Haydn in Modern Dress: applying experimental contemporary production techniques to the classical repertoire

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Abstract

This chapter uses theories of ecological perception, embodied cognition and actor network theory to examine the creative processes of record production through an auto-ethnographic case study of my work on a recording of Haydn's Piano Sonata in C (XVI: 50) with Emilie Capulet and Andrew Bourbon. Much like a theatrical production of Shakespeare in modern dress, we aimed to reinterpret a composition from the classical repertoire by placing it in a contemporary context. This included breaking down a solo piano piece into parts that could be processed and mixed to illuminate particular thematic or structural features. This required them to be rehearsed and performed separately and for us to use a click track. We recorded two versions: one on a Steinway C and one via a MIDI keyboard. Our analysis of the piece suggested specific thematic and sectional elements that we wanted to highlight in different ways. This in turn suggested potential processing ideas which then informed our decisions about how to fragment the performance. This case study allowed us to explore how the potential interpretation of musical meaning could be used to develop creative strategies for the arrangement, performance, recording and mixing of familiar musical material.

Introduction

The case study in this chapter, a production project undertaken as part of a UK Arts and Humanities Research Council funded project entitled Classical Music Hyper-Production & Practice as Research, involves two recordings of Haydn's Piano Sonata in C (XVI: 50). The first is a recording of several performances (including overdubs) by Dr. Emilie Capulet on a Steinway C piano in the London College of Music, University of West London's Vestry Hall studios in west London. The other is a series of performance by Dr. Capulet on a Roland MIDI keyboard.

These two recordings are part of an extensive practice-as-research series of experiments to explore the creative possibilities of applying the notion of *sonic cartoons* (Zagorski-Thomas 2014c, 2014b, 2014a) to recording the classical repertoire. The chapter will draw upon theories of ecological perception (Gibson 1979; Clarke 2005), embodied cognition (Lakoff and Johnson 2003; Feldman 2008) and actor network theory (Latour 2005; Piekut 2014) to examine the creative processes of record production through this auto-ethnographic case study. These productions, much like theatrical productions of Shakespeare in modern dress, aim to reinterpret a composition from the classical repertoire by placing it in a contemporary context. Classical music production tends, with very few exceptions, to emulate the sound of the concert hall and this research project, conducted in collaboration with Dr. Amy Blier-Carruthers (Royal Academy of Music), Dr. Andrew Bourbon (London College of Music, University of West London) and Dr. Emilie Capulet (London College of Music, University of West London), sought to explore the types of alternative production approaches that are more frequently associated with popular music styles.

The notion of recordings as *sonic cartoons* is based on the assertion that recorded music should be understood as the process of creating schematic representations of performances rather than as a copy or record. Recordings work in the same way as two-dimensional visual representations such as drawing, photography and film. They create a representation of a moment in time, real or constructed, that presents certain patterns of light or sound to our senses in a way that resembles our experience of "reality."[1] In some exceptional circumstances, we may be fooled for a moment that we are experiencing "reality," but in the vast majority of cases we are always aware of when we are experiencing a live performance and when we are listening to a

[1] (See Gibson 1979, 279 for more on this idea)

recording. Indeed the idea of a *sonic cartoon* is that we simultaneously understand "the reality" as being a representational system (the recording) as well as recognizing what is being represented (the performance). Some aspects of this understanding are due to the limitations of the media—for example that the sound of many instruments are coming from two point sources (speakers) and that their relative positions don't change in the way they "should" when we move, or, more importantly, that we see speaker cabinets instead of people—but other aspects are due to aesthetic decisions made in the recording process.

Even within the very traditional world of classical recording, the microphones are very rarely positioned in the binaural configuration that reflects the position of ears on a head. Mostly, recordists use more microphones than we have ears and mix them together to create some mix of concert hall reverberation (usually with the low frequencies attenuated) and the clarity of detail that comes from proximity. In short, it involves the creation of an idealized listening experience that, in almost all instances, would be physically impossible to experience as "reality." The use of the term *cartoon* refers to the original meaning of a representation that simplifies or exaggerates rather than to humor or satire. Thus, while Da Vinci's Burlington House Cartoon of The Virgin and Child with St Anne and St John the Baptist is admired for the many ways in which it creates the impression of human presence, we are also very aware of its existence as chalk and charcoal marks on paper. We appreciate Da Vinci's skill in conjuring up that humanity through a simplified (two-dimensional, black and white) representation. On the other hand, with Picasso, we have representations that are admired not for their realism but for the ways in which his distortions give us a perspective both on the humanity being represented and of the medium in which he represents the world (and of our perception of the world).

