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Rebecoming Analogue: Groove, Breakbeats and Sampling

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Abstract

In this thesis I address two related questions: how does groove work in breakbeats, and how might it enable musical participation across time and space?

In order to do this, I analyse breakbeats as they are heard in their original funk context and then in various subsequent genres for which they provide a percussive backbone via the process of recontextualization made possible by digital sampling. From this seemingly narrow focus, more broadly useful ideas about groove emerge and I discuss these in relation to current groovological thought. Of particular significance within my findings is the often-overlooked role which timbre plays in groove.

I propose that the groove in breakbeats operates as a result of timbral, as much as temporal, factors, and that breakbeats can therefore be seen to embody the complementary concepts of Wilson's heterogeneous sound ideal and Small's musicking. By exploring groove, breakbeats and sampling from a range of perspectives I show that the potent conceptual combination of musicking and the heterogeneous sound ideal accounts for the perennial appeal of breakbeats as a fundamental building block in contemporary popular music.

In order to explore these ideas, following initial chapters that establish a theoretical framework, each successive chapter then deals with a particular manifestation of the breaks. Overall, this structure builds a kaleidoscopic conceptual picture that is appropriate to the multi-faceted nature of groove and the enduring versatility of breakbeats.

Introduction

Groove

In music, groove is a multi-faceted concept that has been interpreted and applied in wide-ranging and, sometimes, seemingly divergent ways. From a musicological perspective, the flexible nature of groove as a concept makes it a useful prism through which to consider many aspects of music. As a result, the concept seems able to traverse subdisciplinary boundaries with ease, being applied in research that deals with performance practice, ethnomusicology, music psychology, dance, and the recording studio, amongst other areas. Groove theory also informs work on specific genres, some of which are more surprising than others: we are probably unsurprised to hear about groove in relation to jazz and funk, but the concept has been useful in research which focuses on Norwegian folk music too, for example.

Alongside the evident advantages that such conceptual flexibility offers, groove can consequently feel rather nebulous, certainly as far as definitions are concerned. It is ontologically slippery, eluding neat categorization and tending instead towards a chaotic versatility that allows it to mean different things to different people (even if these meanings are all ultimately connected, to some extent).

Breakbeats

A full understanding of what breakbeats are should emerge over the course of my thesis, so it is unnecessary to describe the concept in detail here. At this stage it is sufficient to note that they begin as the short passages of solo drumming — known as drum breaks — that typically occur in funk songs, and are then recontextualized in various ways by both DJs and producers. This process occurs initially in the context of hip hop performance practice, then moves into the studio within the genre, before extending into the production practice associated with other subsequent genres.

Many scholars whose work theorizes breakbeats have concerned themselves primarily with the intertextuality that these fragments exhibit when sampled. Whilst such theoretical approaches could undoubtedly be applied to the examples that are discussed in my thesis, it is the concept of groove, rather than intertextuality, which primarily guides my thinking. The breakbeats themselves should be considered the 'texts' in my work. Whilst they are embedded in tracks from a wide range of genres when sampled, and whilst these tracks are also texts in their own right, the breakbeats themselves remain the theoretical focus of my research throughout.

Because I refer to specific breakbeats many times during the thesis, I only attribute them to the drummer that played them when each is first mentioned in the text. I also only cite the song from which each breakbeat is taken, the artist under whose name it was released and any other relevant discographical information upon the first mention of each breakbeat. Thereafter, each breakbeat will be referred to using a more concise format. So the breakbeat from The Honey Drippers' 'Impeach The President', for example, becomes simply the 'Impeach' break once it has been formally introduced. This approach should improve the flow of the text, but it also reflects culturally appropriate parlance: everyone says the 'Amen' break; nobody says the 'Amen, Brother' break.

Sampling

During the 1980s, the advent of the digital sampler enabled producers to begin incorporating breakbeats into their work, and updated versions of this technology continue to play a significant part in contemporary studio practice. In Chapters 4 and 6 (and, to a lesser extent, Chapter 5) I describe some of the functions and processes associated with this technology in more detail, focusing on aspects that are relevant or unique to specific genres.

Once sampled, the breakbeat is often edited or timbrally processed in some way before then being looped in order to provide a constant rhythm track. Such an approach neatly circumvents the need to involve a

live human drummer (with their attendant drawbacks of inaccuracy, expense and bad jokes) but this is far from being the primary reason for the ubiquity of the sampled drum loop in hip hop production. Rather, sampling has partly evolved from the way in which the hip hop DJ combines fragments of pre-existing musical material, and in this way it can be seen to connect studio production technique with performance practice. Sampling creates the potential for significantly richer and easier layering of parts within a song than can readily be achieved using the standard DJ set-up, which typically consists of two turntables and a mixer. Sampling is also less limited by the linear reproduction of sound that is traditionally associated with vinyl records.

Kyra Gaunt refers to sampling as 'hip-hop's quilting of found urban music' and is inclined to downplay the postmodern tag that is frequently attached to the practice in academic discourse.[1] This view is also supported by Joseph Schloss, whose detailed ethnographic study of sampling in hip hop engages with the practice in terms of both the applied techniques and its underlying aesthetic.[2] I adopt a similar stance: though the applicability (or otherwise) of postmodern theory to sampling is fascinating and worthy of ongoing academic attention, it is not this aspect of the practice that informs my own research.

In his extensive writing on the impact of technology on music, Mark Katz suggests that whereas 'traditional musical quotations typically cite works; samples cite *performances*'.[3] The kind of traditional musical quotation to which Katz refers can be seen, for example, when Brahms quotes fragments of an existing melody, before elaborating on the quoted source in a series of variations. The source material, in this case, is quoted

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[1] Kyra D. Gaunt, "The Veneration of James Brown and George Clinton in Hip-Hop Music: Is it Live! Or is it Re-Memory?" in *Popular Music: Style and Identity*, ed. Will Straw (Montreal: Centre for Research on Canadian Cultural Industries and Institutions, 1995), 117.

