079</td>
<td>expression drone 2 The Pixies Rock Music</td>
<td>20100305 expression drone 2</td>
</tr>
<tr>
<td>080</td>
<td>golf Bill Haley and His Comets Rock Around the Clock Queen We Will Rock You</td>
<td>20100306 golf</td>
</tr>
<tr>
<td>081</td>
<td>shout Bill Haley and His Comets Rock Around the Clock Queen We Will Rock You</td>
<td>20100307 shout</td>
</tr>
<tr>
<td>082</td>
<td>flam Queen We Will Rock You</td>
<td>20100308 flam</td>
</tr>
</tbody>
</table>

Expression 2 (Expression 2) 7.18

<table>
<thead>
<tr>
<th>No.</th>
<th>Configuration</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>083</td>
<td>martian lid AC/DC Rock and Roll Ain’t Noise Pollution</td>
<td>20100309 martian lid</td>
</tr>
<tr>
<td>084</td>
<td>voice 1 The Ramones (Do You Remember) Rock ‘n’ Roll Radio?</td>
<td>20100310 voice 1</td>
</tr>
<tr>
<td>085</td>
<td>telephone voice The Ramones (Do You Remember) Rock ‘n’ Roll Radio?</td>
<td>20100311 telephone voice</td>
</tr>
<tr>
<td>086</td>
<td>jug wind Gary Glitter Rock and Roll Part II</td>
<td>20100312 jug wind</td>
</tr>
<tr>
<td>087</td>
<td>night birds The Ramones (Do You Remember) Rock ‘n’ Roll Radio?</td>
<td>20100313 night birds</td>
</tr>
<tr>
<td>088</td>
<td>night factory The Ramones (Do You Remember) Rock ‘n’ Roll Radio?</td>
<td>20100314 night factory</td>
</tr>
<tr>
<td>089</td>
<td>night insects The Ramones (Do You Remember) Rock ‘n’ Roll Radio?</td>
<td>20100315 night insects</td>
</tr>
<tr>
<td>090</td>
<td>night owl The Velvet Underground Rock &amp; Roll</td>
<td>20100316 night owl</td>
</tr>
<tr>
<td>091</td>
<td>carnival 1 Chuck Berry Rock and Roll Music</td>
<td>20111029 carnival 1</td>
</tr>
<tr>
<td>092</td>
<td>cave voices The Ramones (Do You Remember) Rock ‘n’ Roll Radio?</td>
<td>20111030 cave voices</td>
</tr>
<tr>
<td>093</td>
<td>carnival 2 Chuck Berry Rock and Roll Music</td>
<td>20111031 carnival 2</td>
</tr>
</tbody>
</table>
APPENDIX C

Score conversion charts

1. “Moins l’infini”

2. “Instant 0”
3. “Premières forces – Premières formes”

4. “Lumière”
5. “Jeux de configurations”

6. “Échos/mélopées”
7. “Cellules”

8. “Aquatisme”
9. “Polyphonie”

10. “Expression 1”
11. “Expression 2”
### APPENDIX D

#### List of sample sources

<table>
<thead>
<tr>
<th>Title</th>
<th>Artist</th>
<th>Year</th>
<th>Length</th>
<th>Number of times samples are used in finished pieces</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Rock Around The Clock”</td>
<td>Bill Haley And His Comets</td>
<td>1954</td>
<td>2:09</td>
<td>12</td>
</tr>
<tr>
<td>“Jailhouse Rock”</td>
<td>Elvis Presley</td>
<td>1957</td>
<td>2:28</td>
<td>3</td>
</tr>
<tr>
<td>“Rock And Roll Music”</td>
<td>Chuck Berry</td>
<td>1957</td>
<td>2:33</td>
<td>3</td>
</tr>
<tr>
<td>“Rock And Roll Music”</td>
<td>The Beatles</td>
<td>1964</td>
<td>2:31</td>
<td>5</td>
</tr>
<tr>
<td>“Rock &amp; Roll”</td>
<td>The Velvet Underground</td>
<td>1970</td>
<td>6:06</td>
<td>7</td>
</tr>
<tr>
<td>“Rock And Roll Part II”</td>
<td>Gary Glitter</td>
<td>1972</td>
<td>3:00</td>
<td>5</td>
</tr>
<tr>
<td>“Rock And Roll”</td>
<td>Led Zeppelin</td>
<td>1972</td>
<td>3:40</td>
<td>6</td>
</tr>
<tr>
<td>“It’s Only Rock And Roll (But I Like It)”</td>
<td>The Rolling Stones</td>
<td>1974</td>
<td>5:08</td>
<td>1</td>
</tr>
<tr>
<td>“Rock And Roll All Nite”</td>
<td>KISS (live)</td>
<td>1975</td>
<td>4:04</td>
<td>2</td>
</tr>
<tr>
<td>“We Will Rock You”</td>
<td>Queen</td>
<td>1977</td>
<td>2:01</td>
<td>3</td>
</tr>
<tr>
<td>“Rock ‘n’ Roll High School”</td>
<td>The Ramones</td>
<td>1979</td>
<td>2:21</td>
<td>-</td>
</tr>
<tr>
<td>“Do You Remember Rock ‘n’ Roll Radio?”</td>
<td>The Ramones</td>
<td>1980</td>
<td>3:52</td>
<td>10</td>
</tr>
<tr>
<td>“Rock And Roll Ain’t Noise Pollution”</td>
<td>AC/DC</td>
<td>1981</td>
<td>4:16</td>
<td>7</td>
</tr>
<tr>
<td>“For Those About To Rock (We Salute You)”</td>
<td>AC/DC</td>
<td>1982</td>
<td>5:44</td>
<td>8</td>
</tr>
<tr>
<td>“Rock The Casbah”</td>
<td>The Clash</td>
<td>1982</td>
<td>3:41</td>
<td>3</td>
</tr>
<tr>
<td>“Rock &amp; Roll”</td>
<td>Lou Reed (live)</td>
<td>1984</td>
<td>5:57</td>
<td>5</td>
</tr>
<tr>
<td>“Rockin’ In The Free World”</td>
<td>Neil Young</td>
<td>1989</td>
<td>4:44</td>
<td>-</td>
</tr>
<tr>
<td>“Rock Music”</td>
<td>The Pixies</td>
<td>1990</td>
<td>1:52</td>
<td>9</td>
</tr>
<tr>
<td>“God Gave Rock ‘n Roll To You II”</td>
<td>KISS</td>
<td>1991</td>
<td>5:19</td>
<td>7</td>
</tr>
<tr>
<td>“Rock And Roll Is Dead”</td>
<td>Lenny Kravitz</td>
<td>1995</td>
<td>3:24</td>
<td>9</td>
</tr>
</tbody>
</table>
## APPENDIX E

