**Resisting reproduction in the digital age: notes on a sonic arts practice**

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In these reflections on my current practice using interactive technology in combination with instruments and objects, I will consider my recent work in the context of the material conditions of the genres of ‘new music’ and sonic arts in which they are principally situated. In particular, I am interested in how this practice disrupts norms of diffusion and reproduction by setting out specific conditions for its reception; these conditions are intrinsically related to the avoidance of stylistic categorisation and an engagement with performer agency. This discussion will necessarily be informed by Walter Benjamin’s seminal work, The Work of Art in the Age of Mechanical Reproduction; the works in question, however, resist technological reproduction not only despite, but through the media of technological processes, as they enhance, rather than efface, a sense of aura, interpreted as a multiplicity rather than as a singular original.

**Composition as interpretation**

Most of my compositions are what I consider to be ‘interpretations’ of pre-existing music. In the context of my own tenuous relationship to concert-music repertoire, these compositions explore the tension between various forms contributing to the identity of a musical utterance. The focus of these ‘readings’ is on various instantiations of a given work in performance as captured by recordings and other traces of performance history, rather than on the scores; it is through the differences between these versions that the essence or aura of the work emerges.

The compositional process starts with the choice of an existing work to ‘interpret’. Once a model has been chosen, a period of research ensues, during which I obtain a variety of recordings of the model work. My main sources are commercially recorded CDs, however I occasionally incorporate lo-fi versions found on the internet in order to heighten the presence of the artefacts arising from the processes of recording, reproduction and compression; or conversely, I work with musicians in recording new versions. The choice and number of recordings depends upon the differences I am interested in bringing out in each compositional project. To give one example, in the kinetic installation *Adagio sans quatuor*, I was interested in variations of speed and width of vibrato in different versions of Mozart’s String Quartet No 19, K465 (the so-called *‘Dissonance’* Quartet). For this purpose, I used a large variety of recordings – readily available for this piece – and also held a session with the Quatuor Diotima[[1]](#footnote-1) in which we recorded several versions using different playing styles. In the installation, this combination of recordings and the differences between them, enhanced by extreme time-stretching and transposition, provided the material to create halo-like vibrations around certain frequencies.

[Insert Image #1 here, with the caption below]

Screenshot from *Adagio sans quatuor* documentation from its première presentation at the *centquatre-Paris* in 2010[[2]](#footnote-2)

Once I have obtained various recordings of the model for my composition, I subject them to the following computer-assisted compositional (CAC) process: (1) the duration of each note – or other articulated musical unit – of each recording is determined; (2) the recordings are time-stretched proportionally note by note so that, when superimposed, they are synchronised; (3) the result of the superimposition of these different versions – further stretched in order to heighten the subtle variations between the versions and bring out the artefacts of the phase vocoding technique used for time-stretching – constitutes what I will be referring to here as the *maquette* for the composition. The *maquette* is an electroacoustic composition in itself, which corresponds temporally to the final composition. This *maquette* provides all of the material – harmonic, melodic, rhythmic, timbral, etc. – to be performed in the final work, either by instrumentalists, objects, or a computer. The resulting composition thus becomes a kind of interpretation of the pre-existing work, or rather a representation of it based upon combined remnants of its performance history.

The *maquette*, as an electroacoustic representation of the original music, reproduces the original work through a multiplicity of versions and other distorting factors produced by the process as described above. The interpretation of the *maquette* – the final composition as performed by instrumentalists, objects, and/or computer programs – adds a further subjective layer to the original due to the imperfection and contingency of both my transcription of it into instrumental parts or other materials, and its execution by the performers, objects, and technology. The act of transcribing the *maquette* involves a balance between a rendering of the data derived from spectral analyses of it, and an adaptation of this data to the limitations and/or particularities of the instruments or objects. For instance, in *Adagio sans quatuor,* I apply a process of filtration to the *maquette* according to the physical properties of the plates and instruments: specific frequency bands from these *maquette* are chosen for transmission through the instruments and metal plates of the installation (through transducers and modified speakers) according to the resonant properties of each instrument or plate in order to provoke spectrally augmented (non-linear) responses from them. Thus the *Adagio* is performed by objects which render the materials according to their own physical specificities, in a relationship comparable to the addition of individual instrumental timbre to the notes of a score in performance.

