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Performance Recordivity: Studio Music in a Live Context

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Introduction

This paper provides a conceptual overview of emerging trends in the adoption of recording studio practices into live popular music performance. It focuses on music performance models outside the 'playback media' (e.g. DJ) traditions where full mixes are played back or manipulated. In other words, it focuses on 'instrumental style' performance. This may, however, include samplers and electronics in performance.

The paper seeks to examine the relationships between the gestural, performative and technological practices of the recording studio and emerging performance practices in the 21st century and propose an initial taxonomy of the major developments in the last 20-30 years. It argues that recording and performance practices are trending towards each other and that this is underpinned by technological shifts, a change in the level of production literacy of musicians broadly, and an increasing shift towards more technologically intensive performance, either on stage (in terms of the musician's own performance tools) or off stage (in terms of the increasing sophistication of live sound production technologies). Importantly, the paper seeks to demonstrate how a significant flux now exists between the two spheres of musical activity which is seeing significant new practices emerge.

Historical context

From a historical perspective, there exists a range of important conceptual precedents for the incorporation of recording studio practices in live performance. Perhaps the most widely known of these is the tradition of Jamaican 'dub' as exemplified by practitioners such as King Tubby and Lee 'Scratch' Perry dating from the late 1960s. In this tradition, the mixing console is used performatively to create extended alternative mixes of a track, usually with heavy use of real time effects processing. Commencing as a set of studio practices in which alternate versions would be produced to be performed at live 'sound systems' (Veal, 2007) the practice evolved as a live performance practice and was popularized by so called 'new dub' producers such as Adrian Sherwood (from On-U-Sound) who would perform for audiences from behind a mixing console, dubbing tracks in performance. Whilst this historical context is important in terms of understanding the relationships between studio practices and live performance, these early trends are more closely connected to the emergence of DJ and/or MC performance traditions in later electronica and hip-hop forms in which mix components, breaks and stems are controlled, than popular music genres in which traditional 'instrumentalist' approaches are manifested, where performers control music at small event level.

Technological drivers – the digital age

The major shifts in the relationship between recording studio techniques and live performance can be seen to have occurred following the introduction and broad uptake of MIDI communications protocol and affordable digital audio technologies in the 1980s.

The wide uptake of affordable sampling technologies in the mid 1980s provided the means to store and trigger recorded sounds in performance, thus providing the capacity to 'play' exact renditions of studio recorded sound in performance. In the 1980s onwards it was common for a drummer to trigger snare and kick drum samples from a live 'bugged' kit or incorporate MIDI trigger pads into a kit to provide the capacity to trigger recorded sounds from independent pads. This provided the means to bring studio drums sounds into the live context, such that audiences could hear a live version of a song with the 'correct' drum sounds. This was particularly important for acts where processed drum sounds formed a critical or foreground aspect of the studio production aesthetic.

With the introduction of MIDI, a communications protocol was established that greatly simplified real time control, storage and recall of a range of sonic parameters. Synthesis and processing patches could be stored and recalled, and a range of parameters could be controlled live in performance via gestural control, automated against time, or triggered as a sequence by specific performance events. The storage, recall and automation of sound processing aspects became pervasive, providing the means to translate complex studio sound design processes to live performances.

Throughout the 1980s, the cost of studio and live technologies reduced dramatically and the concept of a consumer music production market emerged. Access to recording studio technologies was greatly increased beyond specialist, highly skilled technical workers in the mainstream record and broadcast industries. The development was profound, not just in terms of dramatically lowering the cost of producing high quality recordings, but in terms of the flow on effect of dramatically increasing the

technological literacy of a great number of musicians, many of who established DIY home studios enabled by the lowered cost of technology. The concept of musicianship for many popular music practitioners was thus expanded beyond the realm of instrumental skills to include production skills. With greatly increased access, there was a correspondingly large increase in the production skills of musicians. Such a trend weakened the traditionally sharp distinctions between the roles of composer, performer, engineer and producer – a condition that takes on great significance in the study of these developments.