The Theoretical Model

Our perceptual system builds patterns of expectation based on previous experience: on previous occasions when I experienced *a* it was usually followed by *b*. However, there are always a large number of *a*'s and *b*'s occurring at any given moment. In the terminology of the ecological approach to perception the *a* would be an invariant property and the *b* would be an affordance. For example, my experience of hearing voices in spaces will have developed some more generalized expectations about, among other things, the length of reverberation and the size of the space that I'm seeing, the balance of direct and ambient sound and the distance away from me of the person I'm seeing[2] and other similar factors. I will also, on the other hand, have developed more specific expectations such as associating the timbre and phrasing of a particular voice with the sight of my wife. Any set of invariant properties that I have identified will afford both possibilities for interpretation and possibilities for action. Gibson's approach to interpretation sees all of these affordances in terms of action or potential action. If I see a chair, my understanding of it as an object is based on the affordance of sitting (whether I choose to sit or not).

In addition, these expectations work at a variety of levels of detail and with both conscious and subconscious thought. Thus, at a micro level of vision, I will have developed expectations about how certain patterns of light on my retina that involve areas of contrast are also associated with the tactile experience of edges. At the same time I will have macro level expectations about, for example, how a recording session might progress that are based on my previous experiences: the order in which things occur, the kinds of technology that need to be involved and the various roles that people might undertake. Crucially though, in this theoretical model, the process of perception is active rather than passive and is driven by a combination of goals and expectations. If I have started to behave as if I am in the kind of recording session that I have experienced previously, I will actively seek out certain invariant properties that allow me to progress in the way that I am expecting. If I have plugged a microphone into a particular wall box socket in the studio, I will look in a particular place on the mixing console for evidence that the signal is reaching the channel. However, we don't live our lives (only) by slavishly following scripts (or event

[2] As a person gets further away the level of ambient sound (i.e. reverberation) will increase in relation to the level of direct sound.

schemata as they are known in the field of embodied cognition) that have been established by our previous experience. At any given moment, although there may be a *most frequently traveled route* we can also consider other perceived affordances. This is the nature of creativity— seeing a possibility which isn't the most obvious and trying it out. We are much more likely to see the possibilities that are a direct consequence of activity in our current situation than we are if they require a series of intermediate steps. For example, if I have a microphone and stand in my hand and can hear the sound from it coming through a pair of headphones, I am much more likely to think about experimenting with the positioning of the microphone and its effect on the recorded sound than I am if the microphone is already positioned and I am simply observing the scene.

This relates to the ways in which actor network theory (ANT) incorporates both human and non-human actors into the network activity. While ANT doesn't suggest that the microphone has agency, it does suggest that it exerts a powerful influence on my agency as a human actor. The established methodologies for ANT (see for example Callon 1986) are based around tracing the material evidence of human interaction in a network. The hybrid form of ANT that I am using aims to explore how these trails of material evidence can be explained in terms of a human actor recognizing certain invariant properties in a situation and acting upon the affordances that they perceive them to offer. Thus, all of the actors, both human and non-human, are understood differently by each of the human actors and this understanding is constantly being changed as the activities of the network progress. The material traces of this activity can therefore be understood as manifestations of the changing schemata that the human actors are constructing—their mental representations of the other actors (human and non-human), the process itself and the intended output.

The Hyper-Production Concept

The title of the research project was suggested by Amy Blier-Carruthers and is interesting in its use of the Greek-derived prefix "hyper." The original meaning of "hyper" was "over" and was used in English to suggest excess or exaggeration (as in, for example, hyperbole). When the term "over produced" is used in relation to recorded music it mostly suggests a particular form of excess: an approach to the recording which draws attention away from the music, the "thing" that is being represented, and towards the medium, the representational system.

With representational media such as film, television, radio and recorded music there are several layers of creative activity that may have various levels of transparency to the final audience. In the world of film, the layers that are usually noticed and discussed are those of the directors and actors rather than those of the scriptwriters and designers. In the world of recorded classical orchestral music it is usually the composer and the conductor rather than the players and the record producer. Simon Frith (2012) and Michael Jarrett (2012) have both noted that even in the world of popular music, where record production is far more recognized as a creative activity, that producers have often deliberately sought to be a transparent layer or have been criticized for intruding upon and distorting the creativity of the musicians when they are not transparent. In those instances, of course, it is about perceived transparency, about what kinds of simplification and distortion (in the broadest sense of the word) are considered appropriate or "normal" in a given musical context. The criteria for judging this transparency are different for different styles of music and periods of history but they also vary from artist to artist and from listener to listener. There are conventions and norms within classical music, as with any style or genre, about the types of recording technique that are considered appropriate and they have changed dramatically over the years.