### Table of Tones, Mis-tones, Mutli-tones and Sones

<table>
<thead>
<tr>
<th>Durations</th>
<th>Pitch</th>
<th>Tones</th>
<th>Mis-tones</th>
<th>Multi-tones</th>
<th>Sones</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short</td>
<td>High</td>
<td>1</td>
<td>AC/DC lead guitar</td>
<td>Catalogue PHD-052</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>6</td>
<td>Kravitz vox ‘oh yeah’</td>
<td>Catalogue PHD-052, 060</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Fading</td>
<td>High</td>
<td>Stones guitar intro</td>
<td>Catalogue PHD-052</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>9</td>
<td>Glitter guitar with bass</td>
<td>Catalogue PHD-052</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Tremolo</td>
<td>High</td>
<td>AC/DC vox ‘about to rock’</td>
<td>Catalogue PHD-052</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Med</td>
<td>11</td>
<td>AC/DC vox ‘about to rock’</td>
<td>Catalogue PHD-052</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>12</td>
<td>Kravitz 'You can't even sing'</td>
<td>Catalogue PHD-052</td>
<td>24</td>
</tr>
</tbody>
</table>

*Catalogue PHD-053* | *a. Haley snare double b. Queen hand claps*

*Catalogue PHD-054* | *Clash snare PHD-052*

*Catalogue PHD-055* | *a. Glitter kick b. Queen kicks PHD-051, 055*

*Catalogue PHD-056* | *Haley last chord with snare fill PHD-058*

*Catalogue PHD-057* | *Lou Reed speaking and crowd PHD-063*

*Catalogue PHD-058* | *a. Ramones radio vox b. Ramones radio vox PHD-070*

*Catalogue PHD-059* | *41*
APPENDIX F

Diary/blog of re-creation phase (SAD project)

1. “Moins l’infini” (5:27)

20091215 burst repeating
sample of AC/DC’s For Those About To Rock (We Salute You), manipulated and layered on ASR10. When compared to the reference (see below) you will note mine fades out dramatically sooner. This is a result of several subjective decisions made in the process. Firstly, I have decided that the Parmegiani ‘sound object’ consists of a pulse that fades RATHER than determining it to be a single ‘burst’ that repeats 8 or so times, each time at a lesser amplitude. Therefore I have sampled a ‘rock moment’ that features a pulse RATHER than sampling a single ‘burst’ and repeating it with a decaying amplitude. The trade off is that the pulse I have chosen quickly features other elements (i.e. a snare hit and vocal etc) - therefore I fade it quickly in order to suppress these unwanted elements. This begs the question ‘is this an appropriate sample to use to recreate the Parmegiani sound object?’ to which the answer is that considerations of timbre and texture come into play. In this case the similarities in timbre outweigh the differences in duration. In the Parmegiani reference below ignore the metallic fragments that appear about 2 seconds into the sound - that’s the next ‘sound object’!

001 Burst repeating

20091216 metallic fragments
sample of AC/DC’s Rock and Roll Ain’t Noise Pollution, manipulated and layered on ASR10. I enjoy performing this one because of the way it has been set up with various parameters being controlled by random noise generators. i.e. pan position is determined by the ASR10 in built random value generator. Therefore every time I play a key I am never quite sure where in the stereo field the sound will appear. Random values also control pitch and volume and other less obvious parameters to varying degrees. Also, I want to use this sample again somewhere but played differently, because it features some interesting ‘guitar’ textures that only develop when keys are held for longer periods of time than I have held them here. Here I am just trying to recreate Parmegiani sound below.

002 Metallic fragments

20091217 spinner cut short
sample of The Pixies’ Rock Music, manipulated and layered on ASR10. In terms of it replicating the reference (see below) I am not overly satisfied with this one but it only appears once in the whole shebang so I won’t dwell on it …

003 Spinner cut short

20091218 whizzing glissando
sample of Lou Reed’s Rock and Roll (live), manipulated and layered on ASR10. OK, feels like cheating. This is a sample of the crowd screaming and yelling at the end of the song - no rock instruments. BUT, I have read that Parmegiani used a lot of white noise as source material for La Création du Monde, and crowds always sound like white noise to me. I imagine I’ll be sampling the crowd sounds again …

004 Whizzing glissando

20091219 slow creak
sample of Lou Reed’s Rock and Roll (live) but this time grabbing the band ending the song with typical rock excess. On top of that is a sample of the snare from Bill Haley and the Comets’ Rock Around The Clock, pitched up and looped. I spent a long time working on this, trying to replicate the reference. I’m not overly happy with the result - furthermore the way I have set up the 2 layers (so that I can control them independently) means it doesn’t respond as a single ‘instrument’. It sounds like 2 sounds, and arguably 2 sound objects … You will notice that both the reference and my sound above have three parts - each part slightly different. So I wasn’t just trying to replicate a single moment but rather an 'instrument’ that behaves differently at different times.

005 Slow creak
20091220 screeching reverb
sample of the crowd (again!) from the live version of KISS' Rock and Roll All Nite (and Party Every Day). Again I
felt like cheating so I added a second layer (that you can hear in the second part) that is a sample of the
feedback from The Pixies' Rock Music, manipulated and layered on ASR10. The feedback is pitched across the
sample in smaller steps (20% of a semitone) so that it is more like the 'atonal' crowd sample and will merge. I
am happier with the way the Z samples fit together to make a more cohesive 'object'.
006 Screeching reverb

20091221 doppler moped
sample of the descending guitar slide in Lenny Kravitz's Rock and Roll Is Dead, manipulated and layered on
ASR10. I am pleased with the way I have generated the attack and initial 'approach' of the sound out of a
sample that only had the 'retreat'. It's a shame that it only appears for a couple of seconds!!! Interestingly, if I
wasn't married to the ASR10 I could have used a doppler effect which would have achieved this result in
seconds - but is perhaps anathema to musique concrète ... (adding effects without real, deep listening and
analysis)
007 Doppler moped

20091222 lofi crunch
sample of Led Zeppelin's Rock and Roll and Roll manipulated and performed on ASR10. Drum fill going backwards and
forwards and run through ASR10 in built distortion. This sound appears a few times, a little different each
time, therefore I constructed this 'instrument' to enable variations in performance.
008 Lofi crunch