Whilst it is clear the production literacy of musicians was increased by the lowered barriers to entry, it is also critical to understand that the production literacy of *performers* was significantly increased. From the 1980s onwards, many performers had skills in music production at a basic level and were literate in a range of sound technologies. This meant that performers were able to integrate some of these technologies into their live shows.

Towards the end of the 1990s, with the increased in computing and digital signal processing power, digital audio technologies had become more real-time. Processes that once needed to be performed 'offline', or out of real time could now be achieved in real time in software, with interfaces that allowed real time interaction and audition and/or the mapping of hardware controllers to specific processing parameters. At about this time (late 1990s/early 2000s), the laptop computer also became powerful enough to run real-time audio production software and affordable enough to become part of a musicians home studio. Due to the speed of these devices and their portability, laptops rapidly became part of live performance rigs for musicians where

they served a range of duties from running software synthesizers and samplers, playing sequences and processing audio input signals. As digital production technologies became capable of more functions in real-time they invited use as performance tools whether the software was specifically designed for this use or not.

In the realm of live sound production, digital mixing consoles became commonplace throughout the late 1990s, providing the opportunity to store, recall and automate mix and processing setups via stored scenes and/or time based automation. This opened up a range of opportunities to deploy detailed mix changes from song to song and sub-song level in a live set much in the same way that an automated studio mix can contain very detailed processing and balance changes against specific time and musical cue points. Related to this point, a startlingly clear and consistent trend through this period is that with the increasing digitisation of production technologies, studio and performance tools became more similar, not just in terms of their capabilities for real time sound transformation, but in terms of the interfaces through which the musician or production worker engages with sound. As a consequence, the techniques and practices associated with each realm could more easily traverse the boundary between them.

Secondary trends

A number of secondary factors have run parallel to the technological developments described above. The first of these is the response to the rising challenges presented by the visually 'disembodied' nature of many computer/based electronic music production tools. These challenges drove a wave of efforts to make the performativity

of new digital tools visible to the audience, most notably in the form of new performance controllers, which provide a hardware front end to software. Related to this and the pervasive use of computers in music is the emerging concept of 'computer musicianship' where notions of virtuosity can be located in a musician's interaction with digital tools. In many cases, the wave of new performance controllers provides the platform to make the virtuosity of manipulating these new digital tools visible to an audience while arresting any doubts about 'liveness' in performance.

Threshold Technologies

The expansion in the availability and use of real time sound processing tools arising from increased computer speeds in the 2000s in turn led to the development of tools which were designed for both studio production and performance, with specific features and interface pages directed towards both tasks. These 'threshold technologies', which sit at the cusp of studio production and live performance have been central to electronica genres but have also had significant uptake by musicians working in genres outside this area.

Perhaps the most well known of these technologies (at the time of writing) is Ableton Live, a software production tool which has separate interface pages optimized for studio arrangement and live performance respectively – although it is possible to use both pages in either context. Ableton Live has become a dominant platform in both studio and live contexts where there is a need to combine both sequenced and played materials or electronic and acoustic sounds.

Additionally there has been a steadily strengthening set of relationships between studio recording and mixing tools and live sound mixing tools. The recent emergence of the digital live mixing console has allowed the use of the same software plug-in processors used in studio host applications in live consoles. This can be clearly seen in the AVID Venue series live mixing consoles, which allow the direct use of Pro Tools format plug-ins. To the extent that software plug-ins are used in a studio mix process, a live sound engineer can now deploy precisely the same channel, send and bus processing on a live console as was used in the studio recording.

In purely technological terms the once significant division between studio and live technology has therefore been weakened over the past three decades to the point that tools have emerged that support both applications from the outset or that facilitate the movement of tools and data from the studio to the stage.