I first began approaching composition as an interpretive process in an attempt to move away from stylistic considerations as a basis for making choices about musical material. I found that I was more interested in ways of working with compositional material, and of making instruments or objects or electronics articulate this material, than I was in producing the basic material itself. Furthermore, I felt that making certain compositional choices – about the relative dissonance or consonance of my material, for instance – would by default align my work with that of composers of a given school or tendency, and that it was difficult to abstract those choices from that social and institutional context.

In my efforts to escape from stylistic categorisation, I was influenced by the writings and work of Gerhard Richter, and in particular this quotation from his writings: ‘I like everything that has no style … Because style is violence, and I am not violent.’ Richter writes that he achieved the state of ‘having no style’ through his paintings from photographs, by setting himself a specific task:

not to have anything to imagine, to forget the meaning given to painting, colour, composition, spatiality, all that one knew and thought. All of that suddenly stopped being the premise of art. [Richter (1999), p. 29; my translation from the French translation]

As my career as a composer/sound artist developed, I realised that I needed to be careful to establish a ‘voice’ rather than a ‘style’. I wanted other artists, curators, and the public at large to engage with my manner of creating works, which could differ greatly from one another in their superficial aspects, rather than a recognisable style which would become a template for each work; or to put it another way, my capacity to develop a meaningful process, much as Richter describes in the above quote, and then ‘interpret’ this situation through my own personal voice, informed by my own intuition, rather than my ability to produce recognisably similar artefacts for different occasions.

**Electronics as an irreproducible physical phenomenon**

Using this interpretive compositional process, I produced several works for various combinations of instruments with live electronics between 2003 and 2010, including *Trio d’après Schoenberg* (2004)[[3]](#footnote-3), *Arrangement in Gray and Black* (2005), *De Profundis Clamavi (Hommage à Alban Berg)* (2007), *Funeral Sentences* (2008), *menus morceaux par un autre moi réunis* (2009) and *Hommage à Purcell* (2010).[[4]](#footnote-4) While the process of deriving the materials for both the electronics and the instrumental parts from the *maquette* helped to unify these into a whole, there was nonetheless a certain separation between them due to the difference in the physical conditions of their diffusion in performance.

The dichotomy between diffusion of electronics through speakers and live instrumental sound, particularly in relation to room acoustics and audience seating, is a commonly-expressed problematic of the ‘mixed music’ genre. Beyond the influence of the ambient acoustic and all of the specificities of the space in which a piece may be performed, including the inconsistency of the listening experience depending on placement within the speaker field, speakers are also instruments in and of themselves, rendering the electronic sound according to their own properties. Thus one finds oneself composing for instruments - i.e., the speakers in a given venue on a particular occasion - whose specifications are usually only revealed within a relatively short period of time before the performance; and most often, a composer has little say about their placement within the space. There is also the problem of the relationship between the electronic sound and the acoustic instrument(s) on stage: one may use amplification to blend the instrumental sound with the electronics diffused through speakers, as well as modify the sound of the instrument in real-time through processing, but the acoustic sound and radiation of the instrument itself remains unmodified in a conventional ‘mixed’ work, and is often perceptible by a listener in a live performance as a source which is distinct from the electronic sound. In relation to the problematics of reproduction discussed here, it is interesting to note that there is often a flattening out of these inconsistencies between one or more acoustic sources and electronic sound in recorded versions of mixed works, such that there is a greater consistency and coherence in the recording than in a live version: the acoustic source or sources become more similar to the electronic sound as the complex phenomenon of the radiation of acoustic sound becomes fixed to a given number of points - according to the placement of microphones - in its recorded form; and while a live recording of a mixed piece will necessarily reproduce the characteristics of the speakers used, it is possible to record a simulation of the electronics directly, such that it is only coloured by the speakers and the room acoustic at the moment one listens to the recording. In other words, it is possible to make a recording of a mixed work such that it becomes in effect an electroacoustic work.