20091223 bubblewrap pops
sample of the snare hit from The Clash's Rock The Casbah, manipulated and performed on the ASR10. There is
a random function working on the pitch so that hitting the same key will get variations, but I have made the
range wide enough so that the it gets low enough on occasion to be recognisable as a snare. Note: in the
reference below I am just focusing on the 'pops' on the surface, not all the reverb, creaking stuff...
009 Bubblewrap pops

20091224 bi directional whip
sample of KISS' God Gave Rock n Roll To You II, manipulated and layered on ASR10. I deliberately chose a full
band sample, rather than a single instrument, even though it includes sound elements that aren't in the
reference, because this is the final moment of track 1 and it mirrors nicely the full band sample at the start of
the track. I am also using pitch to shape the approach and retreat of the sound rather than just volume and
intensity as can be heard in the reference (see below). I created this with the backwards 'approach' and the
forwards 'retreat' on separate keys, so to perform this I have to play one then the other. This gives the
potential for variation in timing of the second half but also creates the potential for a mistake! Pros and cons,
but essentially it would be time consuming to stitch together the two halves on the ASR (as it is not designed
to be a cut and paste tool) so I won't for now ... Also, the deep bass rumble that ends the reference (see
below) is not in mine but I figured I could work on that in the mix. Which raises the interesting issue of finding
the line between preparing samples (or instruments) for a composition and preparing samples for a
performance. When to allow room for variation and when to make things fixed ...
010 Bi-directional whip
2. “Instant 0” (4:43)

20091225 hiss and whoosh
sample of Lou Reed's Rock and Roll (live) - the crowd yet again!, manipulated and performed on ASR10. This 'instrument' features a key release envelope - the 'splash' sound that occurs when I release a key.
011 Hiss and whoosh

20091226 sizzling flicker
sample of Led Zeppelin's Rock and Roll, manipulated and performed on ASR10. The snare and hi hats... This one and the one above could be put together and performed simultaneously ... in order to more accurately replicate the references, where it is hard to tell sounds apart.
012 Sizzling flicker

20091227 descending jet engine
sample of AC/DC's For Those About To Rock (We Salute You), manipulated and layered on ASR10. Looping a tiny fragment in the middle of the sample creates a dominant tone and the potential to play chords.
013 descending jet engine

20091228 low buzzing whoosh
sample of the descending guitar slide in Lenny Kravitz's Rock n Roll Is Dead, manipulated, layered and performed on ASR10. Note: in the reference below I am just focusing upon a very small element, but it reappears at other times during the track.
014 Low buzzing whoosh

20091229 tense insect shrill
sample of the Chuck Berry's Rock n Music, manipulated on ASR10. Very happy with this one. It is a loop of the jangling Chuck Berry guitar that opens his track, and it has been filtered and layered. Also, note the subtle pitch variations halfway through ... 
015 Tense insect shrill

20091230 static burst
sample of The Pixies' Rock Music, filtered on the ASR10. I had about 5 samples with potential for this one, but in the end went with the one that required the least amount of manipulation, in the hope that it retains more of its 'rockness' ...
016 Static burst

20091231 radio tuning
sample of AC/DC's For Those About To Rock (We Salute You), manipulated and layered on the ASR10. Almost any sample would have done the trick with this one because the effect is essentially extreme sweeping of parametric EQ. In fact once I had achieved the desired amount of 'radio' effect the source sample was totally obscured. So I made a second layer using the same sample but unprocessed, and dropped in volume so that it just barely there...
017 Radio tuning

20100101 sparkling flicker
sample of the feedback from The Pixies' Rock Music, looped and manipulated on the ASR10. Not totally happy with this one as I can still hear the loop (although I like how much it sounds like an out take from Lou Reed's Metal Machine Music). I didn't want it to sound too atonal because I find the reference (see below) to be quite pretty, so I played firsts and fifths (Ds and As) but it is almost pointless when the original sample is so atonal in the first place ...
018 Sparkling flicker
3. “Première forces - Première formes” (7:36)

This track is tricky because there is so much morphing going on it is difficult to identify when one ‘sound’ ends and another begins. It makes my already subjective methodology even more subjective so ... I have decided to try to limit the sound object identification process to around 10 sounds per track ... (which might be a rule I have to break for the next track as it is over 11 minutes long.)

20100102 flaring gong
sample of Lenny Kravitz’s Rock n Roll Is Dead, manipulated and performed on ASR10. I’m trying to use samples with tonal information as much as possible because it is all too easy to use drums, percussion and other non-tonal samples ... and I think there needs to be more variation in the project.

019 Flaring gong

20100103 sucking sizzle
sample of Led Zeppelin’s Rock and Roll, manipulated and performed on ASR10. This is the same sample as the ‘sizzling flicker’ (20091226) but manipulated differently.

020 Sucking sizzle

20100104 rain on roof
sample of Velvet Underground’s Rock and Roll, manipulated and performed on ASR10. Just a guitar chord but with the pitch modulated so wildly it is beyond recognition.

021 Rain on roof

20100105 rising tone
sample of KISS’ God Gave Rock n Roll To You II, manipulated and layered on ASR10. This was very difficult and time consuming but also very satisfying. In the reference below I am focusing upon the low sound underneath. This is only the first 30 seconds of it. It actually takes 50 seconds to rise up in pitch before falling again for 20 seconds, and then rising again for a final 20 seconds before hovering for a while. I took a screaming lead guitar note from KISS and got all the drums and band as bonus sounds. To get the pitch to fall I have reversed the sample (I re-sampled a few times so that the pitch slide and other characteristics become fixed elements of the sample).

022 Rising woody bass tone

20100106 creaky old boat
sample of the snare from Bill Haley and the Comets’ Rock Around The Clock, looped and performed on the ASR10. I realised that the sound I created for the ‘slow creak’ (20091219) was perfect for this and at the same time realised that the ‘slow creak’ was too full bodied to match its reference. So I went back to 20091219 and filtered the sound to make it thinner and more like the reference. This one then just needed the reverb wash removed and a lower pitch to work fine.

023 Creaky old boat

20100107 duck quack
sample of guitar from AC/DC’s Rock n Roll Ain’t Noise Pollution, manipulated and improvised performance on ASR10. The pitch of the attack is controlled by the velocity (how hard the key is struck) making this a fun one to perform.