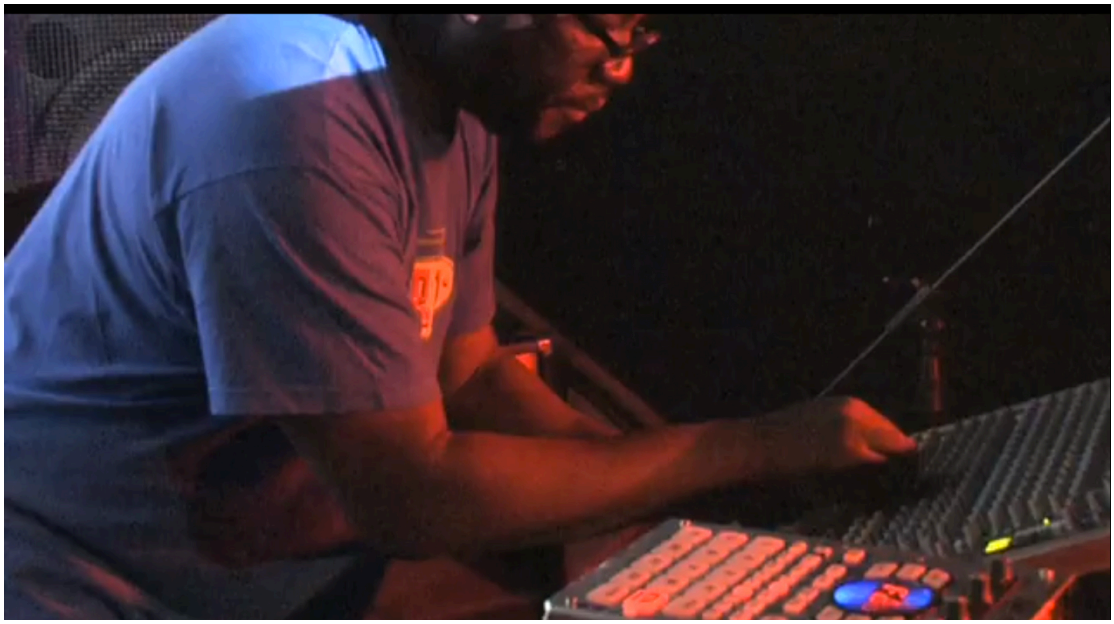
A taxonomy of studio production techniques in live performance

In observing the various ways in which studio practices have gradually found their way into live performance, a clear set of patterns unfolds which can be used to form the basis for a taxonomy of this emerging conceptual field. There are at least 5 discernible streams of influence from the recording studio on live performance.

1) Analog mixing as performance

Mixing was arguably the first studio technique to enter the performance realm. In the dub reggae tradition, mixing was seen as a performative act and studio producers such

as King Tubby and Lee Scratch Perry approached the act of mixing in much the same way as an instrumentalist might approach performance on a conventional instrument. These producers played the mixing console as an instrument, working its faders, pots and switches in an overtly instrumentalist fashion to improvise a dub mix of the source multitrack recording. Whilst many of these dub mixes were made in the studio either for release or to provide alternative dubplate mixes for live 'sound system' events, slowly but surely the practice of dub mixing made a transition via later practitioners such as Mad Professor and Adrian Sherwood from performance mixing in the studio to the stage.



Example 1: Mad Professor – live dub performance version of Bob Marley 'Lively Up Yourself'

http://www.youtube.com/watch?v=k6OV5YsqMeo&feature=related

Outside the popular music tradition, live 'performance mixing' can be found much earlier within the electro-acoustic music tradition from the late 1940s onwards. In embracing the idea that the loudspeaker was an instrument and that fixed media (tape) works could be nuanced in response to an acoustic space, the loudspeaker array and

the arrangement of the audience in a space, electro-acoustic music composers 'diffused' their works in performance. This consisted of taking a stereo recording and mixing it across a range of speakers in the space, controlling loudness, spatial position and equalisation in real time. Such a practice became known as 'acousmatic diffusion' and was exemplified by prominent composers in the tradition such as Bernard Parmegiani.

2) Digital sampling and triggers

This category covers those practices where samples are triggered in live performance from pads or trigger microphones mounted on conventional instruments (usually drums). Either method allows the triggering of recorded samples in performance, providing the capacity to directly render studio sounds and their associated treatments live.