That, of course, is an issue that lies at the heart of our Classical Music Hyper-Production project. Why are we deliberately going against the conventions and norms of recorded classical music? Well, as stated earlier, our aim was to explore the creative possibilities and these possibilities can be divided into three categories:

1. Using clarity to increase the musical impact of the music
2. Using production to suggest a particular interpretation
3. Creating new potential meaning by exploring features that aren't in the original performance or composition

The issue of clarity in relation to high fidelity needs further exploration than it has so far received in the literature. *Fidelity* implies some original *reality* to which a recording is being faithful. The classical world has attempted to sidestep the ontological problem of *which reality* through the notion of the "best seat in the house"—the idea that something like 10th row center in a concert hall is the "sweet spot" that a recording should emulate. Elsewhere (Zagorski-Thomas 2014c, 20) I have discussed an experiment by Gidi Boss in 1998 in which analog and digital recordings of the same performance, with the microphones at the same distance, were perceived to situate the listener in a different (and more or less *comfortable* or *natural*) spatial relationship to the performance. In the case of piano recitals, however, the seats that are most in demand are those to the left and nearer to the front that command a view of the pianist's hands. The extensive evidence about the multi-modal nature of perception (McGurk and MacDonald 1976) suggests that being able to see the performer's hands will allow us to "hear" better—we get a clearer perception of the detail of the musical performance if we can see the gestures as well as hear the sounds. If, as in recorded music, that additional mode of perception is denied to us then it makes sense to compensate for its absence in some way. Schematic representations can compensate for this absence and provide a different form of clarity. An architectural drawing of a house provides the details that an architect considers to be important and omits those that are, to them, less important—such as the texture of the brickwork or the grain of the timber. A cinematographer will use focus and depth of field to "tell" us where our attention is supposed to be in a field—and, of course, this goes even further with the use of editing and close-ups. Within orchestral recordings it has long (since the 1960s and 70s) been standard practice to use "spot" microphones close to a particular instrument or section that can be used to highlight momentary details such as an oboe line in Mozart's "Prague" Symphony (K.504).

It is only a short step from the notion of clarity to the idea of influencing a listener's interpretation. Indeed, within the theory of perception that we are using here, they are two manifestations of the same cognitive phenomenon. Most of my experiences of very close proximity to another individual will have been accompanied with experiences of intimacy of some kind—trusting and liking someone enough to move beyond the norms of human spatial interaction. Metaphors such as "getting close to someone" reflect this cognitive connection we have made between proximity and intimacy, trust and affection. These cognitive connections are used all the time in mediated representations such as cinema and sound recording. The close up during a love scene in the cinema utilizes the visual characteristics of proximity to suggest intimacy and a microphone right next to a singer creates an aural version of the same phenomenon. These metaphorical relationships that involve using a single feature or characteristic of perceptual experience to suggest some other commonly associated experiential characteristic extend beyond this more literal type of example. Whereas clarity in this instance might be defined as providing one feature (e.g. vision without smell or touch) to invoke another associated feature (or affordance), the notion of *sonic cartoons* also includes examples where multiple characteristics, or invariant properties, might be exaggerated, inhibited or otherwise distorted to suggest an affordance. And suggesting an affordance, in this theoretical model, is the definition of influencing interpretation. For example, there are many invariant properties of sound that are associated with examples of activity that exhibit strength and power. On the one hand, physical actions that use more energy produce sounds with higher amplitudes but they also involve more high frequency content and, because objects that are excited with greater energy tend to take more time to stop resonating, they are often longer. In recorded music the last two of these invariant properties are often used without a change in amplitude and this is enough to suggest higher energy and therefore loudness. Quite often, though, the additional high frequency content is not created by exciting an acoustic object with greater energy but by over-driving an electrical circuit (or simulating that over-drive digitally) to add brightness through harmonic distortion. In addition, the increased resonance element is often suggested by additional room resonance (reverberation) rather than resonance in the object (i.e. instrument) itself. Thus, wanting to add energy to a snare drum sound might be achieved in the studio by adding a little overdrive or distortion and some short tiled room or plate reverberation. These invariant properties suggest the affordance of perceiving increased energy expenditure in the snare drum performance—they

influence our interpretation by creating an unrealistic, often even semi-abstract, *sonic cartoon* of energy expenditure.