024 Duck quack

20100108 loop stutters 1, loop stutters 2
samples of AC/DC’s For Those About To Rock (We Salute You), manipulated, looped and performed on the ASR10. Two different samples, both manipulated in the same way.

025 Loop stutters

20100109 kick
sample of kick drum from Gary Glitter’s Rock And Roll Part II, manipulated and improvised performance on the ASR10. The pitch is randomised with each key strike.

026 Kick
Comets' issue of what Schaeffer called 'monophonie' - that is, concomitant elements that can be isolated by the ear. So, with each key strike. Again I felt the need to combine 2 samples to get the variation it needed. It raises the impact with dungeon echoes I've made) that was anywhere near 'dry'.

aiming to replicate the initial dryness of the reference, and this was the only rock sample (of the 60 or so that I've made) that was anywhere near 'dry'.

031 Impact with dungeon echoes

20100110 glass rattle
samples of the snare from Bill Haley and the Comets' Rock Around The Clock, the guitar from The Beatles' Rock and Roll Music and a guitar strum from KISS' God Gave Rock n Roll To You II, manipulated, layered and performed on the ASR10. I had a bunch of samples that all had some 'glassy' quality to them and decided to combine 3, rather than just manipulate one. I felt it important to maintain a consistent pitch, as the reference does (see below).

027 Glass rattle

20100111 bubbling pops
sample of the bass and drums from Gary Glitter's Rock And Roll Part II, and the snare from Bill Haley and the Comets' Rock Around The Clock, manipulated, layered and performed on the ASR10. The pitch is randomised with each key strike. Again I felt the need to combine 2 samples to get the variation it needed. It raises the issue of what Schaeffer called 'monophonie' - that is, concomitant elements that can be isolated by the ear. So, even though the ear (or at least my ear because I know how the sound was made) can separate the 2 samples, it is still a singular object because they occur together. Therefore, in effect, I have NOT been breaking down Parmegiani's work into sound objects but rather I have been breaking it down into 'instruments' or layers that is more akin to analysing a rock song. However, the samples of rock songs that I have made ARE more accurately Schaefferian sound objects because I treat them holistically, whether the sample includes multiple instruments or not. Must be a chapter for the PhD in that issue somewhere ...

028 Bubbling pops

20100112 resonating buzz 1 resonating buzz 2
sample of The Ramones' Rock and Roll Radio, manipulated, looped and performed on the ASR10. The second one is a sample of Led Zeppelin's Rock and Roll, manipulated in the same way. To create the resonance I applied a chorus effect with the feedback hiked up to the max. The actual pitch created is independent of the source sound being fed into the effect. Therefore, because the effect is an ASR10 inbuilt effect, it can be applied to any sample I am using and will cause the resonance to be of a consistent pitch. Which is why I have included the second one, as an example.

029 Resonating buzz

20100113 wide ambient tone
sample of KISS' God Gave Rock n Roll To You II, manipulated and performed on ASR10. It is the same sample as the 'rising tone' (20100105) but without the pitch rising and this time pitched very low. I know from experience that a stereo sample pitched very low will give a big wide spread of ambient sound. I've used a trace of the resonating chorus to begin with to match the reference (see below) but you could say, in the Parmegiani track, it is just the remnants of the previous sound.

030 Wide ambient tone

20100114 impact with dungeon echoes
sample of Led Zeppelin's Rock and Roll, manipulated, layered and performed on the ASR10. Again, it features the resonating chorus but only on the layer underneath. On top are the initial snare hits un-effected. I was aiming to replicate the initial dryness of the reference, and this was the only rock sample (of the 60 or so that I've made) that was anywhere near 'dry'.

031 Impact with dungeon echoes
4. “Lumière” (11:34)

Although this track is long it features a slow build and probably less variation than the preceding tracks. However, the tricky thing is that the initial surges of sound, separated by silence, are actually all a little different. So do I make a sound object for every time the sound evolves, considering each one as a ‘new’ sound? Or do I make an ‘instrument’ that features all the future evolutions that can then be revealed in performance modulations? Hmmmm ....

20100115  snare mist 1
sample of AC/DC’s *Rock n Roll Ain’t Noise Pollution*, manipulated and improvised performance on ASR10. It comes from a sample I made a long time ago and has been through numerous generations of manipulation and re-sampling. But essentially I think it is a snare, blurred and reverbed into a mist ... You will notice two sounds, separated by silence. I decided that the first 2 sounds in the reference (see below) could be recreated using the same sample but with variation in the performance.

032 Snare mist 1

20100116  snare mist 2
sample of The Pixies’ *Rock Music*, filtered on the ASR10. This third one however, I felt warranted a new sample.

033 Snare mist 2

20100117  distant bird cries
sample of Lenny Kravitz’s *Rock n Roll Is Dead*, manipulated and performed on ASR10. It is the only guitar solo I have a sample of that is literally a solo (i.e. no other instruments)

034 Distant bird cries

20100118  bass burble
sample of Lou Reed’s *Rock and Roll (live)*, manipulated and performed on ASR10. Another one from the vault. I made this back when I commenced this project (a couple of years ago) but even then was originally inspired by the reference (see below). Actually when I have used this in live performances members have the audience have commented that they assumed it was a live band coming through the venue wall. The pitch is constantly sliding around so that there is no rhythm created. (You might find the reference hard to hear without headphones ...)

035 Bass burble

20100119  snare mist 3
sample of Elvis Presley’s *Jailhouse Rock*, manipulated, looped and performed on the ASR10. The snare obviously. Much more recognisable than the first 2.

036 Snare mist 3

20100120  distant animal cries

037 Distant animal cries

20100121  lava rain
sample of Bill Haley and the Comets’ *Rock Around The Clock*, manipulated and performed on the ASR10. You will note two occurrences of the sound. Originally I was going to approach them as two different sounds but as I was working I decided I wanted to use the same sample. But because the sample is so large and chews up ASR memory I copied the sample parameters but not the data to create a second layer within the instrument. Then I created a second patch so that I can create the variation when performing by holding down the patch button(s).

038 Lava rain
20100122 tonal build
I have 5 samples of guitar textures that I have been able to loop to be continuous pitched textures. (The samples are of chords so when I say pitched I mean that it is possible to hear the conventional musical pitch relationships particularly when the sample is performed across the keyboard using the default pitch settings). However, for this example I have just used 2 sources - a sample of the classic early Beatles guitar sound from Rock n Roll Music, and a sample of clean guitar strum from KISS' God gave rock n roll to you II, manipulated and layered on ASR10. Here I have tried to recreate the melody as heard in the reference (see below) but as I indicated above, I think I will need to do more work on the instrument to recreate the variations that occur in the Parmegiani track over several minutes.