Example 2: Andy Gangadeen – sample triggering from drum pads

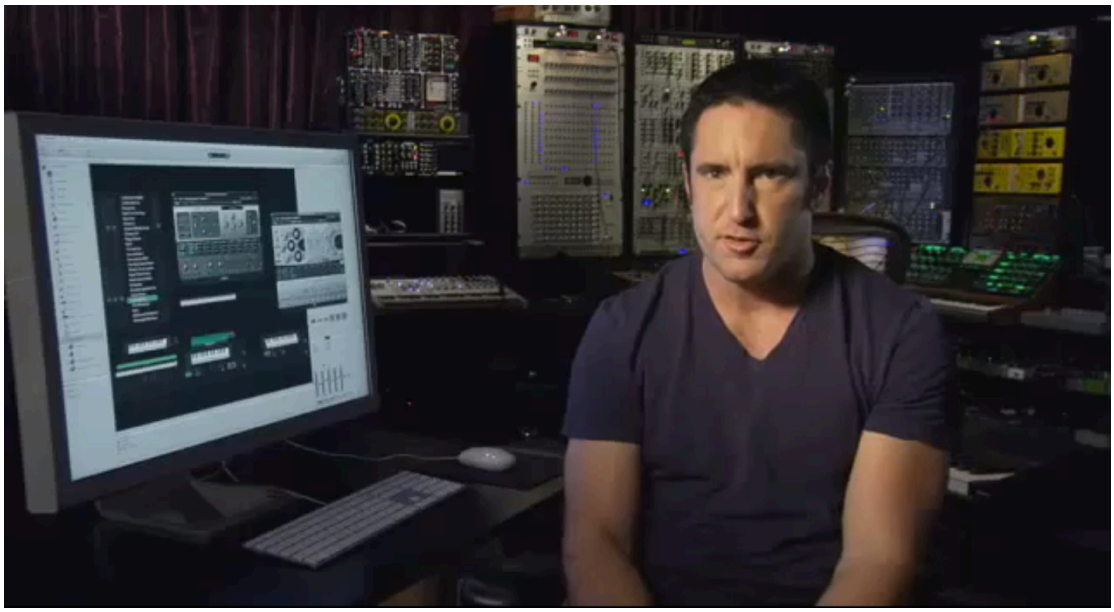
http://www.youtube.com/watch?v=mbgoA9RAXSg

In this field of practice it is common for drum materials that were originally sequenced in recordings to be re-arranged for live performance such that elements of the patterns are played by a live drummer on a conventional kit with one shot samples and/or loops triggered by drum mics or pad strokes as part of a drum feel or pattern. The objective in replacing sequences with drummers is to increase the sense of spectacle and dynamic interaction between performers in the live show.

3) Live processing and click tracks

The increase in computer speed and increased real time processing power has led to the widespread use of live processing tools (software plug-ins in host applications or stand alone applications) which can be controlled via MIDI or Open Sound Control. As indicated above, the software processors and patches will often be identical to those used in the studio with the parameters and controller mappings optimised for live performance control.

Increasingly click tracks are being used live in order to allow the use of sequenced materials in performances alongside live players. Not only does this provide the facility to combine quantized sequenced materials with real time performance, but also the capacity to sequence and trigger automated processing states and moves against a timeline. Where highly sophisticated processing is called for, it is increasingly common to store processing gestures that can be tightly time synchronized and triggered in performance against a timeline and beats per minute reference grid.



Example 3: Nine Inch Nails – computer automation of live processing, use of controllers

http://www.youtube.com/watch?v=4kU0skUZTIw

For their 2008 live tour, Nine Inch Nails used the Apple Mainstage software interface to bring computer based digital processing under automated live control and to allow the musicians to control software processing in real-time via an array of gestural controllers. Singer Trent Reznor had ribbon controllers embedded in his microphone stand that would allow him to control processors in Mainstage (Mitchel, 2008). The main underlying sound processing technologies were AVID Pro Tools software in the studio and an AVID Profile digital live console in performance; and Apple Logic Pro software for studio arranging with Apple Mainstage for live performance control and interfacing. This shows both how audio production tools are 'versioned' to facilitate use in both studio and live contexts, thus facilitating the movement of musical works out of the studio and onto the stage.