[2] Joseph G. Schloss, *Making Beats: The Art of Sample-Based Hip-Hop* (Middletown, CT: Wesleyan University Press, 2004).

[3] Mark Katz, *Capturing Sound: How Technology has Changed Music* (Berkeley, CA: University of California Press, 2010), 141.

as a series of notes, so the musical elements which Brahms borrows are limited to pitch and rhythm: by incorporating this specific set of pitches in their original order and using the original rhythm, Brahms clearly cites the existing theme in his own work, his intention presumably being homage or, perhaps, the use of material with which the audience might already be familiar.

By contrast, however, the process of sampling captures not only the pitch and rhythm of the musical source but also several other aspects of the performance itself. These aspects, which help to illustrate Katz's distinction between sampling and traditional musical quotation, include the rhythmic nuances of a particular musician's playing and the sound of the performance, both in terms of the timbral qualities of the instrument(s), the acoustic qualities of the location in which the original recording took place, and the sonic changes brought about as a result of the production process. In the context of breakbeats, I refer to the various aspects of performance that sampling can capture as 'groove factors', and I elaborate on exactly which of these are important to my thesis in Chapter 2 before embarking on any specific case studies.

Conventions

In order to make it as straightforward as possible for the reader to follow the thread of my discussion I have adopted certain conventions, which I explain here.

I use very little traditional drum notation in the text, but where it is used, the instrument represented by each line on the stave is clearly indicated in order to avoid the confusion that can arise from the lack of a universally accepted approach.

In the text, when I discuss the particular location of a given drum stroke within the bar, I use the system in which semiquavers are named in the same way as a musician might count them, rather than any more statistically-oriented or unnecessarily verbose approach. Thus, the first four semiquavers in a bar would be called 1, 1e, 1&, and 1a, respectively. The ampersand is used for the sake of clarity, because it does not imply

addition in the same way that a plus sign would, nor does it lead to confusing sentence structures involving duplications of the word 'and'.

When I describe the tempo of a musical extract, I express it using the unit 'bpm', rather than 'beats-per-minute' or 'b.p.m.', both of which would quickly feel cumbersome. It is assumed, throughout, that such indications of tempo refer to the crotchet pulse.

Genre names are used as a convenient and easily understood way to group music that displays some similar production characteristics. The names are not intended to pigeonhole the work of any artists, but merely serve as a way to differentiate between groupings. Whilst purists and aficionados might prefer the musical examples discussed in my thesis to be classified according to more specific subgenre divisions, it is all too easy to become mired in subjective or arbitrary definitions of these subgenres, or else to need an ever expanding tree of sub-sub-subgenres to accommodate the diverse array of music. For this reason, my groupings are generally high level, so I discuss Wu-Tang Clan's music simply as hip hop, rather than *East Coast* hip hop, to give a rather bland example.

Similarly, my genre labels are not restricted to particular periods of time, so despite the gap of sixteen years between their respective release dates, I describe both 'The Bounce' (1995) by Northern Connexion and 'Cornered' (2011) by D-Bridge as jungle, on account of similar aesthetic concerns and technical approaches in relation to breakbeats. Ultimately, since my focus is on grooving musicians (whether they be instrumentalists, producers or both) and since the tortuous process of categorization tends to follow, rather than dictate, the creative process, my decision to ride somewhat roughshod over the niceties of (sub)genre definition feels appropriate.

I occasionally refer to the unaccompanied, voice-only versions of hip hop songs. Whilst the dictionary suggests that these should be described using the adjective 'a cappella', this Italian-derived term which translates as 'in chapel style' doesn't feel wholly appropriate in the context of hip hop, and neither does the plainer term 'unaccompanied', which can carry folk music associations. Subtle though the change may

seem, I run the words together using the style seen in many hip hop song titles, thereby changing the adjective — 'an *a cappella* song' — into a noun — 'an acappella'.

Chapter overview

In Chapter 1, I outline a range of ideas about groove, drawing on relevant literature and discussing points of agreement and contrast between the various schools of thought. In doing so, I arrive at a working definition of groove for the purposes of my research, with particular emphasis on how the concept applies to breakbeats (both in their original funk context and when subsequently recontextualized via sampling). I also establish the idea of 'solo groove' at this point, as a foundation upon which to build the subsequent chapters.

Chapter 2 outlines the aspects of performance that are fundamental to the way I conceptualize groove in breakbeats, in all of their manifestations across various genres. This is followed by a detailed analysis of some important breakbeats in Chapter 3, all of which reappear as samples in later chapters.

In Chapter 4, the effect that hip hop sample manipulation techniques can have on the groove in breakbeats is considered, using a particular breakbeat as the centrepiece of a case study in order to illustrate the discussion. The following chapter then looks at how the MC can interact with a breakbeat's groove, and I explore some specific aspects of this process in the context of a track by Eric B & Rakim.

The focus returns, in Chapter 6, to the effect that sample manipulation techniques have on the groove in breakbeats, but the context here is jungle rather than hip hop. Whilst the discussion demonstrates that there is some common ground between the ways that breakbeats are approached in each of these genres, it also becomes clear that jungle producers extend and refine the techniques which originated in hip hop.

In the concluding chapter, I bring together the strands that have been presented throughout the thesis and propose that the groove in breakbeats enables a process of *transpatiotemporal musicking*.