The third of these categories involves creating new potential meaning by exploring features that are not in the original performance or composition. Once again we can think of this purely in terms of being an extension of this theoretical model of metaphor and perception. In the same way that 1960s Motown engineers and performers would add energy to a snare drum sound by doubling the performance with another percussive sound (such as a tambourine or hitting a piece of wood with a hammer), Mark Mynett (Mynett 2009) describes the common technique used in heavy metal production of automatically doubling or replacing the component sounds of a drum kit performance with samples that provide extra clarity or power. Similarly, while Duane Eddy used the recorded resonance of a "2000 gallon water tank" (Porter 2012) to create his metallic guitar tone in the 1950s, Max Martin added a sample of a guiro (a grooved wooden scraper from South America) to the vocal "fry" (an expressive creak in the voice) on Britney Spears' recorded performances (Zagorski-Thomas 2014c, 49). All of these examples involve some kind of alteration of an "original" perceived performance and musical styles such as dub reggae took this idea step further. The beginnings of dub reggae involved mix engineers such as Osbourne Ruddock (King Tubby) and Lee Perry taking the multitrack recordings used to mix a single and creating an instrumental B side for the vinyl single release which was often used as a backing track to sing over in live shows by the artist. In order to make these instrumental tracks more interesting they started to "re-arrange" them by using the mixing desk to add and remove instruments at different times and to add reverberation and echo at strategic moments to add drama. This then developed into a creative process by which the original performances became almost unrecognizable (or, indeed, were recorded for the sole purpose of creating a dub mix) and constituted a kind of meta re-performance of the multi-track recording. The techniques of dub mixing have been broadly assimilated into the practices of popular music mixing—albeit usually in short bursts of performed (or programed) mediation rather than as an aesthetic for a whole track. In addition, dub can be seen as a precursor to the idea of the remix in dance music—a re-construction or elongation of a track that uses some elements from the original recording in conjunction with new musical elements and sound effects.

It was with these three approaches in mind that the Hyper-Production project approached a range of recordings and mediated live performances that included pieces for piano, strings and voices by Beaudoin, Chopin, Debussy, Franck, Haydn, Mozart, Palestrina, Ravel, Schubert and Shostakovich. As mentioned above, this chapter examines the single case study of recording two different performances of a Haydn Piano Sonata by Emilie Capulet—one on an acoustic Steinway piano and the other on a digital Roland keyboard.

Analysis

One thing that Emilie and I agreed upon very early in the process was that everything needed to be done for musical reasons. I wanted to create the notion of a musical narrative where the production decisions reflected the thematic, harmonic and structural analysis. For example, in the acoustic recorded version of the piece I thought that the harmonic progression might be reflected in a spatial one—i.e. that the distance away from the tonic chord of the home key could be reflected in the distance from the "normal" space of recorded classical piano music. Aside from this kind of detail I also wanted to reflect something of the original spirit of the piece through the use of contemporary technology. A detailed ANT analysis of the video documentation of our discussions is beyond the scope of this chapter but the traces of our respective schemata of both what the piece should be and what the process should entail demonstrate both clear moments of divergence and convergence. Notably there is a continual process of negotiation between my focus on the gathering of "useful" fragments of recorded material and Emily's concentration on creating a clear arc of performance narrative.

One way of looking at this piece is to think of Haydn exploring the possibilities and limitations of the instrument technology that existed at the time. This piece was written for an English pianist, Therese Jansen (Mrs. Bartolozzi), while Haydn was visiting

London in 1794. He seems to have been influenced both by the new technologies offered by the Broadwood piano company (van Oort 2000) and by the more flamboyant performance techniques that were popular in London at that point. (Lock 2004) However, he did this by contrasting these new, and to him unfamiliar, sounds with imitations and intimations of the sound and techniques of the Viennese style. As Lock points out: "In the first six bars of his sonata in C major, for example, he imitates the dryness of the Viennese instruments by marking the opening notes *staccato* (or *spiccato*) and generously interpolating quaver rests in order to give the rich sound of the English instrument its chance to die away." (Lock 2004, 39)

This "dryness" in the Viennese instruments stemmed from more effective note damping that favored a more clearly articulated style. (van Oort 2000, 75) The British Broadwood pianos that Haydn was using during his time in London had a larger, fuller sound than their continental counterparts, an expanded keyboard range that extended both higher and lower than the Viennese five-octave keyboards and included pedals (both sustain and *una corda*) which didn't appear on the continent until the nineteenth century.