Example 4: Depeche Mode – live drum processing

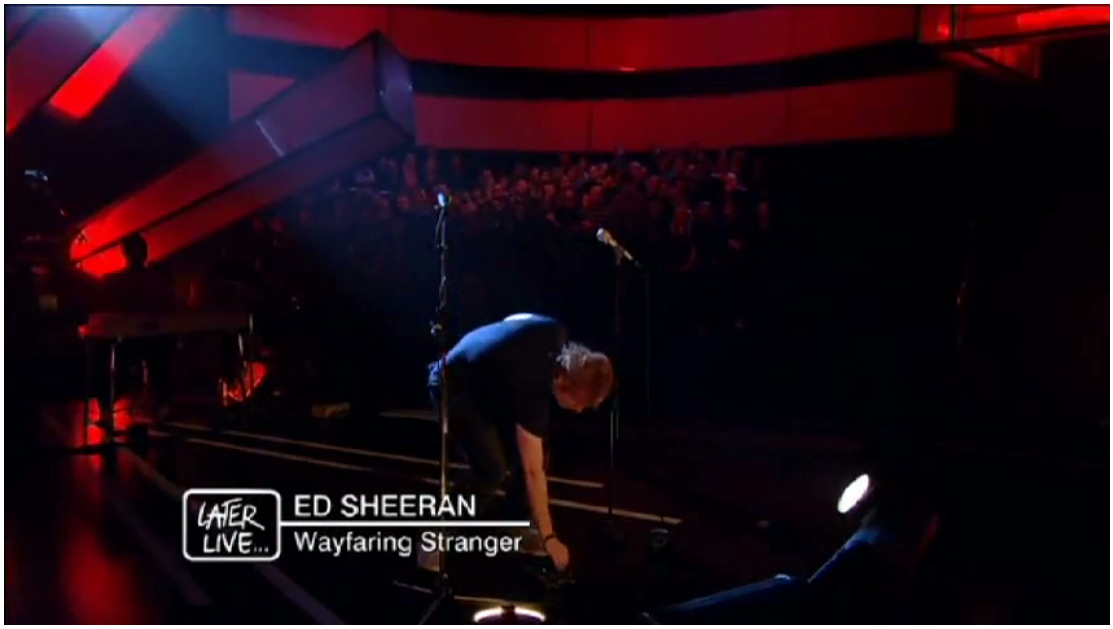
http://www.youtube.com/watch?v=YvuCp1lZIBw

A similar use of software processing can be observed in Depeche Mode's 2009/10 Tour of the Universe tour setup. The band members work extensively with Ableton Live in the writing and studio production phases of their work and also use the software extensively in live performance to undertake a range of processing tasks. Drummer Christian Eigner employed Ableton Live to process drum microphones from his acoustic kit in performance, applying equalisation, compression, distortion, delay and modulation effects in order to emulate the drum sounds on the recorded versions of the songs in the set.

The last two categories in this taxonomy are perhaps the most significant in illustrating the trend towards 'recordivity' in performance, in that they bracket a range of practices which see performers actually recording on stage in front of an audience.

4) Live recording (loopers)

The first conceptual category is defined by the digital loop pedal, which has proliferated in use from the early 2000s onwards. These devices allow the performer to record, play and overdub loops of themselves while performing. Whilst these pedals were initially directed at guitarists, they saw widespread use across a range of instruments including vocals. In many cases, the use of the looper pedal is foregrounded in performance and thus makes the process of recording a point of significant focus within the performance itself.