Chapter 1 – Groovology and solo groove

To begin this chapter, I'd like to make what may seem to be an obvious point: the more familiar a musician is with the music they make, the better they should be able to engage with key aspects of performance or production associated with that music. This chapter, however, is not concerned with the broad correlation between an individual's practice regime and the resultant level of musical skill that they might attain (although it is written from a performer's perspective). Nor will the discussion stray into explicitly psychological territory, the extent and potential usefulness of this field notwithstanding. Rather, the focus here will be on the musician's relationship with musical time and, more specifically, the way in which the capacity for groove depends upon familiarity with stylistically nuanced conceptions of time. As my thesis progresses, the emphasis shifts away from time as the principle defining factor in groove, but because much of the existing literature favours this view, it is a useful starting point from which to then gradually depart. Despite the nearly limitless supply of hitherto unexplored musical examples that could be used here, some familiar groovological warhorses inevitably appear — amongst other, more obscure offerings — in order to illustrate my thinking.

When I use the term 'groove', do I mean 'a groove' or 'to groove'? Should *groove* be considered a noun or a verb (or both)? The answer depends on context, of course. My thesis considers breakbeats in a range of contexts and from several perspectives, so whether a breakbeat should be thought of as a groove or something that grooves varies across the course of my writing. Ultimately it becomes apparent that breakbeats satisfy the requirements of both ways of thinking — often at the same time — and that it is most useful, therefore, to take a broad view of the term 'groove' as one which can accommodate both ways of thinking, in this context.

The breadth of interpretations of the term is apparent in, and, partly, emerges from, the range of scholarly perspectives on groove. This range of perspectives, when viewed *in toto*, might suggest that groove is a vague or nebulous concept, but a more generous (and empirically supported) understanding would be to characterize it as multifaceted. Whilst the following section is not an attempt to arrive at a watertight definition of the term 'groove', it does aim to show the range of ideas within groovology and to highlight which areas have the most bearing on my thinking about this multifaceted phenomenon.

In the first part of this chapter I explore the concept of groove in the light of recent research in the field and introduce the idea of solo groove as it relates to time, with reference to sampling and the role of the producer. The second part defines a model for conceptualizing groove and time by defining three categories of interaction, using analyses of some funk performances to illustrate the discussion.

In simple terms, groove in music is a concept which encompasses, in varying proportions, an amalgamation of rhythm, feel, sound, dance and a host of related tangents, so its elusive nature is, unsurprisingly, the subject of ongoing debate. Simon Zagorski-Thomas provides a recent, succinct overview of the terrain, which is fairly comprehensive and demonstrates the range of conceptual and methodological approaches taken thus far.[4] The diversity of various groovologists' interpretations of the term and its associated concepts seems to reflect an unease with the notion of petrifying the organic and thereby negating the vitality of something that is generally agreed to be an embodied, human-centred phenomenon. To arrive at a watertight scholarly definition of groove would be to deny its multiple empirical meanings, to limit its usefulness as an object of multidisciplinary scholarly attention and, ultimately, to miss the point. It is no coincidence that we have not seen a conclusive report from Tellef Kvifte's mischievously imagined 'International Groove

[4] Simon Zagorski-Thomas, "The Study of Groove," *Ethnomusicology Forum* 16, no. 2 (2007), 327-335.

Definition Committee'; if such an august body did exist, the ideas that follow would only serve to increase its workload![5]

To date, the growing body of work relevant to groovology has tended to concern itself with grooving as a participatory activity or with groove(s) as the musical result of such activity, though even this consensus is rather loose and is manifested in very different ways according to the disciplinary affiliations of each scholar. Steven Feld, for example, famously considers the participatory dimension of groove from a socio-musical perspective in his seminal work describing the intertwined music and lives of the Kaluli.[6] By contrast, Martin Clayton and his colleagues utilize approaches drawn from both neuroscience and ethnomusicology in order to examine the role of entrainment in the rhythmic alignment between musicians participating in ensemble performance.[7] Clearly these two examples are anchored by the same underlying themes (indeed Clayton acknowledges the common ground shared with Keil and Feld), but their divergent focuses demonstrate the myriad range of ideas encompassed within groovology. Nevertheless, the principle that groove necessarily involves participation between people making music seems to be a common factor that unites much of the literature.

Solo groove

Buried deeper in some groovological texts, there are hints at the possibility that groove exists in the playing of a solitary musician. As Allen Farmelo notes, the terminological water is muddied somewhat by an

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[5] Tellef Kfivte, "Description of Grooves and Syntax/Process Dialectics," *Studia Musicologica Norvegica* 30 (2004), 55.

[6] Charles Keil and Steven Feld, *Music Grooves: Essays and Dialogues* (Chicago, IL: University of Chicago Press, 1994).

[7] Martin Clayton, Rebecca Sager and Udo Will, "In Time with the Music: The Concept of Entrainment and its Significance for Ethnomusicology," *European Meetings in Ethnomusicology* 11 (2005), 3-75.

overlap between this idea and the concept of musical 'feel'.[8] Indeed, if groove is understood to result when groups of more than one musician interact then perhaps another word might be more appropriate when a single musician is playing, in which case it would seem reasonable to describe one musician's gestural, rhythmic idiosyncrasies as their 'feel'. I propose, however, that because of the individual's awareness of some form of time, the interaction between one musician and time itself could be said to constitute grooving and that this is particularly evident when the time element of this interactive pairing is conceived in stylistically nuanced ways (rather than simply as absolute, scientific or metronomic time, though this too can have a role in groove, as I describe later).

Solo groove, as I will call the model wherein one musician grooves in relation to an abstract sense of time, is mentioned by Josef Prögler, who himself cites Farmelo as a precedent.[9] In fact, the existence of solo groove is *implied* whenever scholars address an unaccompanied drum excerpt — or 'breakbeat' — such as, for example, that perennial groovological trope, the 'Funky Drummer' break, as played by Clyde Stubblefield in a James Brown recording from 1970.[10] The reason why this often remains a tacit implication may lie in the drum kit's curious organological evolution, in which a collection of instruments that had hitherto been distributed between various musicians — as in an orchestral percussion section for example, or, more pertinently, a New Orleans Mardi Gras band — gradually fused together and came under the musical control of a single

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[8] Allen Farmelo, "The Unifying Consequences of Grooving: An Introductory Ethnographic Approach to Unity through Music" 1997). Farmelo also lists several other seemingly interchangeable terms.