In addition, the British style of playing developed at the time reflected the growth in public concerts (rather than the smaller scale aristocratic court concerts that still dominated in Vienna) in a variety of ways. The development of these larger public concert halls had been a key factor in encouraging Broadwood to develop the louder, fuller sound of their instruments and one of the performance styles that this encouraged was the dramatic contrast of *piano* and *forte* passages. Indeed, the larger events encouraged a more dramatic and showy approach to playing than the refined and restrained atmosphere of the Viennese salon and this was reflected in the popularity of: "grander musical gestures, such as full chords, explosive runs leading from the top to the bottom of the keyboard, the crossing of hands, sudden dynamic contrasts and modulations, special sound and pedal effects, imitations of orchestral color and runs in thirds and sixths." (Lock 2004, 27)

This style can also be seen in the context of a widened audience from a more musically literate and educated aristocratic audience in Vienna to include the London middle classes who often couldn't afford to spend so much of their time on music lessons or paying others to play for them. These more dramatic gestures can also be seen as a response to this audience and the musicians' perception of what they might like.

Haydn's approach to these influences does seem, in general, to have been to heighten the effect of any of these techniques through contrast—an imitation of the Viennese sound against the tone of the London piano, sudden bursts of virtuosity against the more restrained melodic approach and the use of sudden changes to create moments of drama. In addition, he adopted aspects of his established musical character to these new circumstances. For example, his tendency to work by creating variations of very simple thematic material is taken to extremes in this example, creating a *tour de force* that may be seen as flamboyant and, thus, playing to this London gallery. This journey of variation would have been further enhanced by the ornamentation and variation conventions for repeats that Haydn utilized. (Harrison 1997) Haydn's well-documented sense of humor and quirkiness is also showcased in this piece and it can, perhaps, be argued that this is another example of the more populist approach.

So, in addition to the more formal approach of looking for metaphorical connections between potential production techniques and the structure of the piece defined through features like key, melodic themes, harmonic progressions and accompanying textures, we were also looking for ways to draw out and highlight these cultural and historical themes. Obviously, as this project was an experiment for research purposes rather than a commercial session, we were far more concerned about exploring creative possibilities than we were with achieving polished final mixes and "perfect" performances. It also became clear very early in the process that the acoustic and MIDI versions of the piece provided very different affordances for some kinds of experimentation and very similar ones for others. The two most obvious facets of this were to do with spatial processing and with the creation of performatively "impossible" effects.

Acoustic Recorded Version

For the acoustic recording Emilie played a Steinway model C grand piano in the London College of Music's Vestry Hall studio which has a floor space of around 150 square meters and a gabled roof which is about five meters tall at its apex. The recording was made with three stereo microphone pairs and a mono Helpinstill piano pick-up.[3] There was a pair of DPA 4099p cardioid, small diaphragm condenser microphones inside the piano, a Neumann binaural dummy head stereo microphone about one meter outside and a pair of SE Z3300 large diaphragm condenser microphones set to a cardioid pattern positioned as a wide stereo pair around two meters away from the piano. The Helpinsill is a set of electromagnetic pick-ups that lie under the piano strings and produce a sound that is similar to an unprocessed electric guitar output: the sound of the strings with virtually none of the resonance of the piano casing and frame. The sound of the pick-up allowed us to process and amplify the raw string sound without the acoustic resonance.

The Helpinstill pick-up highlights a feature of acoustically produced sound (as opposed to electronically produced sound) that is another learned invariant property of sound that distinguishes recorded sound from its "original" performance. It is only in the realm of recorded sound where a form of distortion can affect the ambience or reverberation as well as the instrumental tone. It sounds very different to hear a distorted signal played in a reverberant space than it does to record the sound and the reverberation together and then distort the recording. The Helpinsill allows us to distort the string sound and then add reverberation afterwards rather than using one of the microphones (which has recorded both piano and reverberation) and distort that. The three stereo pairs of microphones on the one hand create three different spatial perspectives: the resonant but largely "internal" perspective of the DPA pair, the more roomy sound of the SE pair and the much more ambient sound of the dummy head. The dummy head sounds more ambient because the microphones are omnidirectional and thus pick up more of the room sound than the directional (but slightly further away) SE pair. On the other hand, these acoustic recordings are firmly rooted in this single space rather than providing the affordance of adding multiple different digital spaces that the Helpinstill and the MIDI versions do.