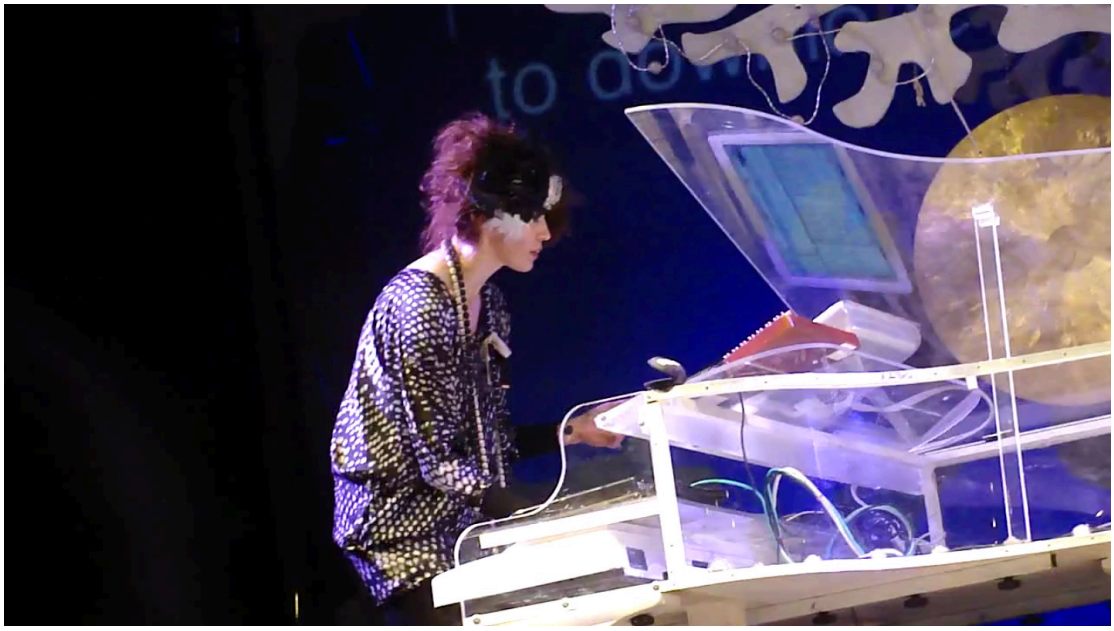
Example 5: Ed Sheeran – loop recording in performance

http://www.youtube.com/watch?v=cid5xYP7_NU

British singer/songwriter Ed Sheeran is a prominent example of an artist who uses a loop pedal during his solo performances, building up dense multi-part vocal harmonies which he can subsequently sing over. In Sheeran's case, the act of recording is made transparent to the audience as he typically performs solo with

nothing more than an acoustic guitar and voice. The moments of recording become obvious to the audience as they see him engage with his foot based interface and hear the layers of sound building with each pass over the looped section.

5) Live recording and arranging



Example 6: Imogen Heap - live multitrack recording and arranging

http://www.youtube.com/watch?v=ghMyKXK1Gjo&feature=related

A conceptual step further towards the notion of 'recordivity' is where the performer not only records on stage but integrates this with the process of composition and arrangement. This provides an opportunity for the audience to not only experience the performer recording a take, but also to catch a glimpse of the artist's studio process more broadly. They see the artist at work, building and arranging a track, in much the same way as they might work in the studio, but in this case organised and framed as a performance. One of the clearest examples of this type of performance is provided by Imogen Heap, who began to improvise and create spontaneous tracks live on stage as

part of a charity project in 2009. These unique tracks would then be made available for download after each show.

Whilst this practice had its origins in a specific charity project, Heap has been strongly engaged with the challenge of making music production technologies engaging in performance and to connect the audience more strongly with the gestures and decisions of the performer.

> *Because I'm sort of barricaded by this gear I'm sort of like the Starship Enterprise. I don't think that people in the audience can actually see what's going on. They can see my hands moving but they don't really know what I'm doing. So, I decided after about five shows that I needed to sort of introduce my band. I'd say, here's my bass box, here's my parrot, here's my laptop and I'd play a bit of my harmonizer. I'd show them samples of what each of them sound like. I think that when I do Hide and Seek live they think I'm singing with backup tracks rather than understanding I'm singing live. (Heap: 2011)*

It is therefore important to Heap that she is seen to be performing when she is on stage and that she has real time agency in respect of her production technology.

