Sample magic: (Conjuring) phonographic ghosts and meta-illusions in contemporary hip-hop production

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Abstract

Sampling has been criticised as "a mixture of time-travel and seance", "the musical art of ghost co-ordination and ghost arrangement", and a process that "doubles (recording's) inherent supernaturalism" (Reynolds 2012, pp. 313-314). Yet out of all the sample-based music forms, hip-hop receives the lion's share of attention in popular music literature; critics are puzzled by its appeal, scholars identify a plethora of problems in its function, and practitioners and audiences alike are mesmerised by its effect. Rap producers attribute an inherent 'magic' to working with past phonographic samples and fans appear spellbound by the resulting 'supernatural' collage. The author examines the music's unique recipe of phonographic juxtaposition, exploring the conditions of this ascribed 'magic', investigating gaps in perception (Lehrer 2009) between emotional and intellectual effect, and deciphering parallels in the practice and vocabulary mobilised against a range of genres in performance magic.

Introduction

From '(al)chemists' and 'wizards' of the beat to the 'magic' of phonographic sampling in hip-hop music, the practice and literature surrounding sample-based music production are inundated with supernatural references. But sample-based music creation has also been criticised as 'a mixture of time-travel and seance' (Reynolds 2012, p. 313), where subjects from the past are unwillingly manipulated by contemporary music-makers. Whether 'magical' vocabulary is mobilised in these contexts in a complimentary or critical sense, it is important to question why it is used to describe musical phenomena and, specifically for the focus of this article, how it applies to sample-based music creation.

At first glance, it is easy to see how the amazement resulting from musical feats or pleasing aesthetic results (in any art form) can lead to exclamations of awe and an elevation of the artist's skill to supernatural dimensions. It is important, however, to investigate more explicitly the conditions under which a musician—and for the purposes of this article, a beat-maker[1]—becomes a magician in the eyes (ears) of their audience, as well as the implications of this transformation on both artistic effect and the audience experience. Furthermore, it will be useful to explore whether the frequent use of magical or supernatural characterisations simply substitutes complimentary (or critical) language directed at artists, or whether there is something more profound about their unanimous and universal usage. This will also provide

the opportunity to explore whether such terms have become pivot mechanisms in popular music parlance diverting attention away from the serious study of artistic phenomena, when there are unexplained aesthetic effects taking place that warrant more careful examination.

Conditions and parallels

A logical position for the investigation to start from is the pursuit of the conditions necessary for magic in a sample-based musical context to occur. But first 'magic' itself requires a definition relevant to an artistic context. The focus of this article will remain on one understanding of magic as 'stage' or 'performance' magic, examining the conditions necessary for performance magic to occur, before drawing any parallels to sample-based music creation. In doing so, it will demonstrate that music and magic work as reciprocal metaphors not only because music is frequently compared to magic, but also because stage magicians consistently use time-based, musical metaphors when explaining their practice. Furthermore, the obstacle of comparing a predominantly performable art form (stage magic) with a mediated one (sample-based music production) will be dealt with, at large, through a discussion of performable utterances that can be identified on the latter as an expression of traditional turntable practices[2].

Starting from a more generic notion of magic, Oxford Dictionaries (2018) define it as '(t)he power of apparently influencing events by using mysterious or supernatural forces'. Yet, from Houdini to Penn and Teller, performance magicians have dedicated much of their lives' efforts to exposing fraudulent claims towards the supernatural, and educating their audiences about the skill and effort required in delivering effective performance magic. Lamont and Wiseman (1999, p. xvi) claim that 'magic, properly performed, is a complex and skillful art', while Vance (1985, cited in Wilcock 2015, p. 40) describes magic as 'a practical science, or more properly, a craft'. Penn and Teller (cited in Miller and Zompetti 2015, p. 11) go as far as to expose their methods on television because, according to them, 'illusions are just illusions'; and Fitzkee (1945/2009, cited in Miller and Zompetti 2015, p. 8) agrees that 'what makes a magic trick great ... is *performance*'. Claims such as these are echoed throughout the world of performance magic, demonstrating that a reading of terms and ideas referring to magic through the lens of craftsmanship, mastery and skill (rather than an acceptance of the supernatural) may render parallels that are more useful for the study of what is referred to as 'magical' in other performing arts.

Teller (cited in Leddington 2016, p. 256) describes magic as 'a very, very odd [art]form' and Leddington (2016, p. 254) agrees that 'magic does not fit neatly into our usual aesthetic categories'. This could also be said about the aesthetics of both record production

more generally and sample-based record production more specifically, since the latter is borne out of the layering, manipulation and juxtaposition of previously made phonographic constructs. In relation to hip-hop music, Schloss (2014, p. 72) explains that 'the idea of sampling as an aesthetic ideal may appear jarring to individuals trained in other musical traditions, but it absolutely exemplifies the approach of most hip-hop producers', adding that 'this preference is not for the act of sampling, but for the sound of sampling: It is a matter of aesthetics' (idid., p. 78).

In his critique of sample-based music—which he entitles 'seance fiction'—critic Simon Reynolds (2012, p. 312) describes the aesthetic conundrum quite acutely:

> Recording is pretty freaky, then, if you think about it. But sampling doubles its inherent supernaturalism. Woven out of looped moments that are like portals to far-flung times and places, the sample collage creates a musical event that never happened... Sampling involves using recordings to make new recordings; it's the musical art of ghost co-ordination and ghost arrangement. (ibid., pp. 313-14)

Reynolds' critical stance towards sample-based music allows him a distanced analysis of the aesthetic phenomena on hand and, although rap practitioners may not share his disdain, he does, however, offer some helpful analogies between the two art forms: specifically, the manipulation of others' energies, the condition of distance, and the effect of unwillingness (on the side of subjects or audiences).

Lamont and Wiseman (1999)—assuming both practitioner and scholarly roles—provide a systematic account of the conditions necessary for effective performance magic, allowing us to draw more insightful parallels between the mechanics of the two art forms. Their findings appear surprisingly apt at describing the mechanics of music (both its performance and creation), especially if read with a focus on the interdependence between a performer's *method* and its *effect* on an audience (the listener). In their book, *Magic in Theory*, they claim that '(s)uccess (in the performance of magic) requires that the spectator experience [sic] the effect while being unaware of the method' (ibid., p. 29), a dynamic that Miller and Zompetti (2015, p. 8) echo as the precedence of 'the wonder of the occurrence' over the 'mechanics of a trick'. Indeed, Leddington (2016, p. 258) attests that 'the magician has to ... "cancel" all the methods that might reasonably occur to you' and Hay (1972, p. 2, cited in Miller and Zompetti 2015, p. 12) sums up that the 'secret of conjuring is a manipulation of interest'. What's noteworthy in *Magic in Theory*, however, is Lamont and Wiseman's frequent discussion of rhythm and timing as crucial devices in interest manipulation, which resonates sympathetically with sample-based hip-hop's preoccupation with rhythm and groove[3]. The authors describe novelty, 'sudden sound(s)', 'change of pace', (relative) movement, contrast (Lamont and Wiseman 1999, pp. 40-41), as well as highlighting the 'moment of effect' over

'the moment of method', and using rhythm, punctuation and (on-)beat and 'off-beat' moments as essential tools in physical misdirection and time-based attention control (ibid., pp. 46-53).