039 Tonal build
The bulk of this track consists of an intense build of very complex sound textures that I have found impossible to break down into sound objects. Furthermore, it seems to me that there is considerable reliance upon pitch relationships (reminds me very much of Ligeti’s micro-polyphony works.) Again, they are quite complex, and it would be quite a task to transcribe and notate it, even if it were appropriate to this project (which it ain’t). So, the sound below is an attempt at a simplified version of the reference but I think it will need revisiting when it comes time to assemble the composition.

20100123 dog bark
sample of Bill Haley singing the word ‘Rock’ from Rock Around the Clock, pitched down an octave, filtered and performed on the ASR10.

040 Dog bark

20100124 feedback sparkle
sample of The Pixies’ Rock Music, manipulated, filtered and performed on the ASR10. At the end I performed it in such a way so that the original sample is more discernible - which highlights a concern I continue to have throughout this project. Often I am able to recreate an element of the Parmegiani work to my satisfaction but at the expense of the source sample retaining recognition. So the question that continually comes to mind is; how important is it to have the sample sources recognisable to a listener? There are many issues at work; firstly subjectivity. Each individual listener will hear or not hear the sources to varying degrees. Also, it is impossible for me to imagine hearing something I have made for the first time without knowing where it came from and how it was manipulated. Then there is the issue of familiarity - listeners will ‘know’ the sources to varying degrees. If familiarity was so important I would have made sure I picked the most popular (ie. widely known) rock songs to sample from. At the beginning of the project I decided that I was more interested in retaining the essence of a sample than the specifics. By that I mean I would rather have a listener be aware that a sound is made from a snare drum than being able to identify that it is a particular snare hit from a particular song or artist. But I guess that is at the heart of the project - finding out if there is something essential about the sound of rock that is retained when sampling rock songs to make a composition that is entirely unlike rock music ...

041 Feedback Sparkle

20100125 descending backmasking
sample of Lenny Kravitz's Rock n Roll Is Dead, manipulated and performed on ASR10. This also utilises a reverse reverb inbuilt ASR effect.

042 Descending backmasking

20100126 new resonance
technically this is not a new ‘sound’ in as much as I am reusing sounds I have made above but I felt that the best way to recreate what happens in the Parmegiani reference (see below) was to create an effect. In this case I am again using a chorus effect with the feedback set to max to create resonance. In the sound above I have put the ‘tonal build’, ‘feedback sparkle’ and ‘descending backmasking’ through the effect.

043 New resonance
5. “Jeux de configurations” (5:54)
A lot of this track includes sounds from the previous track (as it is the continuation of the 2nd movement) so the sounds below will just be the new ones I identify ...

20100127 strum
sample of KISS' God Gave Rock and Roll To You II, manipulated, layered and performed on ASR10. This is a sound object (see reference below) that I identified very early on in the project as something I could replicate using a guitar strum. Closer listening revealed more to it than that so I have made three layers of the same sample but doing different things; the initial high pitched squeak, the middle layer at unaltered pitch but fading rapidly and the sustained layer at a low pitch and with a filter over the attack so that it emerges after the key is released.
044 Strum

20100128 plops
sample of the kick drum from Gary Glitter’s Rock and Roll Part II, manipulated and performed on the ASR10. The pitch is randomised with each key strike. You will note some ‘tinkling’ in the reference (see below). I have decided to consider the tinkle as a separate sound object because it reoccurs at other times in the track. But I also have the luxury of being able to simultaneously ‘activate’ more than one ‘instrument’ on the ASR so that a single key strike can playback anything from 1 to 8 instruments simultaneously. This gives me the ability to perform sounds together - in this case I can trigger a 'plop' at the same time as a 'tinkle'.
045 Plops

20100129 close piano tinkle
sample of piano glissando from The Beatles' Rock and Roll Music, manipulated and performed on the ASR10. This gets so removed from the source remaining recognisable that, when I put the sounds together into the compositions, I am considering hovering around the original pitch - even though that makes the sound less like the reference (see below).
046 Distant piano tinkle

20100130 distant piano tinkle
same sample as yesterday (piano glissando from The Beatles' Rock and Roll Music), but manipulated and performed on the ASR10 in a different way. The loop position is able to be adjusted in performance. This is to enable the variations that occur throughout the track, although the reference (see below) is relatively static.
047 Close piano tinkle

20100131 short howl with delay
sample of AC/DC's For Those About To Rock (We Salute You), manipulated, and performed on the ASR10. In the Parmegiani track the sound occurs first without delay and then later with delay (in the reference below you will note the little gap because I have removed several seconds just to highlight the sound as it first occurs and then the delayed sound.)
048 Short howl with delay

20100201 buzzing distortion
sample of Lou Reed's Rock and Roll (live), manipulated, layered and performed on ASR10. There is a lot going on in the Parmegiani reference (see below) - including yesterday’s ‘howl’ - so you may find it difficult to identify the precise ‘instrument’ or ‘layer’ that I am attempting to recreate ...
049 Buzzing distortion

20100202 rolling glass
sample of snare drum from Elvis Presley's Jailhouse Rock manipulated, layered and performed on ASR10. It is a loop and in performance the end of the loop is manipulated to create the rising pitch/increasing repeat speed effect. I am not 100% happy with this one. The attack is too hard compared to the reference (see below)
050 Rolling glass
6. “Échos/mélopée” (5:37)

I will only be making a few new sounds for this track because a lot of this track includes sounds from the previous tracks (as it is the final part of the 2nd movement). In particular, ‘rolling glass’ features quite prominently, as does the ‘piano tinkles’. Also, the very first sound of the project, ‘burst repeating’, features throughout but in reverse. Interestingly, I cannot simply perform ‘burst repeating’ in reverse because of the envelope filters, and instead will have to resample or record it in Pro Tools and reverse it there (when it comes time to assemble the compositions). There’s a PhD chapter here I am sure, to do with the question of when does a sound object become a new object. Strictly speaking, every new occurrence is a new object ... but it is also to do with the listening intention. The example Schaeffer uses to clarify this point is a harp arpeggio. When notated traditionally it is broken down into a succession of notes - but would in fact be considered a single sound object. So, if the intention is to notate the arpeggio so that a harp player can perform it, it needs to be analysed as a succession of notes but if the intention is to assess the sound as a concrete sonic occurrence, thus involving a much more rigorous examination, then it needs to be thought of as a single sound object.