It is worth noting, in the examples where recording takes place in performance, that common structural principles can be observed. Due to the attention span limits of live audiences and the related need to keep a sense of momentum in performance, live recording is almost always structured as a series of layered loops, which allow the

performer to stack up complex multipart textures quickly. The examples from Sheeran and Heap above both firmly adhere to this principle.

Authenticity and the live performance of recorded works

This tendency towards the increasing technologisation of live performance can be seen to be narrowing the difference in performance and production practices between the studio and the live performance. A number of substantial issues arise from this. Andrew Kania says, albeit somewhat provocatively,

> *More and more equipment is making the move from the recording studio to the stage as its size decreases and its flexibility increases. Perhaps one day all that is achievable in the studio will be achievable onstage. At that point there will be no reason to withhold the label 'studio performance' from 'live' rock concerts. (Kania, 2006)*

The issue at hand, however, is not so much the technology used in performances, but the sense of *agency* in the live performance where sophisticated production technologies are deployed.

> *Although rock musicians may use on stage some of the same technology they use in the studio to produce the same sounds, they are still expected to perform their songs. (Kania, 2006)*

Moreover, this sense of authentic performance is closely connected to the need to

evidence skill in performance in a way that can be understood by the audience. This skill is not only seen in respect of the manipulation of interfaces or the physical production of sound, but in demonstrating that the recorded sounds can be 're-produced' by the performers in a live context.

> *Listeners steeped in rock ideology are tolerant of studio manipulation only to the extent that they know or believe that the resulting sound can be reproduced on stage by the same performers. When that belief is substantiated, the music is authenticated. (Auslander, 1998)*

This combination of performative agency, proof of skill, and the capacity to reproduce sounds heard on recordings, subsequently leads to an authentication of the performance.

> *Prior to seeing a band perform live, the rock fan cannot be sure that their music really is their music. The visual evidence of live performance, the fact that those sounds can be produced live by the appropriate musicians, serves to authenticate music as legitimate… only live performance can resolve the tension between rock's romantic ideology and the listener's knowledge that the music is produced in the studio. (Auslander, 1998).*

Grossberg concurs by saying

> *The importance of live performance lies precisely in the fact that it is only here that one can see the actual production of the sound, and the emotional*

> *work carried in the voice… The demand for live performance has always expressed the desire for the visual mark (and proof) of authenticity (Grossberg, 1993)*

In this sense the mark of authenticity is carried by the proof of agency. Along with the sense of agency is a sense that the live performance carries risk, requires skill, and is uniquely locked to the time at which it occurs in front of an audience. There is no way of erasing live performance or reconsidering any of its elements or details. Despite the significant shifts in the relationship between recording and live performance practices, this is the most enduring and significant difference and it arises from the most fundamental of differences between the two modes of music making themselves.

> *No matter what studio technology becomes available for live shows, the most salient feature of what goes on in the studio can never be exported to the stage. In the studio, one can take one's time to pick and choose which of the sounds that get on tape should go into the mix. One can always in principle go back and change something until one is happy with the result. So it is not mere current technological shortcomings that make studio and live performances different-- they are different in a fundamental metaphysical way (Kania, 2006)*

When these points are considered in the context of the Sheeran and Heap examples above, notwithstanding the fact that recording and looping is taking place, their work is responsive to these imperatives because its performativity is clear to the audience, through visual evidence of agency and skill.