The cyclic structure of sample-based hip-hop similarly depends on interest manipulation through rhythmic and textural dynamics: cuts[4] and stops of the beat, dynamic manipulation of found samples, use of sound effects and spatial effect processing. If we take Gang Starr's 'Code of the Streets' (1994) as a classic example, producer DJ Premier juxtaposes the exposed—and slightly sped up—introductory drum beat from 'Synthetic Substitution' (1973) by Melvin Bliss over the pitch-shifted instrumental introduction from 'Little Green Apples' (1968) by Monk Higgins. He then deploys Beside's 'Change the Beat' (1982) as a source for his turntable scratching and manipulation that constitutes the track's chorus. Throughout the track, Premier *cuts* the instrumental sample in time with the beat at key moments to create dynamic interest (e.g. at 0'18" before rapper Guru starts his first verse), while the end phrases of his scratching on later choruses are prolonged using a delay effect, their repeats fading out into subsequent verses. The track also features extraneous amounts of vinyl noise (underlining the connection to turntablism already evident in the scratching), while the 'Synthetic Substitution' beat sounds reinforced through the use of equalisation, potentially addi-

tional drum layers and a prominent level placement in the mix. Premier's production here illustrates how the organisation and manipulation of full phonographic layers—rather than individual instrumental elements—results in striking dynamic, textural and rhythmic effects, which he also deploys to provide the contextual materials behind Guru taking centre stage in the verses. On a later production, such as 'Deadly Habitz' (2003), his manipulation of Steve Gray's 'Beverly Hills' (1979) demonstrates how a beat-maker can create re-imagined phrases out of found phonographic segments (typically, through percussive triggering of the samples on the drum pads of physical or virtual sampling drum machines), creating rhythmical interactions between the (recorded) gestures and those included in the sampled content[5]. As such, motion is perceptible on multiple levels while various layers can be brought to the listeners' attention though relative level balancing (mixing), timbral and spatial enhancements (equalisation, use of delay and reverb effects), or the performative manifestations of the producer's actions. As Schloss explains:

> A hip-hop beat consists of a number of real-time collective performances (original recordings), which are digitally sampled and arranged into a cyclic structure (the beat) by a single author (the producer). In order to appreciate the music, a listener must hear both the original interactions and how they have been organised into new relationships with each other. (Schloss 2014, p. 159)

The cyclical nature of sample-based hip-hop follows Afrological priorities (Lewis 2017), which Tricia Rose (1994, p. 83) acknowledges as a characteristic of 'black cultural traditions and practices' expressed in manifestations of 'openness, ruptures, breaks and forces in motion'. The listener's attention is directed toward sonic, rhythmic and lyrical invention expressed over a familiar loop, which is no different to the phenomenon of diverting spectators' foci to *effect* in performance magic, using the mechanisms of 'naturalness', 'consistency', 'familiarisation', reinforcement, continuity and subtlety—conditions Lamont and Wiseman (1999, pp. 60-74) identify as essential for psychological (mis)direction.

Structure, control and subgenre

A further parallel that can be drawn between performance magic and sample-based record production relates to the structure of the artistic exposition and the use of 'raw materials' to construct it. Reinhart (2015, p. 26) cites the opening sequence of mystery thriller 'The Prestige' to describe the typical 'praxis of the commercial magical show':

> Every great magic trick consists of three parts or acts. The first part is called "The Pledge" in which the magician shows you something ordinary... The second act is called "The Turn". The magician takes the ordinary something and makes it do something extraordinary. Now you're looking for the secret... That's why every magic trick

> has a third act, the hardest part, art [sic] the part we call "The Prestige". (from the opening sequence of 'The Prestige', cited in Reinhart 2015, p. 25)

Reinhart (2015, p. 26) explains that 'in a great magic performance there are always two gaps - one between the "Ordinary Something" and the "Unexpected" and the second one between the "Unknown" and a magically restored order'. If we listen to a number of sample-based hip-hop tracks, such as 'Lightworks' by J Dilla or 'Filthy (Untouched)' by Madlib (under his The Beat Konductah alias), we can identify a very similar structural idea. The producers initially expose relatively unprocessed (albeit pitch-shifted and somewhat equalised) phonographic samples— segments from Raymond Scott's 'Lightworks' (2000) amongst others, and Vivien Goldman's 'Launderette' (1981), respectively—letting us *in on the trick* they are about to 'perform' so to speak, in order to then mesmerise us with their abilities to manipulate, truncate, loop and re- order ('chop') their phonographic source. This is a process collectively known as 'flipping' in hip-hop practice. Skilful rap producers such as J Dilla and Madlib are capable of presenting re-imagined sequences and sonic constructs substantially altered from their phonographic origins, therefore the introductory 'pledge' plays in their favour, demonstrating a notable 'gap' or 'turn' into the 'unexpected'. Note that the titles the producers choose for their resulting sample-based creations are consistent with their process—J Dilla keeps the name 'ordinary' (the same), while Madlib hints at the 'flipping' strategy by naming

his track 'Filthy (Untouched)', rather than 'Launderette'. It could be argued that the 'restored' order comes in the form of establishing a new cyclic structure held together by the timbral and rhythmic coherency of the new main 'hook' (loop) that drives the rest of the production. The limitation of having to work with a small number of sampled phonographic instances (rather than unlimited instrumentation[6]), necessitates the construction of narrative and the retention of interest predominantly through the manipulation of an 'ordinary something'—a raw sonic source in the context of a sample-based hip-hop structure. Although this process becomes mediated on record, it owes much to the aural tradition of turntablism, being communicated to listeners via this developmental exposition of raw materials and subsequent sonic constructs. The parallel exposes a fundamental structural insight in the art of 'flipping' samples in hip-hop, highlighting not only a surface characteristic, but identifying instead an essential mechanism in engaging and retaining listener interest, whilst authenticating the producer as 'performer' in control.

Demonstrating control, furthermore, appears as another fundamental condition before a performer can acquire 'magical' status within performance magic or beyond. Lamont and Wiseman (1999, p. 64) suggest that '(a)uthority brings control, and control of the situation can allow the magician to set the conditions'—an axiom that also applies to beat-makers and their demonstration of 'chopmanship' or 'wizzardy' over phonographic samples.

Loshin (2007, quoted in Miller and Zompetti 2015, p. 10) confirms that '(t)he metanarrative of magic is tied up with the notion of control ... control of the natural world'. The notion can be expanded to include scientists, as they can also discover, apply and display methods of control over various forms of physical energy. For 18th century physics professor and stage magician Étienne-Gaspard Robert 'the magical show was simply a lesson in applied physics, performed to amaze and educate his audience' (Reinhart 2015, p. 32). In the case of Thomas Alva Edison, his 'power' over acoustic energy channeled via the invention of the phonograph earned him the nickname of the 'Wizard of Menlo Park': through it he was capable of 'transforming life into abstract signals and playing them back ... (allowing) us to hear voices from people absent or long gone' (ibid., p. 27). In the case of beat-makers, too, the control over sonic materials, demonstrated through the art of flipping samples, is a form of control over musical (rhythmical, textural, motivic) relationships, but also stylistic invariables. This is exemplified by beat-makers', DJs' and mashup remixers' aliases and characterisations, such as 'The Alchemist', DJ Cut Chemist of Jurassic 5, and Amerigo Gazaway, described in the press as a 'chemist' of the mashup (Caldwell 2015). In a more general sense, Kugelberg (2007, p. 31) sees all of hip-hop music-making as an art form comparable to alchemy or magic: 'With hip hop, born in the Bronx, these guys created something out of nothing. That's amazing. That's alchemy. That's magic'. For Reinhart (2015, p.31), the ability to create 'something out of

nothing' also characterises scientists, inventors and magicians. This is because they are 'exponents of the same mind set (as they) have learned to deal with the phantasmatic space of the unknown in a creative way' (ibid.). A quality that perhaps applies to all music-makers, but one that appears even more fitting for sample-based producers due to the materiality (rather than abstraction) inherent in the nature of control manifested over their sonic objects. Vanesa Chang explains:

> The successful pursuit of new samples has, as its limit, the producer's capacity to hear musical possibility in a song, to listen for connections that may not currently exist in the song, to perceive aural spaces where they might not be obvious. This requires conceiving of sound as plastic material, and not as a finished product. (Chang 2009, p. 147)

Control in this sense is defined as an intrinsic condition of both performance magic and sample-based music production describing the actions the performer exercises over the materials or objects deployed. The implication is that the audience (or listeners) are entertained by observing (or listening to)—and sometimes interacting with—the manifestations of control (effect), as exercised by the performers (method). Robert-Houdin (1906, quoted in Reinhart 2015, p. 31) categorises Modern Magic into classes according to such intrinsic characteristics (i.e. what subjects are used and what actions are performed). For example, one of the classes he identifies, 'Experiments in Natural Magic', is described as '(e)xpedients derived

from the sciences and which are worked in combination with feats of dexterity, the combined result constituting conjuring tricks' (ibid., p. 31). The definition sounds analogous to how sample-based re- cord production could be described as a (sub)genre: *exponential phonographic illusions derived from sonic phenomena (psychoacoustics) and the manifestation of producer (originally turntablist) dexterity over phonographic sound objects—the combined result constituting* 'supernatural sonic collages'.