[9] Josef A. Prögler, "Searching for Swing: Participatory Discrepancies in the Jazz Rhythm Section," *Ethnomusicology* 39, no. 1 (Special Issue: Participatory Discrepancies) (Winter 1995), 21-54; and Farmelo, *The Unifying Consequences of Grooving*. Although this 1997 version is actually from a later date than Prögler's work, it represents the only available incarnation of Farmelo's essay and appears to concur with the ideas from the earlier version that Prögler cites.

[10] James Brown, *Funky Drummer,* King Records, 1970. I perpetuate this trope throughout my thesis.

drummer. Thus Charles Keil, for example, is able to refer to the drummer's limbs almost as though they were independent grooving entities participating with one another.[11]

Whilst the drum kit could be viewed as a collection of instruments and whilst drummers undoubtedly strive for independent rhythmic control of their limbs, there are several arguments for instead seeing the instrument as a whole and therefore hearing the sounds and rhythms which it produces as originating from the same source. Of course this is not a radical suggestion and will only reinforce what is already self-evident to the majority of listeners, but the distinction is relevant to the idea of solo groove in more ways than one, principally because it leads towards the concept of timelines, or what Ives Chor describes as 'temporal frameworks'.[12] This, in turn, relates to the stylistically nuanced conceptions of time which can act as temporal sparring partners for the musician in solo groove, ideas which are explored in more detail later.

Groove, shared time and sampling

I have outlined the possibility of conceptualizing groove in terms of the solo performer interacting with abstract (musical) time; yet, moving beyond this possibility, groove might operate across dimensions when a particular conceptualization of time is shared by recording artists, producers, co-performers or listeners, even when they are not co-present. In a work that sets the stage for Christopher Small's subsequent ideas around musicking, Alfred Schutz ponders the subject of shared time, envisaging the relationship between performer and listener as one that is

[11] Keil and Feld, *Music Grooves: Essays and Dialogues*, 98

[12] Ives Chor, "Microtiming and Rhythmic Structure in Clave-Based Music," in *Musical Rhythm in the Age of Digital Reproduction*, ed. Anne Danielsen (Farnham, UK: Ashgate, 2010), 40.

based on such sharing.[13] He goes on to accommodate audio technology within this conceptual framework, suggesting that the 'quasi simultaneity between the [performer] and the listener' which results from listening to a record is of equal validity to the more traditional live music arrangement which takes place without 'the interposition of mechanical devices', ideas to which I return in Chapter 7.[14] Subsequently, a key way in which Small's thinking refines Schutz's ideas lies in the egalitarian levelling which musicking wreaks on the old hierarchy that privileged composer over performer, and performer (as the mediator of composer's genius) over listener: in musicking, the sharing becomes *at least* a two-way process. Small's concept is fundamental to my thinking and I return to it at several points during the thesis. Although much of the discussion in his writing focuses on how musicking occurs in the environment of the symphony hall, he does not intend the concept to be limited to that context and so sets it up in ways that make it both very flexible and highly relevant.

Viewed in the light of both Schutz's acceptance of technology as a facilitator of time sharing and Small's assertion that everyone involved in musical activity contributes to the process, I propose that sampling technology enables musicking to occur across time and space. In effect, the producer who samples the 'Funky Drummer' break is collaborating with Clyde Stubblefield, whether that much-sampled but less-frequently-acknowledged drummer likes it or not. (Neither disrespect nor antagonism is intended here, but the ubiquity of this classic breakbeat makes it a high-profile example.) The legal, financial and moral implications which historically dog sampling are in no way addressed or alleviated by my proposed conceptual model — it is intended simply as a

[13] Christopher Small, *Musicking: The Meanings of Performing and Listening.* (Middletown, CT: Wesleyan University Press, 1998); and Alfred Schutz, "Making Music Together: A Study in Social Relationship," in *Collected Papers (Volume 2): Studies in Social Theory*, ed. Arvid Brodersen (The Hague, Holland: Martinus Nijhoff, 1964), 159-178.

[14] Ibid.

way to reassess ideas of groove and musicking as applied to contemporary production practice.

In a passage which discusses listeners' responses to a groove, but which could equally apply to performers themselves, Lawrence Zbikowski argues that '… being a member of a musical culture means knowing how to interact with the musics specific to that culture'.[15] I interpret the term 'musical culture' here in a similarly 'loose and encompassing' sense to that by which Benjamin Brinner understands 'tradition', where distinction occurs primarily by stylistic rather than geographic, ethnographic or other boundaries.[16] The reasons for drawing the distinction in this way will become clear later when the discussion turns towards groove in the mediated context of sampling in hip hop production. Zbikowski's expansive description ('member of a musical culture') can be seen to include performer, producer, listener, dancer and indeed any other participant in the process by which music is made and experienced, and in this respect, his thinking aligns clearly with that of Small.

David Brackett echoes Zbikowski and narrows the focus of the listener's interaction with the music, stating that 'something can only be recognized as a groove by a listener who has internalized the rhythmic syntax of a given musical idiom'.[17] This represents a slight shift in perspective (from the performer to the listener) but essentially supports the idea that performed groove derives from the interplay between process and syntax, as Mark Doffman argues when he states that 'we need to think of groove as a dialectic, a continual synthesis of process and structure'.[18]

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[15] Lawrence M. Zbikowski, "Modelling the Groove: Conceptual Structure and Popular Music," *Journal of the Royal Musical Association* 129, no. 2 (2004), 280.