Our approach to the performance was to create a version of the piece with the right and left hands performed separately and then to explore ideas for additional overdubbing. The reason for doing this was to keep as many options open as possible for experimentation at the editing and mixing stages. If we had been aiming to create a single definitive version then it would have made sense to record parts with that version in mind. That would almost certainly have involved maintaining a two-handed performance in sections where we didn't explicitly want to create some sense of separation. As it was, and with the relatively limited time that we had in the studio for this part of the project, the feel and synchronization of the left and right hand parts wasn't quite as we would have liked. Once again, the experimental nature of the recording meant that we decided to fix these problems in post-production with audio quantizing rather than spending more studio time on fixing them through multiple takes. Emilie and I have written elsewhere in more detail about these issues of altered performance techniques for this kind of specialized studio production. (Capulet and Zagorski-Thomas 2016)

The ideas that we developed for additional overdubs can be broadly categorized as either orchestration/arrangement or extended performance techniques. The reasons for overdubbing were either to separate out a particular line or part so that it can be processed separately or to achieve performative effects that were impossible to achieve in a single take. The balance that we were seeking here was to avoid simply making aspects of the piece that were subtle into something obvious while encouraging potential different interpretations. For example, we could use the idea of *sonic cartoons* and gestalt grouping principles to encourage the interpretation of an "internal" sequence of notes as a separate entity or as having thematic importance.

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[3] Photographs and video footage of this and other sessions from the Hyper-Production project can be found at: http://www.uwl.ac.uk/classical-music-hyper-production/welcome

These types of relationship can often only be noticed through a close reading of the score and the aim of this production was to see if they can be brought out sonically.

From the orchestration perspective, the kinds of overdubs that we were seeking to try were the doubling of specific lines, adding octaves up or down from a specific line and working on flourishes that went beyond the norms of ornamentation and embellishment. As soon as a musician sees the potential for doubling and deconstructing they seem to get into the idea. In the video of the session, by the end Emilie become much more pro-active in coming up with suggestions and sees it as a positive musical experience. By contrast, the performance of the separated left and right hand parts was viewed as a more inhibiting and "anti-creative" performance necessity engaged in for the sake of the experiment. From the extended performance technique perspective, we sought to use *glissandi* and scrapes and slides performed directly on the strings to create gestural shapes that could be used to replace some common pianistic gestures such as short fast runs, turns or trills. In addition, there were overdubs that straddled both categories and provided doubling or octave lines using techniques such as dampened or plucked strings.

Overall, the performance and recording techniques that were used in the acoustic recording are things that are used extensively in popular music: finding ways of deconstructing the usual live performed version of a piece. Rather than creating a single final version of the mix, we have explored various techniques through mixing the same segment in different ways and creating multiple alternatives. Audio examples can be found at the web address provided in footnote 3. These have explored ideas such as:

1. Following dynamic changes by placing louder passages in larger spaces and quieter passages in smaller ones.
2. Using the conventions of popular music to place lead lines in a different (usually larger) space than accompanying parts.
3. Exaggerating the perception of two or more parts playing by physically separating them in the stereo field.
4. Creating a "larger than life" performance of some sections by using multiple overdubs and techniques such as parallel compression to suggest a more powerful agency.

In general I've been thinking about Haydn's musical activities around the time that he wrote this piece in terms of an actor network. He had been using various invariant properties of the instrumental technology available to him to create contrasts that aimed to conjure up two different places: Vienna and London. He had also been using ideas drawn from a musical culture that was new to him and which was focused on larger gestures and more dramatic activity. Rather than simply adopting this new culture wholesale, Haydn attempted to use aspects of it that might have been judged as crude and showy to create a broader and richer artistic palette for himself. My aim has therefore been to transfer these aspects of his actor network into our production network: contrasts based on space, the use of techniques drawn from popular music in a classical context and an attempt to use them to broaden our palette rather than adopt them wholesale.

MIDI Version

This version was performed by Emilie Capulet on a Roland HPi-50e Digital Piano to a 110 bpm click and only the MIDI data was recorded. Lines and parts were then extracted from the unquantized data by manually assigning them to different MIDI channels and then later to separating them out onto different sequencer tracks. The samples used came from Logic's EXS24 and various libraries available for Native Instruments' Kontakt. The two repeats in the piece were created by copying the single performance and editing the MIDI differently in the additional versions. Although the parts weren't quantized, they were extensively edited. Only two small corrections were made to remove or change incorrect notes and the rest involved adding various embellishments:

1. Adding chromatic passing notes between existing "played" notes to create *glissandi* instead of runs, turns and trills.
2. Using the random transform function in some later sections to create aleatoric variations of pitch while maintaining the same rhythmic gestures.