As much as it is useful to classify art forms through the lens of practice and the materials used (i.e. intrinsically), the resulting effect(s) (appreciation, entertainment) cannot be fully comprehended without considering audience perception and the context surrounding recipients (culture and mediation). Landman (2013, p. 47) theorises on how different genres of theatrical or stage magic frame performance 'on a different contract between the performer and the audience, the discourse used during performance and the effect on the audience both in terms of its perception of what has transpired and the personal meaning attached to the effect'. He expands with a fitting analogy:

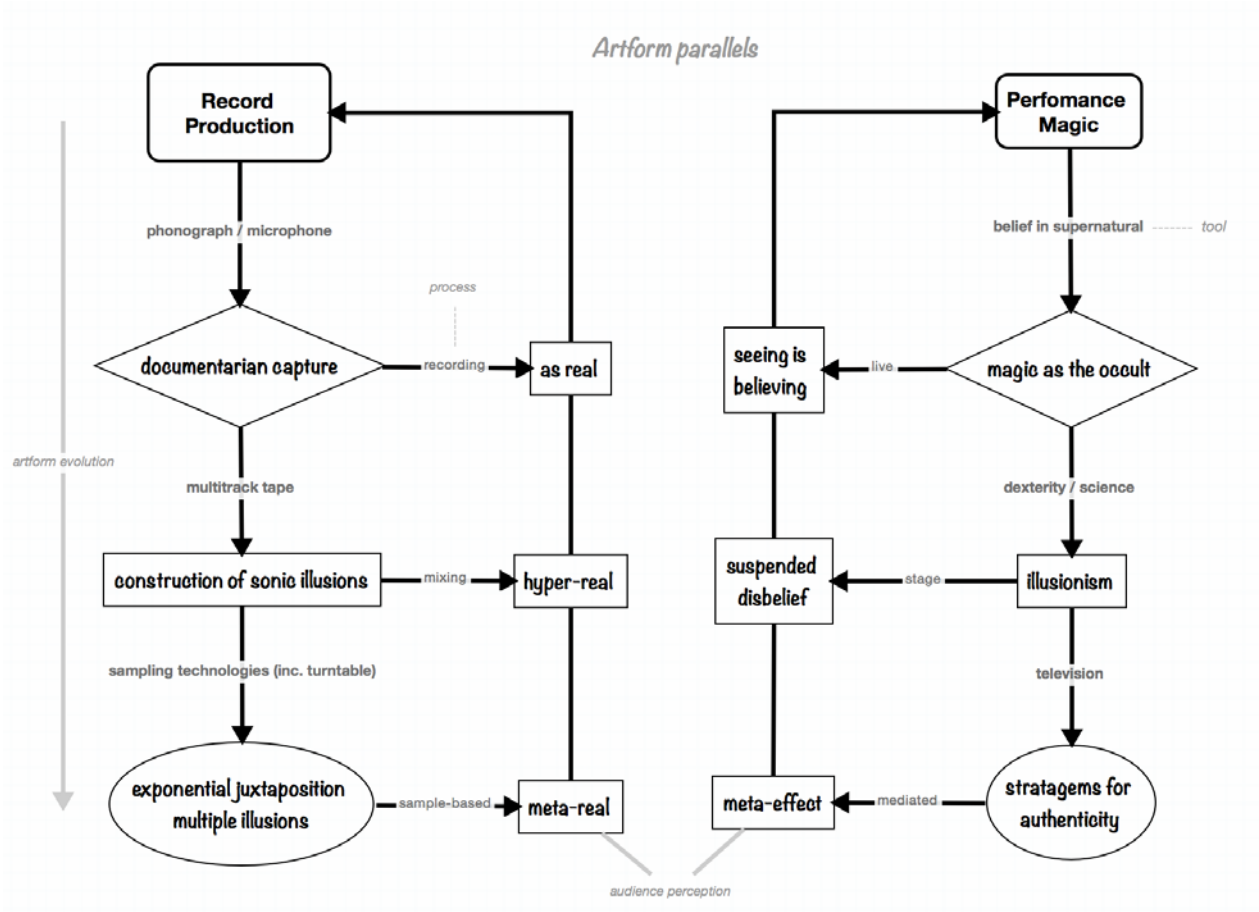
> Like the different strands in other performing arts (music, drama, comedy), these genres have distinctive communities and sub-cultures, as practitioners try to establish hegemony of one form of performance magic over others, or seek to construct separate identities around their stage persona and approaches to performance magic. (ibid., p. 48)

Similarly, the work of sample-based beat-makers, through its historical association to turn-tablism, is rooted in approaches to music production congruent with an evolving stylistic contract between producers and fans, requiring methods of control from the side of the makers, in order to create coherent sonic experiences for the recipients. As with any evolving stylistic contract, the successful producers manage to challenge recipient interest by balanc-ing adherence to aesthetic criteria (genre rules), whilst innovating; but the parallel force in action is the evolution of audience perception itself. As Cohen (1994, cited in Miller and Zompetti 2015, p. 12) reports on Penn and Teller, they are performers 'willing to acknowledge...that the culture is savvy to magic'; just as musical/hip-hop culture is savvy to sample-based utterances and sampling technology. Williams (2014, p. 193) confirms: 'hip-hop as a genre presupposes an un-concealed intertextuality which is part and parcel of its aesthetics. Much of this has to do with hip-hop communities' expectations (its 'generic con-tract')...'

However, the adoption of developing mediation technologies into any performing art adds another important factor that negotiates how the art form is framed. The following sec-tion will widen the focus of the discussion to the totality of record production, in order to explore parallels between mediation effects upon phonography and performance magic.

Sample-based record production will then be contextualised as a subgenre defined specifically by sampling technology affordances. The discussion hypothesises that if the art of record production evolved from documentarian capture *(as real)* to the construction of sonic illusions *(hyper-real)*, then sample-based hip-hop introduces the notion of an exponential juxtaposition of multiple illusions *(meta-real)*. The phenomenon mirrors the evolution of audience perception in performance magic from 'seeing is believing' *(magic as the occult)*, to illusionism *(suspended disbelief)*, to TV illusionism *(challenging the interaction between performance and production)*. The interaction of technology with both art forms has implications for their 'frame' in relation to liveness, authenticity and defining aesthetic criteria, necessitating also a theorising of the 'meta-*effect*' that is possible through mediation. A schematic representation of the parallel streams of evolution for both art forms and the respective audience perception can be seen in Figure 1 below, including associated technological variables, tools used in directing audience attention and related processes.

Figure 1. A schematic representation of the parallel evolutionary streams for record production and performance magic.



Technology, mediation and the alchemy of beat-making

Landman (2013, p. 52) proposes a convincing categorisation of genres and subgenres in performance magic according to the methods (materials), effects and frame adopted, but also the contract, engagement and discourse that can be observed between performer(s) and the audience. In the case of the overarching categories of 'magic', 'mentalism' and 'mystery entertainment', he finds that the former two share a—contemporary—frame relating to the production of inexplicable effects based on unknown methods, while in the latter there is an implicit claim towards the supernatural (ibid., p. 56). As we have seen above, however, the delineation away from supernatural claims characterises most *modern* magic, mirroring the growing 'savviness' of a contemporary audience. The evolved perception identifiable in audience culture is understandably the result of multiple forces (it would be hard to imagine how, for example, the renaissance, a shift towards scientific thinking, technological awareness and secularism in the West would not have affected audience trends in their engagement with magic), but it is also the result of conditioning borne out of the ongoing discourse between performers and audiences. As Leddington (2017, p. 34) notes: '(t)hat the sign reads "Magic Show" allows us to feel a measure of safety and control in the face of what might otherwise be a frightening experience: encountering an apparent violation of natural law'; and he maps audience reaction to a behavioural mechanism he describes as an 'activation of

the "magic" genre script' (ibid.)—something Landman (2013) sees as the unspoken contract framed between performer and participants.