In reaction to these problematics, I have diffused electronic sound through instruments or objects through the use of transducers in most of my works since 2010. While (certain) speakers may render electronic sound with higher fidelity, this method allows me to engage precisely with the parameters of the transducers or speakers chosen to excite the instruments or objects (remaining the same for all performances) in combination with the resonant properties of the instrument or object excited, and to allow the electronic sound to intermingle with and affect the instrumental sound itself. A typical example of this practice is *Leçons de ténèbres* for ensemble, in which the electronics are diffused through transducers placed on the cello, the sounding board of the piano, and various percussion instruments.[[5]](#footnote-5)

**The agency of the performer in electronics practice**

By integrating the electronics into the instruments, it is in a sense possible for one or more instrumentalists to perform the *maquette* directly through their instruments. It is important for me, however, that the instrumentalists and their instruments not become a simple conduit for the electronics, but rather have an agency in their performance. This relationship is exemplified by *Bodied Chambers* for cello and electronics (2014), which uses technology to intervene in the physical relationship between a cellist and his/her instrument.

*Bodied Chambers* was developed in collaboration with Seth Woods, who is both a cellist and a movement artist. In this piece, all of the technology is worn on the body of the cellist: two transducers are embedded in a shirt, such that the cellist brings them into contact with the cello by holding the cello against his/her body, while the cellist also wears contact microphones and one miniature microphone on the bow hand (see diagramme below).

[Insert image #2, with the caption below]

Image from the score of *Bodied Chambers*, Patricia Alessandrini, 2014

In his PhD thesis entitled Almost Human: The Study Of Physical Processes And The Performance Of A Prosthetic Digital Spine[[6]](#footnote-6), Seth describes the piece in the following manner:

The technical design is a mixture of analog and digital technology, as both the analog feedback and digitally transformed sound (using Max/MSP programmed created by Alessandrini) are re-transmitted through the transducers and enable me to capture the sound of the cello, in part through the resonance of my own body, and re-transmit that sound through the instrument; thereby creating a feedback loop.

[Insert image #3, with the caption below]

Seth Woods performing *Bodied Chambers*, Instalacje Festival, Warsaw, 2014

Therefore it is the performer him/herself who controls the feedback and processing, as s/he is able to use his/her own body to both auscultate the instrument and affect the diffusion of the electronic sound through it. The physical relationship between the performer and his/her instrument is further altered by the playing positions, which are given as a series of steps forming the structural backbone of the piece, from kneeling on the floor to lying back with the cello held along the length of the body; see performer diagram below for the notation of one of the positions.

[Insert image #4, with the caption below]

Image from the score of *Bodied Chambers*, Patricia Alessandrini, 2014

*Bodied Chambers* was originally intended to be a part of a CD project[[7]](#footnote-7), however we soon found that while a recording would not be without interest, it would not be representative of the work: although every recording of a performance represents a certain loss of aura, in this case the loss would be so significant that the recording would function more as a trace of the original than as a reproduction. When one listens to a recording of an instrument which one knows and recognises, it is possible to reconstitute in the imagination what the performance which one hears recorded may have looked like from one moment to the next; in the case of *Bodied Chambers*, this natural projection of knowledge of performance practice would act as a form of erasure of the actual physical conditions of the recorded work. We considered a DVD in order to preserve the visual information, but once again, the diffusion of sound through the cello would only be experienced as a colouration of the electronics in the absence of the spatial aspect.