20100203 chant

sample of The Rolling Stones' 'It's Only Rock and Roll (But I Like It) manipulated on Pro Tools, layered and performed on ASR10. After 50 sounds made only using the ASR10 I finally had to turn to software because, conceptually, I wanted to do something with this sound that the ASR10 cannot do; alter pitch without altering tempo. This is a fairly common place tool these days but not when the ASR10 was produced. In an effort to stay on the ASR10 I spent a considerable amount of time trying to make this sound in a very different way. In the reference below the sound that I am focusing on occurs twice (note the gap where I have edited out the material in between), the second time at a higher pitch but with the same overall volume/pitch shape and duration. Thinking that it was these envelopes of the reference that was critical - both the amplitude envelope and the pitch envelope - I thought I could apply consistent envelopes to a constant droning loop. Therefore the shape of the sound - i.e., the 'melody' and the volume shape - would remain constant no matter what pitch the sound was played at. This proved too difficult - theoretically I believe the ASR10 can do this but it involves a lot of time and effort. So, instead I used the Stones sample, which superficially resembled the reference to begin with, and first slowed it down (without altering the pitch) and then pitched it up (without altering the tempo). The first and second iterations of the sound above are designed to recreate the reference. The 3rd iteration is included above to demonstrate the first stage in the progression. The artefacting that occurs when using these tools (to extreme like I have) is also pleasing here because it brings the texture closer to the reference (see below)

051 Chant

20100204 alarm

sample of AC/DC’s Rock n Roll Ain’t Noise Pollution, manipulated and improvised performance on ASR10. In the reference below I am focusing on the background sound, so when the sound I've made is added to the composition it will be very low volume, and will need to compliment the dominant sounds. Therefore I have built in a performance parameter that manipulates the loop position (which in effect manipulates pitch and texture). You will notice that the reference sound is much higher in pitch than mine. This is because I wanted to retain as much of the 'guitarness' of the sample as possible and pitching it up an octave or more loses that. I am sure I could flesh out this issue more in the PhD - around privileging certain qualities at the expense of others. This issue is particularly relevant to sampling on the ASR10 when dealing with pitch versus tempo. As explained yesterday when I talked about altering pitch not tempo (and vice versa) for the 'chant' sound, the ASR10 is more akin to a tape machine in that way. Slowing down tape drops the pitch and tempo TOGETHER, and speeding up the tape increases pitch and tempo TOGETHER. What this means is that transposing pitch relationships drastically alters duration, tempo and often other elements too. To use the harp arpeggio example again: when playing the harp the series of notes can be transposed to a higher or lower key, while note duration etc can remain the same and this transposition is very easily performed. If the arpeggio is sampled on the ASR10 as a whole, transposition of pitch will alter duration (like a slowing down or speeding up a tape machine). If each note is sampled and the arpeggio is 'played' note by note on the ASR10 the issue remains. Transposing is easy, simply play lower or higher notes on the keyboard, but the duration of EACH note is effected. The manufacturers have solutions for these problems as demonstrated in the factory sounds they provide. So a harp 'instrument' on the ASR10 is constructed using envelope filters to keep each note of a
consistent duration - which is what I tried (and failed) to do with 'chant' yesterday ...

052 Alarm

20100205 R2D2

sample of the synth stab from The Clash's *Rock The Casbah*, manipulated and performed on the ASR10. This feels a little like cheating because it has been created by sampling a synth sound rather than sampling and manipulating a more typical rock instrument. But that sound is there in that track and it makes life easier ... The question was how much of the rest of the sound to leave in there. I decided to leave a little trail of Joe Strummer's vocal, especially because the final note in the 3 note sequence is at the original pitch and therefore is easily recognised. As usual the reference (see below) includes other sounds but it is just the electronic beeps I am focusing on. This and the last few sounds will all need to work together in the final track to create the chanting and echoing that the track title *Échos/mélodie* (Echoes / chant) refers to.

053 R2D2
7. “Cellules” (6:25)

The third and final movement begins with a track that is relatively sparse. I have managed to only identify 4 new sounds although there is considerable variation with each ‘repeat’ or ‘recurrence’ of each sound ...

20100206 reverse squeaks
sample of the Velvet Underground’s *Rock and Roll*, manipulated and performed on ASR10. The difficulty with this one is that the first minute or so of the Parmegiani track consists of only these ‘reverse squeaks’ (see below) so I needed to make something that had enough potential in the performance variations to sustain interest for so long. I used a ‘ramp up’ envelope to create an attack that mimics a reversed sound. Also, I used a reverse reverb to ‘stretch’ the sounds when I need to in performance. Rather than replicate the low scraping sound in the reference I decided to use the sound without pitch changes, to keep them all in the same family and to give a peek at the source.
054 Reverse squeaks

20100207 keys jangle
sample of the Velvet Underground’s *Rock and Roll*, manipulated, layered and performed on ASR10. This is actually the very same sample as yesterday but treated very differently. In the Parmegiani track the sound appears first as a very low level background, disappears and then later it provides the climax of the track before gradually petering out. (See below)
055 Keys jangle

20100208 dogs bark
sample of Bill Haley shouting "Rock!" from Bill Haley and the Comets’ *Rock Around The Clock*, manipulated and performed on the ASR10.
056 Dogs bark

20100209 snare splashes
sample of the hand claps from Queen’s *We Will Rock You*, manipulated and performed on the ASR10. There is a bi-directional loop on the sound so that when the key is held longer a reverse version appears, plus there is velocity on the keys so that variations in volume can be performed when striking the key harder or softer.
057 Snare splashes
8. “Aquatisme” (7:53)

Well, this track is incredibly dense. I could have done the entire project using this track alone. Almost every couple of seconds there is a new sound, or a development upon a previous sound so drastic it could warrant being called a new sound. Instead I will try to keep the number of sounds I identify for replication to a minimum by effectively doing what Schaeffer would call categorising into genre. Here, genre essentially means grouping sounds together that ‘sound like’ they all emanate from the one ‘instrument’. Or more specifically, that I am able to recreate using the one sample, performed with variations on the ASR10. Almost every couple of seconds there

20100210 insect buzz 1
sample of the snare from Bill Haley and the Comets' *Rock Around The Clock*, manipulated, looped and performed on the ASR10. I have amplified the reference (see below) about 30 dB because it is the very start of the Parmegiani track and very quiet.