The obvious parallel with record production is a similar 'savviness' amongst listeners about recording technologies, creative possibilities and resulting effects, which create a range of artistic expectations throughout the history of the art form and across different subgenres. Much has been written about the advent of multitracking and its effect on the aesthetics of record production. By enabling the manipulation of separate layers of instrumentation in post-production (see, for example, Jarrett 2014; Katz 2010; Schmidt-Horning 2013) and—through that—the *staging* of balance, timbral and spatial illusions, it has transcended the pursuit of a purely documentarian approach to sonic representation (for more on the notion of 'staging' see Lacasse 2000; Liu-Rosenbaum 2012; Zagorski-Thomas 2010). Jarrett aptly describes:

> Around 1967, recordings changed. From that point on, they were almost never actual records of single musical events—they became instead, almost always, composites of many musical events–"virtual" records. The performances heard on records were more constructed than caught. (Jarrett 2014, p. 113)

Nevertheless, the 'genre script' across eras and subgenres has continued its differentiation beyond the initial affordances of multitrack tape, in response to a plethora of consumption trends and developing media. Simon Zagorski-Thomas (2010) has demonstrated the effect

that the interplay between idealised and actual consumption spaces has had on the development of mixing strategies for rock and disco (and eventually dance music), while Thomas Vendryes (2015) has highlighted the socio-economic context within which King Tubby pioneered the notion of the 'remix' (and, simultaneously, the subgenre of dub). It could be said, however, that, collectively, the art of record production, in all of these pursuits since the invention of multitrack tape and until the dawn of sampling technologies, had been freed from the limitation of the 'real' (performance representation) and was allowed to explore and build 'hyper-real' sonic constructs. Of course, representational or documentarian outputs have continued to be produced, with particular genres placing high value on the least amount of mediation over authentic performances (Moore (2002, p. 213) discusses this form of authenticity as 'primality'). Furthermore, even when attempting to represent a performance with minimum mediation, a certain amount of distortion of the acoustic representations is inevitable due to the recording and post-production techniques and tools employed (Zagorski-Thomas 2018, pp. 13-24).

In performance magic, the shift from a perception of conjuring effects 'as real' (stemming from supernatural powers) to the adoption of *suspended disbelief* as a condition enabling 'illusory' entertainment, seems to have been brought about by a philosophical set of

conditions (rather than a particular set of technological affordances). Nevertheless, it is interesting to note the implications for magic once its performance becomes mediated through visual technologies (video, television, online). In one sense, it could be argued that performance magic, by its definition, has been leading the race when it comes to entertainment via illusion, while record production could only start partaking after recorded sonic objects would become subjects to multitrack manipulation. But for both art forms, the handling of illusion reaches a 'meta' level with the adoption of, respectively, mediated technologies for magic and sampling technologies for record production; a comparison that uncovers important aesthetic issues in sample-based hip-hop and explains some of the 'magical' analogies so frequently made about the art form.

One of the first problems affecting both art forms in terms of mediation is the issue of communicating performance authenticity and the strategies that can ensure a convincing effect. Landman (2013, p. 60) asserts that conversely to televised magic, 'live performance magic can develop experiences and feelings relating to trust and belief'—participants in his magic workshops have reported feelings of increased trust due to the live nature of his performances, at the same time refusing to believe televised magic shows like the Derren Brown series. Leddington (2016, pp. 259-60) attributes the problem to an increase in physical dis-

tance between performer and audience, which becomes counter-productive to the experience of magic and constitutes an aesthetic issue that gets magnified with mediation: 'The problem of distance is especially acute when showing magic on TV, where effective performance also requires ruling out the possibility of camera tricks and postproduction effects'; to that effect, TV magic shows like David Blaine's *Street Magic* deploy the portrayal of live audience reactions as stratagems 'to certify the authenticity of the performance' (ibid.). Videos of magic tricks currently populating social media also deploy similar techniques, frequently staging participants around the performer in order to convince viewers of a certain degree of transparency.

To return to Reinhart's (2015, p. 35) analysis of magic portrayed in motion pictures, his concluding observation about 'The Prestige' is that after the narrative has run its structural course of 'pledge-turn-prestige', the film 'introduces another meta-level by turning the cinematic narration into a magic trick by itself'; as a result '(w)e, the meta-audience, are tricked as well' (ibid.). The significance of this observation for sample-based practices is that it mirrors the meta-effect of being allowed, as a listener, in to the phonographic dimension of the sampling producer, witnessing the manipulation of previously made phonographic

constructs. We may not be tricked, but we are entertained, and our interest is directed toward perceiving at least two, if not multiple, temporalities of phonographic process—in other words, we are hearing process upon process.

For a musical art form so heavily dependant upon music technology since its very inception, the problem of authenticity becomes magnified because of this degree of exponential mediation. Williams (2011) explains how recorded hip-hop was initially perceived as an inauthentic take on the aural tradition of rap, especially when compared to the way it was being performed live in the Bronx in the 1970s. This perception was not helped by the fact that the first crossover hits credited as rap had little to do with the music of the streets, something Kulkarni clearly illustrates in the following statement:

> In late 1982 early 1983, hip-hop Records didn't sound like hip-hop. They were essentially R'n'B records with rapping on them, created by bands, session players and producers. The crucially exciting thing about hip hop, the music made by scratch DJs, only figured as an effect, a detail, not the root of where the grooves and sounds came from. (Kulkarni 2015, p. 37)

Kulkarni here points to what may seem like a reversed notion of authenticity in rap when com- pared to other musical genres: turntable performance using phonographic sources resonates from the origins of the culture, while live musicianship does not[7]. Because of that, 'rap music production ... has aimed to create the sounds of the street', the strategy here

consisting of the inclusion of 'turntablistic codes on recordings' such as 'vinyl scratching ... to signify authenticity' (Williams, pp. 151-154). By the time sampling technology had become affordable many of these turntablistic utterances were first replicated and later on developed further by DJs- turned-sampling-producers (something exemplified by the DJ prefix in many of the early hip- hop producers' aliases), resulting in hip-hop's golden era '"boombap" sound that was shaped by the interactions between emerging sampling technologies and traditional turntable practice' (D'Errico 2015, p. 281). As a result, the practice of sample-based hip-hop developed its own intrinsic code of ethics regarding both sampling practices and what constitutes acceptable phonographic source material (Schloss 2014). And while pop and rock record productions were creating 'supernatural' sonic constructs out of instrumental performances, sample-based hip-hop practice kept alluding to a performative tradition that represented the 'alchemy' of creating 'something out of nothing' (Kugelberg 2007, cited in Williams 2011, p. 133); or, in other words, it alluded to exponential illusions conjured out of the flux of turntable-turned-sample-based manipulations over full phonographic sources. But let's look at the practice in more detail to investigate what constitutes beat-making 'alchemy' through a representative case study.

On track 'Musika' from KRS-One and Marley Marl's album *Hip Hop Lives* (2007), Marl samples the last few seconds of 'A Theme for L.A.'s Team', the opening track from motion

picture soundtrack *The Fish that Saved Pittsburgh* (1979). 'Musika' features reggaeton rapper *Magic* Juan and, to complete the metaphysical serendipity, the mystical theme is also present in the lyrics:

> Use your real eyes to realize these real lies
>
> Yo Marley, let's hit 'em, word up...
>
> Marley Marl on the musika, KRS on dem lyrics da
>
> On the side I teach meta-ta-ta-physica...