[16] Benjamin Brinner, *Knowing Music, Making Music: Javanese Gamelan and the Theory of Musical Competence and Interaction* (Chicago, IL: University of Chicago Press, 1995), 2.

[17] David Brackett, *Interpreting Popular Music* (Berkeley, CA: University of California Press, 2000), 144.

[18] Mark Doffman, "Feeling the Groove: Shared Time and its Meanings for Three Jazz Trios" (PhD thesis, Open University, UK, 2009), 296.

Throughout the literature of groovology this duality of process and structure is expressed in many different ways, several of which are drawn together in Anne Danielsen's work on funk grooves.[19] Beginning with some stalwart concepts of time and musical rhythm there is the relationship between figure and gesture, and between metre and rhythm. Drawing next on linguistic theory, Danielsen proposes that Mikhail Bakhtin's sentence and utterance, Ferdinand Saussure's *langue* and *parole*, and Louis Hjelmslev's schema and usage are also relevant dualities. Much ethnomusicological work on African rhythm deals with the relationship between sounded and non-sounded patterns, with great significance attributed to the effect that the non-sounded patterns have on the way in which musicians, dancers and listeners produce or relate to the sounded patterns.[20] Danielsen finally invokes Gilles Deleuze's version of this duality, discussed in terms of the virtual and the actual (although here a third entity, 'the real', joins the fray). I will draw on several of these dualities to support later chapters of this thesis, depending on which is most relevant at any given point, but the figure/gesture duality runs throughout my work; in their voyage of transformation and recombination across time the breakbeats can be seen to alternate back and forth from figure to gesture, ultimately embodying both of the duality's conceptual poles as they cross and re-cross the divide between digital and analogue states.

Whilst each iteration of the duality serves its own conceptual or analytical purpose, they can all be seen, in musical terms, to express a relationship between the abstract and the sounded aspects of music: in this way, they mirror the structure and process duality outlined by Doffman.[21] Returning to Brackett's comment about the internalization of

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[19] Anne Danielsen, *Presence and Pleasure: The Funk Grooves of James Brown and Parliament* (Middletown, CT: Wesleyan University Press, 2006), 46-50.

[20] See, for example, John Miller Chernoff, *African Rhythm and African Sensibility: Aesthetics and Social Action in African Musical Idioms* (Chicago, IL: University of Chicago Press, 1979).

[21] Doffman, *Feeling the Groove,* 296

rhythmic syntax, it is clear that for the listener to interpret a groove or for the musician to create a groove, all participants need to have a sense of what culturally specific, contextual sense of 'time' is being played against or engaged with.[22]

Contextual senses of time

I outline below three broad starting points that might typically form the basis for a contextual sense of musical time in the study of groove, before exploring each in more detail via analyses of funk examples. It would, of course, be artificial to expect music in the real world to conform neatly to only one of these categories since there is a degree of overlap between them, particularly when the ideas are manifested in the messy reality of performance, as will be discussed later with reference to a relevant example. Nonetheless, the three categories outlined below begin to help with the characterization of some typical contextual senses of time.

In the first category, the contextual sense of time is contingent upon shared prior knowledge on the part of all musicking participants, as in the reggae 'one-drop' rhythm, for example. In the second category, a musician sets up the contextual sense of time in some way prior to the start of the performance proper for the benefit of the other musicking participants, as in styles based around a stated timeline pattern. The third category relies on a shared sense of metronomic time, though in practice this tends to be more a general feeling of an underlying isochronous pulse rather than a precisely 'metronomic' understanding.

Time as shared prior knowledge

In reggae drumming, the 'one-drop' rhythm derives its character from the drummer not emphasizing the first beat of the bar. Instead, the first beat of the bar (the 'one') is 'dropped', typically omitted altogether or marked with only a light stroke on the hi-hat at most, whilst the power of the snare and kick drums are saved for later in the bar. Examples abound, but

[22] Brackett, *Interpreting Popular Music*, 144

clear instances can be heard in either The Upsetters' 'One Step Dub' or Bob Marley and the Wailers' 'Crazy Baldhead'.[23] The one-drop literally turns the standard approach to the drum kit on its head: in non-Jamaican popular music styles, examples of drum kit patterns which do not feature a kick drum on beat one are few and far between. (This is even true in Brazil, where despite the fact that in *samba batucada* the percussive bass emphasis produced by the open tone of the *surdo* drum generally falls midway through the bar — a close equivalent to the reggae one-drop — by contrast, in *bossa nova*, when the same set of rhythms is transposed from the percussion ensemble to the drum kit, the drummer will still add a kick drum stroke on beat one.)

By de-emphasizing the first beat of the bar in this way, often to the point of remaining wholly tacet for a moment, the drummer playing a one-drop rhythm prioritizes the non-sounding element of the groove and it is here that the importance of prior knowledge becomes important. For drummers playing in most non-Jamaican popular music styles, placing a kick drum stroke on beat one is habitual, a response to the commencement of performance engrained by years of unchanging practice, regardless of what complexity and variation may occur in the subsequent beats of the bar. During a one-drop pattern, other musicians in the reggae band may well place a note on the first beat of the bar, as is heard in the bass part of 'One Step Dub' where the weight of the bass guitar sound compensates in part for the lack of the kick drum. This does not demonstrate a lack of prior knowledge on the part of the bassist but rather an assuredness, based on awareness of the contextual sense of time, that beat one will be an available space, uncluttered by any instrument occupying a similar frequency range. In the case of 'Crazy Baldhead', both bassist and drummer generally remain tacit on beat one, thus emphasizing the one-drop pattern even more strongly. Both songs demonstrate that by knowing the drummer will be grooving against an idiomatically specific sense of time, the bassist is able to do the same.

[23] The Upsetters, *One Step Dub,* Black Art, 1976; and Bob Marley And The Wailers, *Crazy Baldhead,* Island Records, 1976.