058 Insect Buzz 1

20100211 drain atmos
sample of the fretboard squeak from Lenny Kravitz’s *Rock n Roll Is Dead*, manipulated, looped and performed on the ASR10. You will note that the reference (see below) is the same as yesterday but this time focusing upon the ‘background’ sound.

058b Drain atmos

20100212 droplet 1
20100212 droplet 2
first one is a sample of Lenny Kravitz's *Rock n Roll Is Dead*, manipulated, layered and performed on the ASR10, the second one is sample of the snare from The Clash’s *Rock The Casbah*, manipulated and performed on the ASR10. I spent some time trying to get the Lenny Kravitz sample to sound like a droplet like the reference (see below) but then abandoned it and used the Clash sample instead.

059 Droplet + Car start

20100213 car start
20100213 droplet + car start
sample of The Ramones' *Rock n Roll Radio*, manipulated, looped and performed on the ASR10. You will note that the reference (see below) is the same as yesterday. Originally I viewed the ‘droplet’ and the ‘car start’ as one but later on in the track they occur at different times, thus showing that although often working together, they are in fact 2 separate sounds. So, I have included an example of my 2 recreations working together. It raises the issue of assessing the suitability of a sound (sample) whilst considering how it will interact and compliment another sound - and thus pre-meditated composition begins to encroach on pure object construction.

059 Droplet + Car start

20100214 distant train
sample of Led Zeppelin’s *Rock and Roll*, manipulated and performed on the ASR10. Note that it is the very faint background sound in the reference (see below) that I am recreating.

060 Distant train

20100215 insect buzz 2
same sample as ‘car start’ a couple of days ago (sample of The Ramones' *Rock n Roll Radio*, manipulated, looped and performed on the ASR10) but looped differently and pitched higher.

061 Insect buzz 2

20100216 fluoro hum
sample of Gary Glitter’s *Rock and Roll Part II*, manipulated, and performed on the ASR10. Pitched very low. Obviously in the reference (see below) I am focusing upon the background sound.

062 Fluoro hum
20100217 water birds
sample of Lenny Kravitz's *Rock n Roll Is Dead*, manipulated, looped and performed on the ASR10.
063 Water birds

20100218 drain variations
sample of Lenny Kravitz's *Rock n Roll Is Dead*, manipulated, looped and performed on the ASR10. I didn't intentionally use a sample from the same track as yesterday but I am assuming the 2 will work together well ...
064 Drain variations

20100219 water running
sample of snare drum from Elvis Presley's *Jailhouse Rock* manipulated, layered and performed on ASR10. Same sample as '20100202 rolling glass' but processed and played differently.
065 Running water

20100220 sucked thump
sample of The Pixies' *Rock Music*, manipulated, and performed on ASR10. The reference (see below) immediately suggested a reversed sound, and a song ending seemed obvious. It was just a matter of selecting one that had the closest timbral resemblance. The panning is a performable parameter.
066 Sucked thump

20100221 pipe knocking
sample of the snare from Bill Haley and the Comets' *Rock Around The Clock*, manipulated, and performed on the ASR10. Not much manipulation in this one, simply dropped it a semitone (and is nicely similar to the pitch of the reference (see below)) and filtered out the high frequency snare sound (probably could hollow out the sound further to make it more like a 'metal pipe'). Accidentally used the same sample as the first sound for this track, so the track SHOULD be nicely consistent.
067 Pipe knocking
9. “Polyphonie” (6:15)

As mentioned in the description of '20100222 swelling drone' this track begins with a drone, or rather layers of drones. Identifying sound objects is difficult ...

20100222 swelling drone
sample of Lou Reed's vocal from the Velvet Underground's Rock and Roll, manipulated, filtered and performed on ASR10. My sound is a lot more tonal than the reference (see below) but I think that's okay ... and I should mention that a key feature of the reference is the 'water running' continuing on from the last track. Underneath is what I am calling a swelling drone. The beginning of this Parmegiani track raises a new question: how to identify sound objects within a drone. Certainly one can hear multiple layers in the Parmegiani track, so each layer can be an object, but should each 'swell' be an object? What about the elements/layers that don't swell? hmmm tricky ...
068 Swelling drone

20100223 shimmer
sample of the crowd from KISS' Rock and Roll All Nite (And Party Every Day), manipulated, looped and performed on the ASR10.
069 Shimmer

20100224 siren 01
sample of Velvet Underground's Rock and Roll, manipulated, looped and performed on the ASR10.
070 Siren 1

20100225 siren 02
sample of AC/DC's For Those About To Rock (We Salute You), manipulated, looped and performed on the ASR10. Focusing on one of the background sounds in the reference (see below)
071 Siren 2

20100226 metal stutter 1
sample of Velvet Underground's Rock and Roll, manipulated and performed on the ASR10.
072 Metal stutter 1

20100227 metal stutter 2
sample of The Beatles' Rock And Roll Music, manipulated, looped and performed on the ASR10.
073 Metal stutter 2

20100228 metal stutter 3
sample of AC/DC's For Those About To Rock (We Salute You), manipulated, looped and performed on the ASR10.
074 Metal stutter 3

20100301 spitting 1
sample of AC/DC's Rock n Roll Ain't Noise Pollution, manipulated and performed on the ASR10. You may find it difficult to hear the different parts in the reference (see below) but today's sound is just 1 of 3 parts I think ...
075 Spitting 1

20100302 frog
sample of Bill Haley shouting "Rock!" from Bill Haley and the Comets' Rock Around The Clock, manipulated and performed on the ASR10. You may find it difficult to hear the specific part I am referring to in the Parmegiani track (see below) amongst all the activity ...
076 Frog
10. “Expression 1” (3:17)

I'm taking a slightly different approach with this track: the drone elements that make up a significant part of the track I am going to replicate using sounds I have already come up with (during the earlier 'play' phase of the project). In particular 'expression drone 2' is more a replication of a general effect that I have identified in the Parmegiani track, rather than a faithful recreation of the sound...