(Denton, Lister and Wilson 2007)

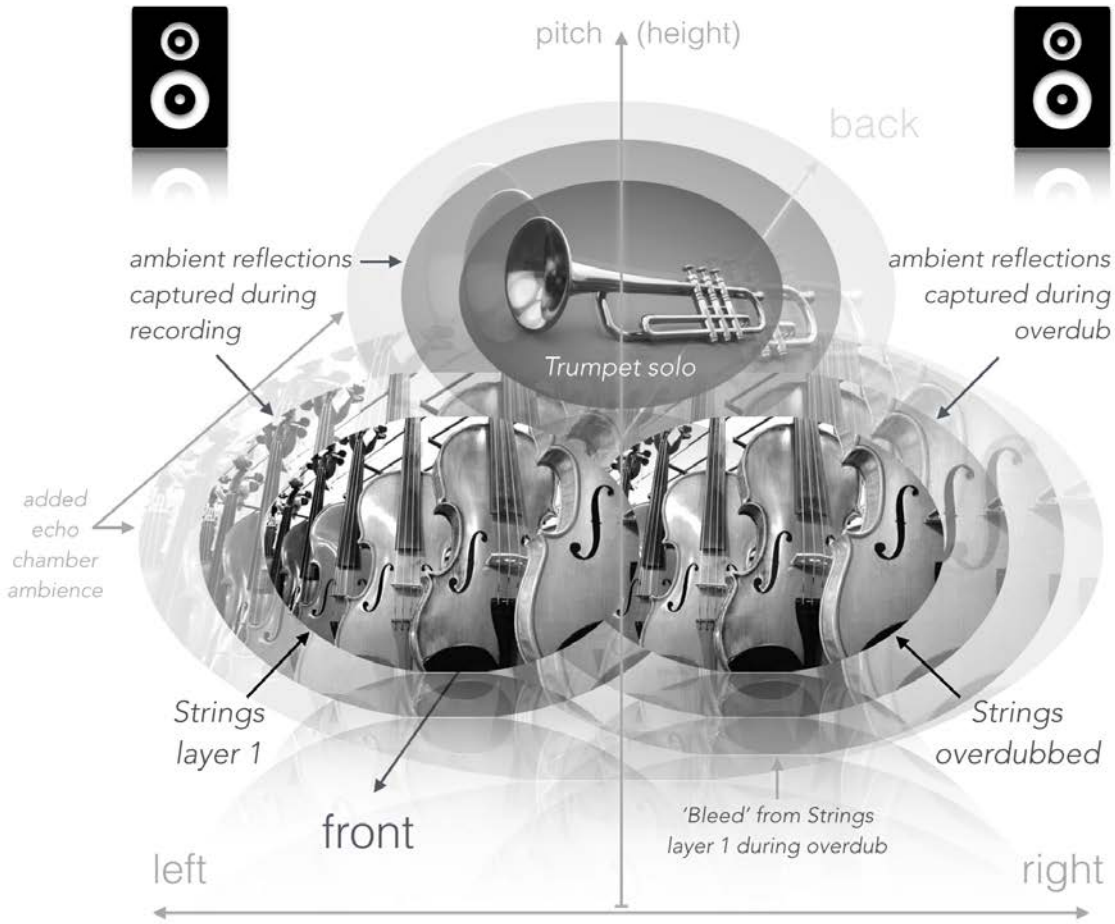
The relevance of the example stems from Marl's celebrated status as an architect of the sample-based aesthetic in hip hop[8], KRS-One's dedication to authentic hip-hop 'genre scripts' *and* the supernatural as a source of his inspiration[9], but also because the track (and album) represent the practice of the golden era boombap aesthetic. In more detail, 'Musika' features about ten seconds from the 1979 recording, slightly sped up and looped into a cyclical structure, over which Marl builds a drum beat with sparse additions of sub-bass and a one-note repeated synthesiser bass figure taking place at the end of every four or eight bars. It is impossible to identify precisely the origin of the drum sounds contributing to the beat but, in the 'making-of' documentary that is included with the album release, KRS-One refers to Marl's pioneering practice of 'chopping' up individual drum 'hits' from funk breaks (breakbeats). Additionally, the timbre and dynamic envelopes of the sounds are characteristic

of Marl's (and by extension boombap's) practices of layering individual funk drum hits with synthetic 'boom' sounds from classic drum machines (such as the Roland TR-808). The soundtrack sampled has been mostly recorded at Sigma Sound (and other studios) but, judging from the timbral and spatial qualities of 'A Theme for L.A.'s Team', an educated guess would place the specific track at the famous Philadelphia location, too (Nelson-Strauss 2017). Toby Seay (2012) provides an illuminating rationale for the timbral and spatial characteristics that came to be known collectively as the 'Philly sound', and the sampled track in question subscribes to these. What is particularly telling about the Sigma sound is its unique echo-chamber footprint upon recordings actualised at the Philadelphia location, but also the rich, layered strings texture the personnel acquired by overdubbing the string section whilst inadvertently capturing speaker 'bleed' (ibid.).

As a result, the original recording (which features eight individual instrumentalists alongside a string and horn section) carries with it a number of sonic illusions: layered instruments so they sound like larger sections; superimposed acoustic spaces (echo chamber) upon the actual spaces captured due to reflections during recording; re-amplified instrumental sections (and their reflections) captured due to bleed during overdubbing; as well as all the sonic artefacts and timbral processing colouration caused by recording and mixing practices, and the respective equipment used. We might agree with Reynolds (2012, p. 313) that

'(r)ecording is pretty freaky then', but let's explore below why 'sampling doubles its inherent supernaturalism'. The section Marl uses clearly features a high-register trumpet solo, over a string section ostinato, but we can also hear the trademark Sigma Sound ambience. The strings are very rich in texture as a result of the overdubbing approach, occupying a wide stereo image and implied depth (illusion), which is typical of the Philly sound. Figure 2a below provides a schematic representation of the sonic 'space' occupied by the sampled section.

Figure 2a. A schematic representation of the sonic 'space' occupied by the sample from 'A Theme for L.A.'s Team'. The visual representation of the sonic objects' pitch (frequency), stereo image and depth in the mix is inspired by David Gibson's (2008) visual conceptualisation of mix layers, but also Moore



and Dockwray's (2010) 'sound-box' illustrations.

Although Marl does not excessively manipulate or chop the original sample, the frequency content sounds higher than on the original track due to pitch-shifting (he could have achieved this by raising the cycles on a turntable prior to sampling the section or tuning the sample higher within a sampler), but potentially also due to additional equalisation. Hip-hop producers will often manipulate the spectrum of a whole phonographic sample in order to make 'space' for the new elements they bring to the mix (including the rapper's voice). It is difficult to discern whether Marl has added any further reverberation to the sample, therefore superimposing yet another space upon the 1979 spatial illusions, but this—again—is common sample-based hip-hop practice aiming to 'glue' all the borrowed elements within a new implied 'stage'. The low-frequency sounds (kick drum, sub-bass and bass synthesiser) come across as completely 'dry' (i.e. not carrying any substantial ambience) in the hip-hop mix, which places them rather 'forward' in the staging illusion. The drum sounds (gathered from a multitude of sources) typically feature the characteristics of both 1970s drum sources and 1980-1990s hip-hop drum layers, but their truncation and any dynamic envelope-shaping pack the contained ambiences into unnaturally abrupt durations. Figure 2b below provides a schematic representation of the resulting staging illusions in 'Musika'.