In addition to resisting reproduction as a distributable artefact, *Bodied Chambers* also experiences a process of re-creation each time it is taken on by a new performer. For instance, when it was performed by Eric-Maria Couturier this past year in the Sound Kitchen series of the Gaîté lyrique, a considerable number of changes were made in microphone and transducer placement in order to suit his own interpretation (see photo below). Of course, every piece is transformed by a new interpretation, but this piece renews itself, and in a sense becomes a new piece, each time a cellist decides to perform it.

[Insert image #5, with the caption below]

Eric-Maria Couturier and Patricia Alessandrini performing *Bodied Chambers* at the Gaîté lyrique as part of the Sound Kitchen series, Paris 2016 (Photo credit: Jean Radel, Ensemble InterContemporain)

**Considering artefacts as music-boxes**

If the pieces for instruments and electronics described here are not reproducible in CD or DVD form, the question arises as to whether any artefact may come out of these processes, other than the materials for their performance (score, software, etc.). A possible model for a unique artefact which both contains the potential of a given musical utterance and physically renders it itself is the music box, and this is perhaps the best metaphor for the instrument-making and instrument-augmenting or altering projects I have recently undertaken.

Some of these projects began as part of the Orpheus Machines project, begun in collaboration with Freida Abtan in a joint residency in the Waverly Labs of the University of New York in February 2015. During this residency, several period keyboard instruments belonging to the university were put at our disposal to be transformed into acoustic-digital hybrids. To give an example of one of these works, further developed afterwards in collaboration with harpsichordist Goska Isphording, *Orpheus Machine II: L'Entretien des Muses* uses a camera placed inside of a harpsichord to track the motion of the jacks. This motion is then mapped onto a corresponding system of filters, such that each chromatic note corresponds to a relative range of frequencies, which are in turn diffused through transducers attached to the sounding board of the instrument. By shifting one of the registers, it is possible to use the action of the jacks without plucking the strings; the result of playing on the keyboard is therefore only the sound of the action plus the frequencies transmitted through the transducers into the instrument. The filters can of course be applied to different sound sources, but in this version, it is a combination of *L'Entretien des Muses* of Rameau and the sounds of rain drops falling on a pavement, which are somewhat reminiscent of the sound of the actioning of the jacks. This modified harpsichord has been played by Goska Isphording and other highly specialised musicians, but it is also very easy for non-expert musicians to play as, somewhat like a music-box, it always renders its same material. Just as a music-box may play at different speeds, this instrument allows any performer to open frequency windows to make the sonic material sound, simply by pressing and holding any combinations of keys.[[8]](#footnote-8)

**The ethics and aesthetics of irreproducibility**

While it is possible for these compositional processes to produce the artefacts described above, these artefacts exist in the physical world as unique objects and therefore resist technological reproduction. The most common forms of dissemination of contemporary music – CD, DVD, or online media – serve at best as forms of documentation for the compositions discussed here, rather than as reproductions[[9]](#footnote-9); this despite the fact that forms of digital reproduction are at the heart of all of these works, and function as a form of investigation of the original works which form the basis for the new compositions.

The aesthetic motivation for this process is therefore twofold: on the one hand, to explore processes of reproduction and the variants they produce, as a means of interpreting works of the past through their repetitions, as described in the first section of this article; and on the other, to use electronics to extend the possibilities of the physical world, while perceptually imbricating these electronics in that world. As a reflection upon these motivations, I will conclude these notes on my artistic practice with instruments, objects and electronics with this passage from Deleuze’s *Différence et repetition*:

Perhaps the highest object of art is to bring into play simultaneously all these repetitions, with their differences in kind and rhythm, their respective displacements and disguises, their divergences and decentrings; to embed them in one another and to envelop one or the other in illusions the ‘effect’ of which varies in each case. Art does not imitate, above all because it repeats; it repeats all the repetitions, by virtue of an internal power (an imitation is a copy, but art is simulation, it reverses copies into simulacra). Even the most mechanical, the most banal, the most habitual and the most stereotyped repetition finds a place in works of art, it is always displaced in relation to other repetitions, and it is subject to the condition that a difference may be extracted from it for these other repetitions. For there is no other aesthetic problem than that of the insertion of art into everyday life.[[10]](#footnote-10)