Technology in performance and the ambiguity of liveness

The increasing use of studio technologies in live performance, coupled with the increasing sophistication of live sound technologies has led to a narrowing of the traditional gap between the sound of recordings and the sound of live performances. Sampling, sequencing and digital recall technologies literally brought studio sounds into live performances. In many cases, live performances took on the quality of recordings in respect of the overall audio fidelity, and in the similarity between studio and performance sounds and effect processing. For the first time it was not clear what was live and what was sequenced and or recorded. Perhaps the most significant event arising from this ambiguity was the Milli Vanilli scandal of 1990 when the group had their Grammy Award revoked when it was revealed that they had not sung the vocal parts on the recording. The truth was made public following several events during 1989 where it became clear that the singers were lip-synching their vocals in live performances (Hughes, 1992).

> *The Milli Vanilli lip-synching scandal of 1990 must be seen as the culmination of nearly a decade of concern over the status and legitimacy of live performance in an era of sequencers, samplers, and backing tapes. For critics the problem was not simply that musicians were trying to sound like their recordings when performing on stage (a long time preoccupation among pop musicians) but that concerts had indeed become recordings (Theberge, 1997)*

The Milli Vanilli incident can be seen as a powerful demonstration of the quest for authenticity and liveness as articulated by Auslander (1998) and Grossberg (1993).

Interestingly in respect of the 'recording as performance' examples cited above (Sheeran and Heap), there is no doubt about the agency of the performer and/or the liveness of the performative act. Contrary to what one might expect, recording on stage often has a heightened sense of liveness. The experience of liveness increases as the inputs are staged and made clear to the audience. During the loop record cycle the audience sees the performer attempt to perform a flawless take, knowing that any errors would have serious consequences as there is no simple way to erase an error or re-do a take in the middle of a performance. It illustrates recording as a performative act not just in terms of the performer in a traditional instrumental sense but also the recording engineer/ producer and their 'playing of the technological instruments of recording.

Performance reflexivity: the influence of live performance practices on recording studio performance practices

The focus of this paper to this point has been on the flow of recording studio practices into the live performance domain. These shifts have both been enabled by, but also have caused a blurring of the traditional distinctions between the two spheres of practice. A significant flux now exists between the two fields of practice and in recent years a flow has emerged in the reverse direction. Studio practices have moved from the studio to the stage, have undergone a degree of transformation and are then re-adopted in changed form in studio performance practice.

This can be seen to be forming a self-reflexive system. The area in which this is most visible is in electronic music genres where sequenced music has been adapted for live performance. In the process of confronting the challenges of performativity in sequenced music, a number of musicians have developed performance practices around the live performance of electronic parts without the use of sequences. In an environment in which automation and sequencing abound, many electronic acts have strived to make their live shows more 'played' in order to generate an enhanced sense of liveness and increased audience engagement. The objective has been to authenticate the live performance by increasing human agency in the performance of the sounds. In its simplest form this might involve performing drum patterns (which were quantized sequenced in the recorded version of the track) without sequencers from finger pad controllers such as the Akai MPC series controller, Novation Launchpad, or Monome controller. Another strategy might be to use a live drummer with sample triggers to render breakbeats and/or drum loops in performance. It is possible to view these pad controllers as 'threshold technologies' in that the pads may be used both to program sequences in studio or pre-production contexts or as performance devices.

These approaches have developed into a highly refined set of performance practices in their own right, such than many acts are now advertising the fact that they do not use sequencers live. Coined terms such as 'analogue dubstep' or 'livestep', often derived from and signalling their genre origin (dubstep), are also emerging to identify this approach. Indeed these live practices have become so developed and integrated into the way in which the music is performed, that a number of bands are now choosing to record their parts live in the studio, unquantized and without sequencers.

Australian band The Bird have exemplified this approach in the release of their Live Dubstep EP (Pnomad Records, 2010 http://pnomad.bandcamp.com/)

Example 7: The Bird. Recording *Live Dubstep* EP, Studios 301, Byron Bay Australia

Available at http://www.youtube.com/watch?v=lIEsZXSzfBE

This flow in the reverse direction (from performance back into recording studio) serves to emphasise how deeply intertwined recording and live practices have become and how production and performance technologies are providing the means to generate flux between the two spheres of practice. This suggests that a much deeper investigation is needed into the complex unfolding relationships between studio and live performance practices on both human and technological levels.

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