If both bassist and drummer are grooving, why not simply describe this as grooving together, in the participatory manner that is most usually attributed to groove? Of course they are grooving together (rather than operating in some artificial, anti-musical isolation), but the point here is that at the same time as grooving with one another, they are also each grooving individually with the contextual sense of time that is derived from prior knowledge of the idiomatic one-drop pattern. Thus the contextual sense of time simultaneously becomes the key to their interaction with one another and their solo groove.

Time as timeline pattern

This second category relies on a musician to set up the contextual sense of time in advance of the groove beginning. Depending on the circumstances, the 'set up' may then continue in some form once the other musicians have begun to play, possibly even throughout the performance, or may recur at key structural moments as appropriate. African diasporic forms whose musical fabric is woven around a stated timeline pattern (such as Cuban-derived styles based around the clave rhythm) clearly fall into this category too.[24] The category might also include the conductor's role at the start of an orchestral performance, which goes far beyond merely setting the tempo (a task that would seem more appropriate to the third category) and can encapsulate in microcosm the attitude which the orchestra should strive to communicate through their interpretation of

[24] Such forms are discussed at length by Chernoff, Arom, Agawu, and more recently Pressing, Toussaint and Peñalosa. Chernoff, *African Rhythm and African Sensibility*; Simha Arom, *African Polyphony and Polyrhythm: Musical Structure and Methodology* (Cambridge; New York; Paris: Cambridge University Press ; Editions de la maison des Sciences de l'homme, 1991); Kofi Agawu, *African Rhythm: A Northern Ewe Perspective* (New York: Cambridge University Press, 1995); Jeff Pressing, "Black Atlantic Rhythm: Its Computational and Transcultural Foundations," *Music Perception* 19, no. 3 (2002), 285-310; Godfried T. Toussaint, *The Geometry of Musical Rhythm: What Makes a "Good" Rhythm Good?* (Boca Raton, FL: CRC Press, 2013); and David Peñalosa, *The Clave Matrix: Afro-Cuban Rhythm: Its Principles and African Origins*, ed. Peter Greenwood, 2nd ed., Vol. One (Redway, CA: Bembe Books, 2012).

the score. A less formal, even seemingly boring, example of this category is found in the bandleader's 'count-in' at the start of a song. In fact, the count-in is a potentially fascinating musical feature, manifested in many nuanced variations and worthy of study in its own right. James Brown's idiosyncratic approach to counting his band in, for example, sheds fresh light on the well-worn quest to get to grips with his groove.

A cursory analysis of the way that James Brown counts the band in for five different songs recorded between 1969 and 1972 reveals a number of trends which characterize his approach and which in turn either influence or relate to each musician's interaction with the contextual sense of time thus created. In terms of cause and effect, the direction of influence between bandleader and musicians here is hard to determine because the band are likely to have rehearsed the songs prior to recording, or at least hastily jammed the rhythm parts in the recording studio during the compositional process. In a filmed interview, Pee Wee Ellis, saxophonist with James Brown and co-writer of 'Cold Sweat', describes the series of rhythmic grunts used by Brown to communicate his idea for the song thus:

> James took me into his dressing room one night after a gig and mumbled some things like [rhythmically] mm-uh-Urrgh-uh-Urrgh-uh-uhhh-ow-Ow-uh-uh-ugh. So I said…OK! [laughs][25]

It is clear from this exchange that even before the song has been fully composed and arranged, Brown wants to convey a specific contextual sense of time that the grooving musicians will be expected to interact with.

To illustrate this, the count-ins of five songs are compared: 'Funky Drummer', 'Talkin' Loud and Sayin' Nothing (Remix)', 'Super Bad', 'Hot Pants' and 'The Boss'.[26] Of these five, 'Funky Drummer' is unusual in that it contains four different instances of counting altogether, although to

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[25] *Lenny Henry Hunts The Funk (The South Bank Show),* directed by Tony Knox (1992)

[26] James Brown, *Funky Drummer*; *Talkin' Loud and Sayin' Nothing (Remix),* Polydor, 1986; *Super Bad,* King Records, 1970; *Hot Pants,* People Records, 1971; and *The Boss,* Polydor, 1973.

hear all four one needs both the version released as part of the *Star Time* compilation (which features a count-in at the beginning) and the full-length version from *In The Jungle Groove* (which omits the opening count-in but includes one at the outro that is absent from the shortened version on *Star Time*).[27] These four counts mark the start of the song (count A), the arrival of the first drum break (count B), the re-entry of the band at the end of this solo (count C), and finally the cue for the closing drum break which functions as a fading outro (count D). Count C occurs in double-time relative to the others, but whether taken at face value or mapped so as to match the tempo of the other counts it still displays relevant features that relate to the drummer's groove.

Count A sets the scene and demonstrates the first aspect of Brown's approach, namely his fondness for abandoning the use of numbers mid-count and substituting lyrical snatches in their place. (The wording in these fragments is indistinct at times, but whilst it might vary a little from what is transcribed here, the patterns are still correct.) So rather than the expected

| One • • • | Two • • • | Three • • • | Four • • • |

the band are instead invited to start playing when they hear:

| One • • • | Two • • • | In • she go | • ah! • • |

This count also demonstrates Brown's avoidance of beat four, which is arguably the most striking feature in terms of the sense of contextual time he aims to communicate here and is common to all of the counts heard in 'Funky Drummer'. In count A, the words 'go' and 'ah!' fall on the nearest semiquaver on either side of beat four, but the beat itself remains unsounded. In terms of the contextual sense of time, these semiquavers are significant to the groove of the drum break, especially the second semiquaver of beat four. During the drum break, each of the eight bars is unique in terms of the pattern played when all the gestural nuances are taken into consideration, but one feature common to all of them is the placement of a combined open hi-hat and kick drum stroke on this second

[27] James Brown, *Star Time,* Polydor, 1991; and *In the Jungle Groove,* Polydor, 1986.

semiquaver of beat four, the hi-hat then closing gradually so that the decay ends on the third semiquaver.