3. Removing some notes when runs were replaced by sampled slides and scrapes.
4. Adding some pitch bend controller information.
5. Creating extensive automation to add effects, alter volumes and control filters and other effect parameters.

After some initial experiments, the MIDI version became an attempt at a single definitive mix that created a particular interpretive narrative. The idea was based on the elaborative and developmental journey that Haydn has created: moving away from the initial simple starting point with its hints of a well-established tradition and through a series of compositional and performative (through the ornamentation of repeats) phases that introduce a more contemporary (to Haydn in 1795) sound. He did this through the exploitation of new instrument technology and an adoption of some aspects of a different musical culture. The piece is also shot through with intimations of different spaces: in terms of its references to Vienna, through Haydn's unique (at the time) and innovative use of pedals to suggest different spaces and through the suggestion of mechanical instruments (Lock 2004, 15) in the form of a music box. Once again, by looking at this production through a comparison of Haydn's actor network and our contemporary production network, I was looking for parallels between the ways that the schemata of the various participants in the networks may have developed. The instrument manufacturers in London, particularly Broadwood, were responding to the new architectural "technology" of space in the form of larger and more dramatically reverberant concert halls by making their instruments louder. The performers were interacting with this new technology (both pianos and concert halls) to develop new performance techniques that exploited their affordances. Haydn created his own take on all these developments that didn't simply adopt them but wove them into his existing compositional schemata to derive narratives of developing simple themes, using dramatic contrast and utilizing humor, surprise and references to contemporary culture. I, then, attempted to model a narrative drawing on these three strands from the 18th century actor network into the production of this 21st century version of the piece. This involved playing with the notion of different instruments in different spaces, using the sound of pianos played with extended and unusual performance techniques (some of which are only possible via MIDI), using contrasting sections to conjure up different places, incorporating elements of humor and surprise and working on an overall arc that takes the listener further and further from the original simple theme at the start.

The MIDI version starts by playing with the ideas of a single instrument in a single space by randomly splitting the notes of the single performance onto different MIDI channels and assigning them to different instruments in different spaces. Thus a particular melody line or even a single chord might have some notes played on an upright piano in a small room and some played on a Steinway Grand in a concert hall and so on. After about a minute a bass pedal note is doubled on a palm muted piano sound to introduce a contemporary tone. Thereafter the melodic phrases jump from one artificial space to another (different delays and reverberation), a range of automated forms of processing are used on various phrases (sweeping filters, distortion and fuzz-wah) and then a series of "extended piano technique" samples (scrapes, plucked and muted tones, etc.) and the first example of pitch bend are introduced that start to take us away from the idea of a conventional piano. At 3′ 10″ to 3′ 40″ scale based runs are replaced by glissandi that skirt the boundaries of what sounds playable and what sounds like a machine. They are also accompanied by more playing with space in the form of reverberation and delay and by the disruption of the original melody through the use of pitch bend creating an "impossible" form of ornamentation. These develop and become more dramatic up to 4′ 13″ where a new set of "extended technique" samples are added and the sounds become further remote from both a piano and a real space. At 4′ 58″ the use of pitch bend and filter sweeps takes us deeper into a world of electronics and we end the section (around 5′ 40″) with the loud chordal phrase being staged very distant and reverberant rather than present and dramatic. The next section explores more extreme contrasts of different instrument sounds in different spaces and at different distances until 6′ 20″ where we get a short section on a toy piano sound followed by a return to a conventional piano sound but with more obviously "impossible" *glissandi* performances and some first hints at randomized pitches. The next section presents another collage of different phrases played on different instrument types and with

different forms of extreme spatial processing and distortion. At 7′ 10″ there is a similar collage but with lighter textures that are based around plucked and scraped rather than hammered strings. From 7′ 38″ there is a section where conventional piano sounds are combined with "extended technique" samples, some of which are unpitched knocks and thumps performed on a piano body and some are plucked and scraped piano sounds with pitch bend used to make them completely unstable. At 9′ 12″ one of the main statements of the primary theme is played using just the sound of tapping on the wooden frame of the piano. Then the conventional piano sounds returns to play randomized pitches which also alternate with "extended technique" samples. At 9′ 53″ the toy piano returns, but this time with its pitch rendered unstable by pitch bend. This is then followed by randomized pitches and scrapes on the piano strings that lead us to a section at 10′ 38″ that uses progressively fewer pitched "extended techniques" and more knocks and thumps to lead us to the final "chord"—a sound akin to the piano being dropped from half a meter in the air with the sustain pedal depressed.