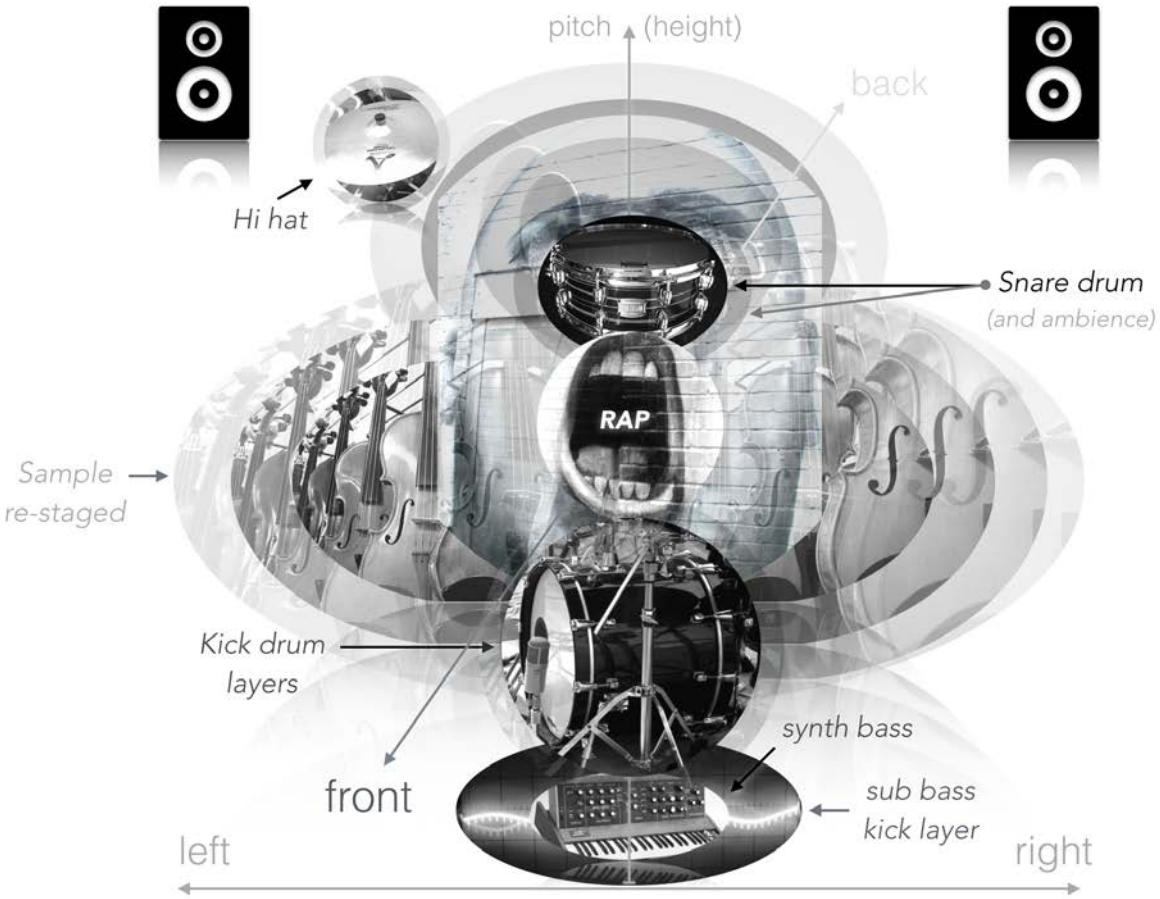


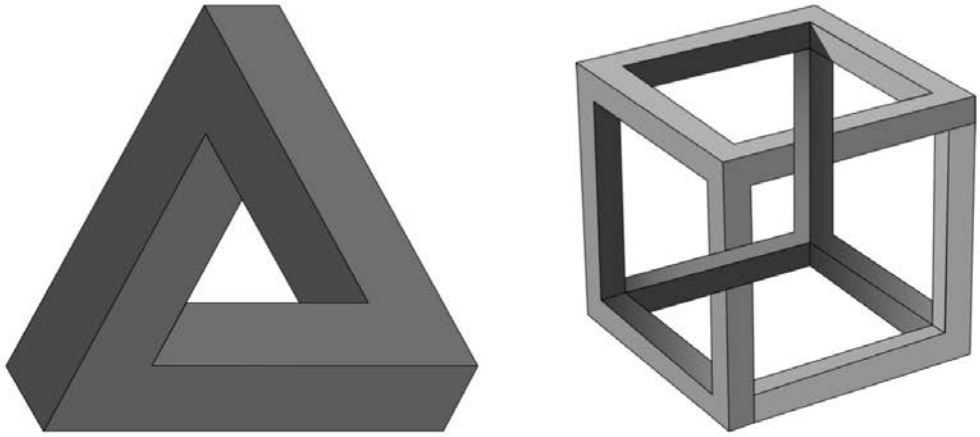
Figure 2b. A schematic representation of the exponential staging illusions on track 'Musika'.

The example illustrates that what may sound motivically quite repetitive and simple on the surface, represents, in fact, a complex, multidimensional and rich *sonic* construct. What is noteworthy here is that the juxtaposition of the plethora of timbral, dynamic and spatial illusions creates an exponential one, which is, however, held together by the sample-based producer's craft (control). The producer is drawn to the phonographic sources because of the rich sonic phenomena they contain, but also because the origins of the art form pre-dispose the samplist to 'jamming' with the past. The 'sample collage' as a 'musical event that never happened' may indeed be 'the musical art of ghost co-ordination and ghost arrange-ment' (Reynolds 2012, pp. 313-14), but unlike Reynolds' dissatisfaction with the art form, the listener of sample-based hip- hop remains engaged and entertained; and this is due to a stylistic contract that presumes suspended disbelief conditioned by the evolution of record production. The 'alchemy' or command that the producer demonstrates over the multiple sonic dimensions may rightfully sound 'magical', but it is exercised through the craft of rhythmic, dynamic and timbral organisation having first tamed the tools of the trade—the relevant sampling technology.

Impossibility, motion and the ecology of *alief*

In his article 'The experience of magic', Jason Leddington (2016, p. 254) sets out 'to initiate a philosophical investigation of the experience of magic with a focus on its cognitive dimension' and he sees his work as 'a first step toward a general aesthetics of the impossible'. His examples for 'impossible music' include Risset rhythms and Shepard tones (ibid.), which 'can be constructed to give the perception of continuous acceleration' (Stowell 2011, p. 1) or pitch oscillation, respectively. But this kind of 'fractal self-similarity' (ibid.)—entertaining and extreme as it is—is not the only kind of sonified 'impossibility' we may get exposed to as we have seen. Figure 2b above represents schematically, a sonic experience that is more comparable to Reutersvärd's 'Impossible Triangle' or Escher's 'Irrational Cube' (see Figure 3 below), to use two of Leddington's visual examples. We can clearly see these shapes on two-dimensional paper (and they would not be too difficult—and certainly not impossible—to recreate by drawing), but if we try to imagine them in 3D space, our perception reaches a moment of cognitive dissonance: the shapes can be drawn, but what they represent in three dimensions cannot exist in physical space.

Figure 3. Reutersvärd's 'Impossible Triangle' and Escher's 'Irrational Cube'.



Similarly, the exponential supernaturalism of the sample-based music collage presents not only spatial but also temporal impossibilities—musicians and sonics from different eras co-existing on multiple spatial planes. Here, we perhaps reach an irrefutable analogy between recorded music and magic. 'Magic is ... about creating ... the illusion of impossibility' (Ortiz 2006, cited in Leddington 2016, p. 254), just as it is for the drawings above, for phonographic records following the advent of multitracking, and—exponentially so—for hip-hop productions making use of sample-based practices. There appears to be a universal magnetism drawing humanity toward experiences of awe that cannot be (easily) explained. On the surface, this seems like an oxymoron—being drawn to self-inflicted illusions of impossibility and moments of cognitive dissonance, or choosing to be entertained by the 'bafflement of (our) intellect' (Leddington 2016, p. 259). Could this be a form of acknowledgement of other modes of knowledge, or of the limits of the current state of affairs in rational and scientific thought? Leddington (2016, p. 264) reminds us that 'Socrates's "human wisdom," which consists in his knowing only that he does not know, is a form of sustained *aporia*' (my emphasis) and 'maintaining the belief that there is a correct account of piety (or virtue, or justice, . . .) in the face of *aporia* is of paramount *ethical* importance' (emphasis in original). This is echoed across the scientific world, but also in studies investigating the evolutionary purpose of music. In his investigation of the overlap between magic and science, Reinhart