Count B marks the start of the main drum break and is the first instance of another intriguing feature of James Brown's contextual sense of time, in which all of the relevant number names are spoken, but not necessarily in the places that one would expect. So the band drop out when they hear count B thus

| One • • • | Two • • • | Three • • Four | • Get it! • |

but Brown's spoken 'four' actually falls on the last semiquaver of beat 3, rather than on beat four.

Taken at its face-value tempo (that is, in double-time relative to the main tempo of the song), count C only occupies the second half of the bar, serving as a hasty exhortation for the band to re-enter:

| • • • • | • • • a | One • Two • | Three Four • • |

The concertina effect which the double-time count has in relation to the standard-time beats means that the numbers used do not relate to the expected count in any meaningful way, but merely act as a sequence leading towards a structural event — the band's entry. The placement of the word 'four' however, lands on the second semiquaver of beat four again, further emphasizing the significance of that moment in the contextual sense of time for both drummer and vocalist, as discussed earlier.

Count D is essentially a re-statement of count B, fulfilling a similar function in that it also prefaces a drum break. The only variation is in the lyrical fragment delivered during the fourth beat

| One • • • | Two • • • | Three • • Four | • The fun-ky | drum-mer

with 'drummer' beginning on the first beat of the next bar, meaning that count D is the only version which spreads across a bar line.

The count-ins used for the other four songs are less complex in the way they vary from expectation, but all share the trait whereby Brown substitutes the word 'four', interjecting a lyrical fragment instead, such as 'Get it!', 'Uh!' or 'Get down!'. Paul Berliner describes the backbeat (the near-ubiquitous emphasis on beats two and four found widely in popular

music) as 'an important rhythmic target for improvisers', which could explain Brown's tendency to orient his adapted count-ins around beat four.[28] As described above, he treats this rhythmic target in two different ways, either landing on it but using an unexpected word instead of 'four', or avoiding the beat altogether and instead building vocal phrases which cluster in the semiquavers immediately before and after the beat (in effect, creating an unsounded rhythmic target).[29] So the contextual sense of time which imbues James Brown's approach to counting the band in is specifically geared towards a key musical feature of the funk idiom; musicians who interact with the contextual sense of time set up by Brown will therefore be predisposed to appropriate and effective grooving.

Time as inferred isochronous pulse

Essentially, the distinction between this category and the preceding two is that since the basis for the sense of time relies on a regular, isochronous pulse, there is no need for context-dependent prior knowledge in order to feel the time, as in the first category, nor is there necessarily any need for the time to be set up in advance by a musician, as in the second category, because the regular beat can be inferred. An example of this category in action would be when the audience expresses its understanding of the contextual sense of time by spontaneously clapping along with the main beats of the bar, as an outward expression of the regular, isochronous pulse underlying the music.

In the preceding categories, context has the effect of characterizing the timing information (whether stated or unstated). In this third category, given that timing is predetermined by virtue of the isochronous nature of the pulse, context manifests itself instead in a characterization

[28] Paul Berliner, *Thinking in Jazz: The Infinite Art of Improvisation* (Chicago, IL: University of Chicago Press, 1994), 149. I return to Berliner's point in my analysis of Rakim's flow, presented in Chapter 5.

[29] Later in the thesis I discuss relevant ideas to this that appear in the work of both Danielsen and Brackett. Danielsen, *Presence and Pleasure*; and Brackett, *Interpreting Popular Music*

of the emphasis within this pulse. So, the underlying pulse may be invariably isochronous, but depending upon the musical context the majority of the clapping audience may choose to emphasize beats one and three or, alternatively, beats two and four, for example. In the following section I explore an example where the contextual senses of time used by musicking participants in groove overlap, falling across and between the three categories outlined above, as might be expected in a real world of music which eludes narrow categorization.

Messy reality versus the three categories

As the following example illustrates, most groove interaction is actually based around familiarity with contextual senses of time which can simultaneously fit into more than one of these categories to some extent, or which may seem to fall into one initially then gradually shift towards another category as a result of the (sometimes unwitting) actions of the musicking participants.

Widening the musicking context beyond the confines of the recording studio, a live recording can of course provide evidence of the audience's involvement in groove production and perception. Staying tangentially within the James Brown camp, saxophonist Maceo Parker's live version of 'Shake Everything You've Got' features a lengthy groove solo by drummer Kenwood Dennard, beginning at 5:44, in which he utilizes the audience's sense of isochronous pulse as a springboard for his own groove interaction.[30] By maintaining a steady snare backbeat from the outset of the solo, and restricting his improvisational gestures to hi-hat flourishes and some varied kick drum patterns, Dennard draws the audience into recognizing the prominence of the steady isochronous pulse, so that within the first twenty seconds of the solo audience claps can be heard emphasizing beats two and four. He has not needed to set up this contextual sense of time explicitly, as in the second category, but has created an environment within which the underlying pulse of the third

[30] Maceo Parker, *Shake Everything You've Got,* Minor Music, 1992.

category suggests itself strongly to the listeners. Then, as the drumming variations increase, albeit still anchored by the backbeat, there is a sense that Dennard begins to use the audience's clapping as a framework for the greater fluidity in his playing. A new drum pattern emerges in the bar that begins at 7:00, becoming more playful with cross-rhythms which work against the pulse that the audience is feeling and expressing. Crucially, instead of a snare hit on beat four as expected, this bar culminates in a whole beat of total silence from the drums before Dennard re-enters on the following downbeat. This drum vacuum on beat four is, of course, filled with the audience's clap instead and so the groove relationships shift momentarily. The audience's pulse role briefly becomes the actual backbeat, the stated drum pattern becomes unsounding, and expectations are confounded in a way which draws out a sense of shared prior knowledge — in short, it is a simple but magical moment. When the same trick occurs four bars later, the audience really begin to get a sense of sharing Dennard's contextual sense of time, so that, despite the repetition, this second occurrence is equally thrilling because their perception has changed again.