Discussion

This case study can be viewed as illustrating two points. On the one hand it provides an example of the approach to "hyper-production" that we explored in the AHRC funded project of the same name. In addition it provides a model for utilizing the theoretical framework built upon the ecological approach to perception, embodied cognition and actor network theory in a way that isn't only analytical but which is also creative and practical.

The question of what, if anything, hyper-production can add to a recording or a concert is interesting. I used the analogy of Shakespeare in modern dress in the introduction and the concert that we staged in October 2015 at London's Kings Place was given that title: In Modern Dress. That phrase stands as a proxy for various forms of reinterpretation and recontextualization and, of course, the concept of altering or "messing around with" existing great works of art is controversial. To avoid being drawn into the rabbit warren of authenticity, I prefer to discuss the question of "why?" in terms of a contrast between museum culture and living art. There are a myriad of recorded versions of the pieces that we have "messed around with" which remain true to some notion of performance or historical authenticity so the question is not "either or" but just whether there might be an audience—and there was. Kings Place wasn't sold out but there was a healthy sized audience and there has been a good deal of interest in the recorded examples. Perhaps the real acid test, though, is what hyper-production added for me to these recordings and concerts. Well, the discussions about what kinds of approaches would be relevant and appropriate for all the different pieces of music that we worked on were very revealing. On the one hand, they provided a practical point to the process of analysis: when we were looking for ways to interpret the pieces, we were simultaneously looking for ways to facilitate or highlight aspects of that interpretation. Thus, with the Haydn, we were exploring the possibilities of a purely musical analysis—harmony, key, thematic development and ornamentation—but we were also looking at the historical context. Both approaches suggested ideas for the production and produced very different results. They both also made me listen to and think about the piece in entirely new ways that provide a richness to my ideas about and enjoyment of the piece. These Haydn productions and all the other pieces that we've worked on have also enriched the way I think about the process of production in the more general sense. By exploring how to move beyond the taboos of classical music production, we had to continually ask the question "why?" and perhaps that question is not asked often enough in popular music production.

The other question that this project opened up was what, if anything, does this theoretical model add to the study of production and, perhaps more interestingly, to the practices of production? While the use of the ecological approach to perception and embodied cognition is well established within musicology, their application to actor network theory is more controversial. In his review of my recent monograph, Eliot Bates (2016) justifiably criticizes the way that I incorporated actor network theory into my theoretical framework. What I didn't explain sufficiently was the way in which I propose using the ecological approach to perception and embodied cognition as a way of deconstructing agency and exploring the mechanisms of what Latour calls

translation or mediation. By describing a network in terms of various human actors and their schemata, the continually changing cognitive representations they build about the world and their actions within it, we can seek to explain how agency and mediation result from a messy, interactive process. The identification of all forms of mediation in a network, the transfer of information through a range of human and non-human intermediaries, require us to hypothesize some internalized cognitive process of representation. In my opinion, actor network theory has suffered from describing this as an empirical process. It does, of course, have to be evidence-based but it also requires subjective interpretation of that evidence. For example, Piekut's (2014) description of the way that the Jazz Composers Guild influenced the decision by the Association for the Advancement of Creative Musicians to restrict their membership to African Americans goes into the detail of the translation processes through which the Guild's discussions and opinions on the matter reached the members of the AACM at a particular moment. Piekut details the steps through which AACM member Muhal Richard Abramms "reported on his reading of an article that narrativizes one account by a spokesperson about the Guild's experience with interracialism." (2014, 197) Each step of that process requires us to hypothesize some implicit equivalent of a schema. Returning to Haydn, we can use the detailed evidence of Lock (2004) and other's accounts of Haydn's interactions with the Broadwood company, his pronouncements on wanting to immerse himself in London's musical culture and a range of other evidence to imagine his changing schemata about instruments, performance practice, composition and this specific piece of music. This can be combined with attempts to piece together the schemata of other actors that were involved in playing out this particular moment in history. In this instance, of course, the analysis of this network is not our primary concern but it sits in the background, providing a way of thinking about the piece and the production. And this way of thinking led to the strategies that we used in the creation of these versions of the piece.

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