(2015, p. 34) draws our attention to the fact that 'Einstein is aware that a pure positivist view can't possibly cover the full extent of what is comprehensible by the human mind'. Perlovsky traces this conflict down to the cognitive mechanisms of differentiation and synthesis, championed respectively by the development of language and music:

> Most of the knowledge that exists in culture and expressed in language is not connected emotionally to human instinctual needs ... While language splits psyche, music restores its unity. We come to understanding why music has such power over us: we live in the ocean of grief created by cognitive dissonances...; and music helps us alleviate this pain. (Perlovsky 2017, pp. 28- 31)

Leddington's theorising leads him to a further powerful argument. The commonly used notion of (willing or unwilling) *suspended disbelief* cannot sufficiently explain the enjoyment we experience from engaging with illusions of impossibility. If it were so how could we actually be amazed (entertained)? He believes, instead, that the necessary condition must be to experience—even to maximise—'cognitive dissonance that is not a matter of conflicting beliefs' (Leddington 2016, p. 257). To explain the cognitive mechanism, Leddington borrows the notion of *alief* from Szabó Gendler, which she defines as follows:

> A paradigmatic *alief* is a mental state with associatively linked content that is representational, affective and behavioral, and that is activated—consciously or nonconsciously— by features of the subject's internal or ambient environment. (Szabó Gendler 2008, cited in Leddington 2016, p. 257)

Gendler (ibid.) goes on to explain how a conflicting experience such as walking on the transparent Grand Canyon Skywalk bridge would involve a clash of an intellectual belief in presumed safety 'and a more primitive, nondoxastic, representational mental state she calls *alief*. Anyone with a fear of heights would have experienced a similar conflict between, on the one hand, the intellectual reassurance of a situation as safe and, conversely, an irrational fear about approaching a barrier or looking down. Ortiz (1955/2011, cited in Leddington 2016, p. 258) pins down the recipe for successful magic in this very tension, expressed as the victory of emotional over intellectual belief. He offers a telling 19th century anecdote to illustrate their difference: 'Madam De Duffand was asked whether she believed in ghosts. She responded, "No. But I am afraid of them"' (ibid.) If we take a recent sample-based hip-hop record such as 'The Story of O.J.' (2017) by Jay-Z (produced by No I.D. and featuring samples of Nina Simone's 'Four Women' (1966)), the equivalent exchange between two fans might sound something like this:

Fan A—Do you believe Jay and Nina performed on this together?

Fan B—No. But their interactions *move* me.

In his theory of an ecological approach to the perception of musical meaning, Clarke (2005) echoes Gendler's notion of alief as a state activated by features of the environment. He suggests that 'perception must be understood as a relationship between environmentally avail- able information and the capacities, sensitivities and interests of a perceiver (Clarke 2005, p. 91):

> An important component of that subjective engagement with music is its corporeal, proprioceptive, and motional quality, which may on occasion provide listeners with experiences of "impossible worlds" that have some of the same attractions as do other forms of virtual reality. (ibid., p. 90)

Levitin, furthermore, supports a primordial rationale behind our instinctive, embodied response (motion) to strong rhythmical content present in a musical track, which is congruent with a notion of being coerced to move (dance, nod, tap our foot) by the (recorded) commands of a mu- sic producer, despite any intellectual identification of temporal or spatial sonic 'impossibilities':

> Our response to groove is largely pre– or unconscious because it goes through the cerebellum rather than the frontal lobes ... (Your brain) involves a precision choreography of neurochemical release and uptake between logical prediction systems and emotional reward systems. (Levitin 2006, p. 192)

No I.D.'s highly rhythmical chopping of Nina Simone's 'Four Women' against his programmed beats on 'The Story of O.J.' therefore *move* us (emotionally and arguably physically) despite the impossible (or non-natural) resulting vocal phrases, the juxtaposition of Nina Simone's and Jay-Z's voices, and their different but characteristic phonographic signatures (signifying both 1960s and 2010s recording aesthetics—themselves the result of different production practices and equipment/media used). Interestingly enough, the two characters are brought together in the song's music video through animation, concurring with Clarke's 'impossible world' analogies across different art forms (Clarke 2015, p. 86).

Freud's (1975/2001, p. 90) position then that only in art and magic can mimetic action be thought to influence recipients and produce emotional effects 'just as though it were some- thing real' rings true; but it is not the result of blind confidence in the performer's power of control, but more so a transference of action upon artistic materials, themselves in turn communicating 'instructions' embedded in the work. These can psychologically *move* the recipient, and in the case of rhythmical transference in music, *literally* move the listener. Hazrat Inayat Khan makes a telling leap from the metaphysical to the physical effects of sound:

> (E)very sound made or word spoken before an object has charged that object with a certain magnetism ... The whole mechanism, the muscles, the blood circulation, the

> nerves, are all moved by the power of vibration. As there is resonance for every sound, so the human body is a living resonator for sound ... Sound has an effect on each atom of the body, for each atom resounds. (Khan cited in Godwin 1986, pp. 261-2)

Zagorski-Thomas supports the notion with a more scientific perspective:

> A crucial piece of information from neuroscience is that we recognise human gesture by mentally "doing it" ourselves ... If our interpretation of the world through first hand experience is schematic in nature, the way we create meaningful, symbolic representations of aspects of our experience through language, gesture, and the manipulation of our environment takes this schematic nature to another level. (Zagorski-Thomas 2018, pp. 5-7)

Because the performer/producer is attempting to create a finely balanced experience of conditions or, using Clarke's approach, an environment of engaging information echoing nature to present to a perceiver (which in Clarke's interpretation also includes culture), the achievement of such an architecture, sonic 'world' or effective illusion is referred to as magical. The inexplicable, the 'bafflement of the intellect' and the resulting awe are effects borne out of resonating with a humanly constructed 'sublime environment'. And the effect is not just a perceiver's gift; the creator can also be mesmerised by their own achievement, because achieving control over the infinite variables is not a given, but a harmonious plateau

reached when the performer's level of skill and the environmental variables meet. It is what externally appears as control, what artists experience as 'flow' (Cikszenmihalyi 1990), the results characterised as 'sublime'.

In sample-based music creation, the infinite network of sonic possibilities includes previous phonography. Although, practitioner mastery is a condition, 'flow' is reached only when control and environmental challenge reach a balance (ibid.) The dynamic is perceivable by both makers and recipients, and this is why consistent practitioners acquire magical characterisations from their community (peers, fans); why the construction of 'sublime' sonic worlds is called magical; and why practitioners, at times, refer to their own process *as if by magic*. It can't be so but it is. Both real and unreal. Coercing the listener into sympathetic motion through constructed experiences that trigger the right kind of neural mirroring (Cook et al 2014), as Zagorski-Thomas demonstrates above.

When asked about his favourite creation on his debut mixtape 'Grisela Ghost', mysterious rap critic turned prolific sample-based producer Big Ghost Ltd. (who, incidentally, never reveals his true identity) attests: 'My absolute favorite beat even before they recorded any vocals to 'em was Fendi Seats. They (rappers Westside Gunn & Conway) also happened to both snap on that shit. That one came together like magic, B' (Shabazz 2015). This is a typical acknowledgement of musical factors external to the practitioner's control. The sample-