20100303 surface sizzle
sample of The Ramones' Rock and Roll Radio, manipulated, looped and performed on the ASR10. As you can hear in the reference (see below) this is just the 'surface' sound ...
077 Surface sizzle

20100304 expression drone 1
sample of AC/DC's For Those About To Rock (We Salute You), manipulated, looped and performed on the ASR10. (Yes, the reference snippet below is the same as yesterday but this time I am focusing on the lower layer)
078 Expression drone 1

20100305 expression drone 2
sample of The Pixies' Rock Music, manipulated, layered and performed on ASR10. This was a sound I had come up with in an earlier 'play' phase of the project. It features 4 stereo layers of the same sample but each behaving differently. I can manipulate live the volumes relationships between the layers and it even includes a pressure modulation i.e. pressing harder on a key raises the volume of one of the layers
079 Expression drone 2

20100306 golf
sample of the snare from 'Rock' from Rock Around The Clock, manipulated and performed on the ASR10 combined with a sample of the handclaps from Queen's We Will Rock You. The reference (see below) is a compile of some of the various occurrences of the sound in the Parmegiani track.
080 Golf

20100307 shout
sample of Bill Haley singing the word 'Rock' from Rock Around The Clock, performed on the ASR10. The reference (see below) is a compile of some of the various occurrences of the sound in the Parmegiani track in reverse i.e. the first ones you can hear, on their own, are at the end of the track, the next ones precede them and so on.
081 Shout

20100308 flam
sample of the handclaps from Queen's We Will Rock You, manipulated, layered and performed on ASR10. Not really happy with this one. I have failed to replicate the whipping quality of the reference (see below).
082 Flam
11. “Expression 2” (7:15)

The first half of this track is a collection of easily identifiable sound objects. The second half gets difficult with another complex drone ...

20100309 martian lid
sample of AC/DC's *Rock 'n Roll Ain't Noise Pollution*, manipulated and performed on ASR10.
083 Martian lid

20100310 voice 1
sample of The Ramones' *Rock and Roll Radio*, manipulated, layered and performed on the ASR10.
084 Voice 1

20100311 telephone voice
sample of The Ramones' *Rock and Roll Radio*, manipulated, layered and performed on the ASR10.
085 Telephone voice

20100312 jug wind
sample of Gary Glitter's *Rock And Roll Part II*, manipulated, layered and performed on the ASR10. The sample includes drums that become extraneous when compared to the reference (see below).
086 Jug wind

20100313 night birds
sample of The Ramones' *Rock and Roll Radio*, manipulated, layered and performed on the ASR10. You might find the reference hard to hear as it is quite low level (see below).
087 Night birds

20100314 night factory
sample of The Ramones' *Rock and Roll Radio*, manipulated, layered and performed on the ASR10. You might find the reference hard to hear as it is quite low level (see below).
088 Night factory

20100315 night insects
sample of The Ramones' *Rock and Roll Radio*, manipulated, layered and performed on the ASR10. You might find the reference hard to hear as it is quite low level (see below).
089 Night insects

20111029 carnival 1
sample of the guitar from Chuck Berry's *Rock and Roll Music* manipulated and performed on the ASR10.
091 carnival 1

20111030 cave voices
sample of the DJ intro to the Ramones' *Rock and Roll Radio* manipulated and performed on the ASR10.
092 cave voices

20111031 carnival 2
sample of the guitar from Chuck Berry's *Rock and Roll Music* manipulated and performed on the ASR10.
093 carnival 2
APPENDIX G

List of live performances

Artrage
Stereo
*September 6*th 2007 The Bakery Perth
With; Cease

Klang und Raum
5.1 Surround
*Feb 2nd 2008* Melbourne Planetarium
With; Robert Henke (DE), Sonia Leber and David Chesworth, The Mutagen Server (Ollie Olsen And Steve Law)

Liquid Architecture 9 Brisbane
4 channel
*July 4*th 2008 Brisbane Powerhouse
With; Rafael Toral (SP), Marcus Schmickler (DE), Ian Wadley

Liquid Architecture 9 Sydney
4 channel
*July 11*th 2008 The Factory
With; Toy.Bizarre (FR), Robert Normandeau (CA), Lawrence English, Jacques Soddell, Kusum Normoyle

Liquid Architecture 9 Bendigo
Stereo
*July 15*th 2008 The Old Fire Station
With; Toy.Bizarre (FR), Marcus Schmickler (DE), Lawrence English

Liquid Architecture 9 Melbourne
8 channel
*July 17*th 2008 North Melbourne Town Hall
With; Marcus Schmickler (DE), Alex White, Hi God People

Liquid Architecture 9 Perth
4 channel
*July 26*th 2008 Club Zho
With; Toy.Bizarre (FR), Jacques Soddell, Cat Hope

Stutter
Stereo
*March 20*th 2010 Horse Bazaar Melbourne
With; Breathing Shrine, Robert Curgenven, Poletopra

Make It Up Club
Stereo
*February 1*st 2011 Bar Open Melbourne
With; Night Toilet (US), Nik Kennedy and Bonnie Hart, Metal Rouge (US)
THE APPROPRIATE DURABLE RECORD

ROCKreation of the World [CD] (73:11)

Back in Black Light (17:52)
1 “Out of Time” 5:30
2 “Zero” 4:46
3 “First Good Vibrations” 7:36

Transformers (23:17)
4 “White Light” 11:35
5 “Set Lists” 5:54
6 “Feedback Loops” 5:48

Live Signs (31:57)
7 “Cellblocks” 6:22
8 “Wet Signals” 7:53
9 “Polyrock” 6:14
10 “Shout-out 1” 3:18
11 “Shout-out 2” 7:18
12 “Is This the Real Life?” 0:55

ROCKreation of the World II [CD] (72:22)

black light (17:35)
1 “minus infinity” 5:24
2 “moment zero” 4:45
3 “first forces / first shapes” 7:26

metamorphosis of the void (22:38)
4 “light” 11:11
5 “sets of configurations” 5:50
6 “echoes/chants” 5:37

signs of life (32:07)
7 “cells” 6:25
8 “aquatic” 7:53
9 “polyphony” 6:18
10 “expression 1” 3:18
11 “expression 2” 7:18
12 “reality” 0:55

ROCKreation of the World III [CD] (71:12)

Under Black Light (17:36)
1 “Before Time” 5:27
2 “The Big Bang” 4:43
3 “First Force” 7:26

Transforming the Void (23:11)
4 “The Light” 11:34
5 “The Setup” 5:54
6 “Echoes” 5:37

Life Signs (32:00)
7 “Cell Walls” 6:25
8 “Liquid Architecture” 7:53
9 “The Polyphonic Spree” 6:15
10 “The Express I” 3:17
11 “The Express II” 7:15
12 “The Real Thing” 0:55