1. At *Institut de Recherche et Coordination Acoustique/Musique* (Ircam), the institution commissioning the work, with funding from the SACEM, and technical support from Jean Lochard, Ircam and the Sonic Arts Research Centre (SARC). *Adagio sans quatuor* was premièred at the *centquatre* as part of the Festival Agora in June 2010. [↑](#footnote-ref-1)
2. Alessandrini, Patricia. *Adagio sans quatuor - Installation* <https://vimeo.com/71158400> (last accessed: 22 October 2016) [↑](#footnote-ref-2)
3. Premièred by the Solistes of the Ensemble InterContemporain at the Festival Acanthes 2004; see Alessandrini, Patricia. Trio d’après Schoenberg performed by Les Dyonisiens, Sonorities Festival 2015 [https://www.youtube.com/watch?v=IH-QA0UJrRE](https://www.youtube.com/watch?v=IH-QA0UJrRE" \o "Cmd+Cliquer ou appuyer pour suivre le lien" \t "_blank) (last accessed: 22 October, 2016) [↑](#footnote-ref-3)
4. Documentation of performances of these works are available on my personal website, patriciaalessandrini.com (last accessed: 22 October, 2016) [↑](#footnote-ref-4)
5. *Leçons de ténèbres* was commissioned by the Südwestrundfunk and premièred by Ensemble Recherche in Donaueschinger Musiktage 2016. See <http://www.swr.de/swr2/programm/sendungen/jetztmusik/donaueschinger-musiktage-live-dolby-digital-5-ensemble-recherche/-/id=659442/did=18058264/nid=659442/sdpgid=1316871/exkk2/index.html> (last accessed: 22 October, 2016) [↑](#footnote-ref-5)
6. Woods, Seth: Almost Human: The Study Of Physical Processes And The Performance Of A Prosthetic Digital Spine, 2016, Huddersfield [↑](#footnote-ref-6)
7. Woods, Seth Parker. *asinglewordisnotenough*, to be released in November 2016, Confront Recordings : London. [↑](#footnote-ref-7)
8. This utilisation is documentation in this report by Radio France (last accessed: 21 October, 2016) https://www.youtube.com/watch?v=rCHTqBsFqHs [↑](#footnote-ref-8)
9. I have considered taking on a CD or DVD project, but only in order to produce a project specifically for that medium, such that the music is made only for the CDs or DVDs rather than for live performance. [↑](#footnote-ref-9)
10. Deleuze, Gilles. Difference and Repetition. Translated by Paul Patton. Columbia University Press. New York, 1994, p 293. In the original French: ‘Peut-être est-ce l’objet le plus haut de l’art, de faire jouer simultanément toutes ces répétitions, avec leur différence de nature et de rythme, leur déplacement et leur déguisement respectifs, leur divergence et leur décentrement, de les emboîter les unes dans les autres, et, de l’une à l’autre, de les envelopper dans des illusions dont «l’effet» varie dans chaque cas. L’art n’imite pas, mais c’est d’abord parce qu’il répète, et répète toutes les répétitions, de par une puissance intérieure (l’imitation est une copie, mais l’art est simulacre, il renverse les copies en simulacres). Même la répétition la plus mécanique, la plus quotidienne, la plus habituelle, la plus stéréotypée trouve sa place dans l’oeuvre d’art, étant toujours déplacée par rapport à d’autres répétitions, et à condition qu’on sache en extraire une différence pour ces autres répétitions. Car, il n’y a pas d’autre problème esthétique que celui de l’insertion de l’art dans la vie quotidienne. Deleuze, Gilles. Différence et Répétition. Presses universitaires de France, Paris 1968, p. 374-376 [↑](#footnote-ref-10)