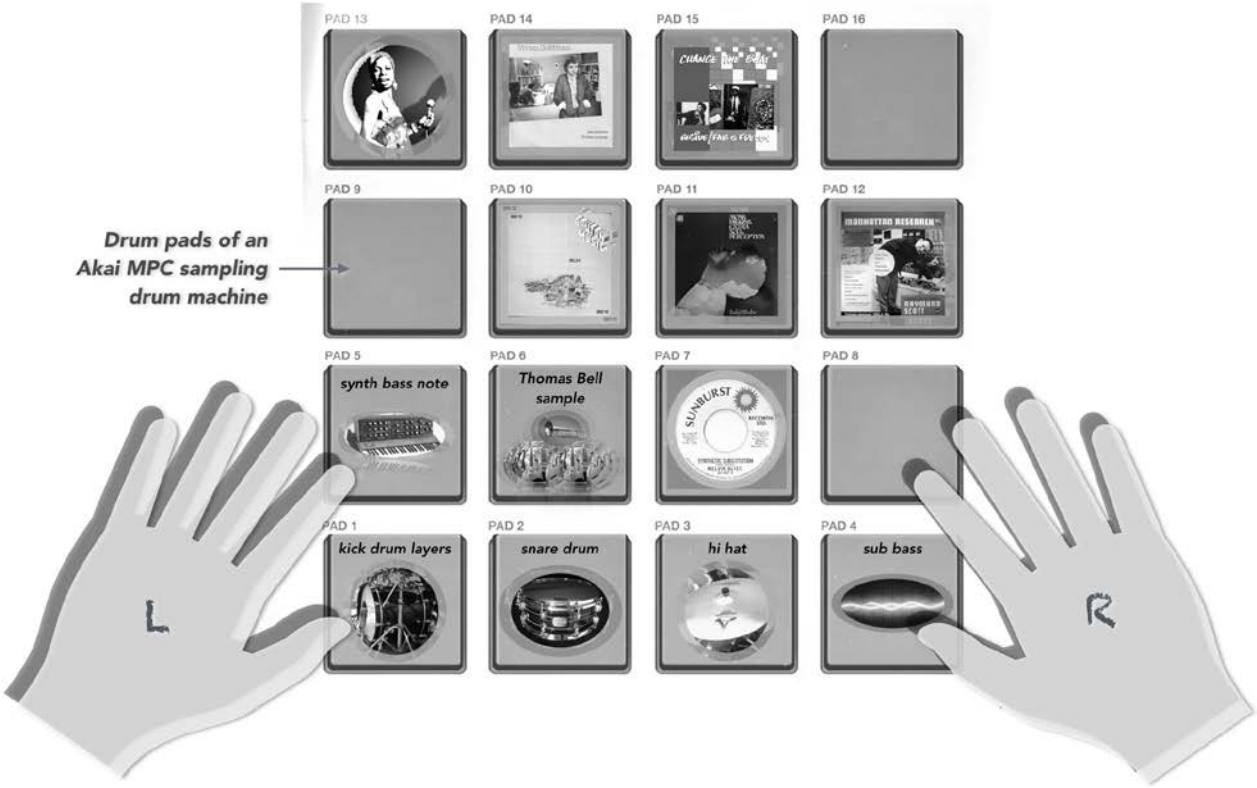
based producer demonstrates a default humbleness due to their dependance on a field of previous phonography, but also a notion of self-effacement founded upon aporia. Albin Zak (2001, pp. 195-96) tells us that '(b)oth the artist's expressive gesture and the listener's interpretation are infused with an awareness of field that allows minimal, momentary, and inexplicable allusions, references, and rhetorical gambits to resonate in a frame far larger than themselves'. This explanation highlights the forces of chaos involved in record production as a result of the plethora of sonic variables, technological options and (sub)cultural associations available. And these become exponential in a form of sample-based phonography that itself interacts with previous phonography. The phonographic moments that succeed in aligning these 'inexplicable allusions' therefore feel magical to both makers and listeners, because they feel rare; because they feel sublime; because they feel impossible; because we find their illusions of impossibility not only entertaining, but also healing for our intellect; and because they provide synthesis.

But how is technology itself capable of leading to further magical manifestations? Liken- ing the computerised and networked present to a magical world, Wilcock (2015, pp. 43-44) warns about the 'ability to take control of someone's soul' with current technology, if soul is defined as 'all the information about one's self, all the information that makes up one's online presence/self, or "the algorithm" that summarised all that you are'. The analogy

to a stored instance of someone's voice within a sample (e.g. Simone's presence in 'The Story of O.J.') is an easy leap to make. The mapping of vocal phrases on the drum pads of a sampling drum machine leads to rhythmical and textural manipulations enforced upon past voices/performers/sounds; and these can be seen as a form of 'phonographic conjuring' and, in turn, a kinaesthetic (embodied) coercing of the listener (based on the neural mirroring effects discussed above).

The temporal distance perceived between the percussive actions of the contemporary producer (No I.D.'s re-imagined patterns triggering Simone's voice) and the performer situated in the past (Simone's 1966 performance) becomes a further condition for a magical experience. Even though distance between performers and audiences is counterproductive to magic as Leddington (2016) has previously shown, distance between user and source is in fact a condition for successful magic to occur according to the 'law of contagion' (Wilcock 2015, p. 40): 'things which have once been in contact with each other continue to act on each other at a distance after the physical contact has been severed' (Frazer cited in Wilcock 2015, p.49). Hearing the interaction of old and new musical or sonic utterances is contagion manifested on rap records. Figure 4 below illustrates the drum pads of an Akai MPC sampling drum machine 'loaded' with samples summarising the phonographic examples discussed in this article.

Figure 4. A schematic representation of the sampled examples discussed in this article on the drum



pads of an Akai MPC sampling drum machine.

Conclusion

The mapping of parallels between two art forms can often appear as nothing more than an intellectual puzzle, entertaining the scholar with fanciful surface analogies but doing little to uncover any potent aesthetic insights. It is my hope that by investigating the frequent associations made by practitioners, fans, critics and academics between magic and sample-based music, the article has demonstrated the rationale behind such analogies and, furthermore, it has started to uncover a number of parallel mechanics lying under the surface of the two art forms. Specifically for hip-hop, the invested interest lies in understanding the appeal of the sample-based aesthetic in a number of dimensions: the lure of phonographic samples for practitioners but also the magic of the sample-based aesthetic for listeners. Furthermore, as the article has discussed, the evolving nature (and exponential hybridisation) of subgenres promotes new questions about the practices and emerging aesthetic issues to the forefront, and the essence of 'magic' in sample-based processes acquires increased urgency. Perhaps, by studying the dynamics of this interaction between raw sonic materials and sampling in the established practice of utilising phonographic sources, practitioners will be able to infuse the 'magical' qualities necessary into both their sources and process, facilitating the future development of the genre.

Notes

[1] The term 'beat-maker' will be used interchangeably with 'producer' in the context of (sample-based) hip-hop (see, also, note 3 below).

[2] For a complete account on the development of turntable practice—or 'turntablism'—as instrumental practice, see Katz (2012, pp. 43-69).

[3] In hip-hop terminology 'beat' refers to a complete instrumental music production or backing, not just the organisation of percussive/drum elements, highlighting the genre's rhythmic priorities. Williams (2014) extends Schloss's (2014) definition of *beat* as a sample-based instrumental collage, to also include non-sample-based elements in the instrumental production.

[4] Cuts refer to sudden stops of audio, originally performed by DJs using the crossfader of a mixer connected to a turntable, and later emulated within samplers, computer technology or via the mute buttons and automation on studio mixing consoles. Cuts are often also referred to as the combined performance of scratching and cutting and, in later use, the totality of turntable technique (see, also, note 2 above).

[5] This truncation and rhythmical re-organisation of sampled material is referred to as 'chopping' in hip-hop terminology, and the style is a trademark of DJ Premier's production signature. Kajikawa (2015, p. 164) defines chopping as 'the process of dividing a digital sample into any number of smaller parts and rearranging them to create a new pattern'.

[6] Chang (2007, pp. 41-65) provides a historical context for how this necessity—the result of social engineering, the withdrawal of instrumental funding from New York schools, and a technically-trained but unemployed young generation—brought about hip-hop's 'big bang'.

[7] Live hip-hop band The Roots have had to deal with this criticism across their 14-studio-album career—a topic discussed in detail by Wayne Marshall (2006).

[8] Tricia Rose (1994, p. 79) informs us that: 'A few years after rap's recording history began, pioneering rap producer DJ Marley Marl discovered that real drum sounds could be used in place of simulated drum sounds'.

[9] KRS-One published a hip-hop 'commandments'-style/dogma book in 2009, entitled *The Gospel of Hip Hop: First Instrument.*

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