Some theories occur in response to this passage. Firstly, music which largely conforms to the 'isochronous pulse' category may have the effect of allowing a larger proportion of participants to feel 'in the know', because the rhythmic arcana associated with idiomatic prior knowledge are less prevalent. Secondly, there are moments in musicking when the categorization of the various contextual senses of time can suddenly shift, and these moments appear to be significant for the participants. Thirdly, groove can perhaps be simultaneously solo and participatory in an ensemble context: each musician (or listener, dancer, and so on) is grooving in relation to both their own contextual sense of time and to those of the other participants, as manifested in the sounds or movements these other participants make. This last idea hints at a complex, organic, interdependent relationship between individual and shared contextual senses of time.

I have shown a range of perspectives on the ways in which groove depends upon familiarity with musical time, and particularly such senses of time as are idiomatic, stylistically nuanced or contextually conceived. The three proposed categories of contextual senses of time have been discussed and exemplified, and it transpires (unsurprisingly) that real music usually defies artificial categorization. Nevertheless I have shown the categories to be useful tools in understanding the interactive relationship between process and structure in groove, and especially in beginning to address the question of solo groove.

The effect that sampling has on groove is important in the light of the above discussion. First and foremost, by sampling and looping a single bar of a drummer engaged in solo groove, the relationship between process and structure/syntax is shifted, though the nature, degree and direction of the shift is determined by the extent to which the producer manipulates the sample and the character of the sonic setting into which it is recontextualized. Even assuming a simple approach to sampling in which an extract is appropriated wholesale and no manipulation other than looping takes place, the drummer's groove moves from being played as a process in relation to an unsounded structure (whether it be an underlying isochronous pulse or a contextual sense of time supplied previously by another musician), to becoming structure itself when looped as a sample. The contextual sense of time encapsulated both implicitly and explicitly within the sampled breakbeat becomes important following the process/structure shift. It is typically this new contextual sense of time encapsulated by the looped breakbeat that the hip hop MC would then use as a musical entity to interact with, generating a new groove by rapping some lyrics.

Another aspect of groove in relation to sampling (and other production techniques such as programming beats, for example) might begin with Jeff Warren's helpfully catholic definition of the performer as 'the maker of sounds that are considered the performance', which echoes

the musicking concept in its expansive inclusivity.[31] This, and the trends indicated by research emerging from the recent 'Musical Rhythm In The Age Of Digital Reproduction' project, suggest that the producer can now, in effect, be considered a performer (a position which has arguably been the case since as long ago as the early 1970s when King Tubby first began concocting dub mixes derived from pre-existing multitrack master tapes in Jamaica).[32] I have already discussed the idea that groove need not necessarily occur between interacting musicians, as is seen in solo groove. I have also suggested that sampling allows people to groove together across boundaries of time and space, building interaction onto sampled sections of solo groove.

If we accept that the producer is a performer, then it follows that the act of producing — the laborious process by which a track is created through programming, recording, mixing and so on — is all part of performance and could thus be said to contain the potential for grooving too. This suggestion fits with the idea of senses of contextual time defined above: for the producer to create a groove through sampling or programming, familiarity with stylistically nuanced conceptions of time will be just as important as it is for the instrumentalist. Whether these are used to inform real-time production of sounds from an instrument or gradual electronic manipulation of sounds which will eventually be experienced by other musicking participants in real-time, the interaction between the sounded and the unsounded events, between process and structure, functions similarly.

Whilst Small's initial ideas on musicking are focused around the context of orchestral performance, as I have already noted, he ensures that the concept is sufficiently malleable to bear reinterpretation, thereby allowing for the various ways that I draw on his thinking in support of my research. Thus, although there is clearly a qualitative difference between

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[31] Jeff Warren, "Improvising Music/Improvising Relationships: Musical Improvisation and Inter-Relational Ethics," *New Sound* 32 (2008), 102.

[32] Anne Danielsen, ed., *Musical Rhythm in the Age of Digital Reproduction* (Farnham, UK: Ashgate, 2010), 252.

the groove process as experienced by a drummer who is performing solo and by a group of musicians who are playing at the same time, both of these contexts (as well as the many others described throughout this thesis) fall under the rubric of musicking; in order to accommodate the qualitative differences that exist between them — such as the extent to which live, two-way interaction is a factor in the process, or whether or not the participants are in the same location (either geographically or temporally) — they can be seen as different *forms* of musicking, where the former is solo and the latter is communal, for example. Nevertheless, the similarities still unite them enough to justify their inclusion within the broader concept. Just as was the case with the different contextual senses of time at work simultaneously in the Kenwood Dennard performance discussed earlier, the messy reality of grooving also tends to include overlapping instances of the various forms of musicking, as I show in Chapter 3 in relation to James Brown's 'Funky Drummer'. Ultimately, I use Small's term to describe various ways in which people participate in creating and experiencing groove, as a process, and grooves, as the musical result of that process.

The ideas presented in this chapter demonstrate the relevance of groovological research to our understanding of musicking in the twenty-first century and the role of the contemporary producer in performance. Some of the thinking that I have outlined here is elaborated in considerably greater detail in the chapters that follow. The possibility that musicking can take place across time and space holds exciting potential from the perspectives of both the practitioner and the researcher, and is undoubtedly of current relevance. A fuller understanding of this possibility is the ultimate aim of my thesis, as will become apparent from the work presented at each stage. By way of the next step, in the following chapter I begin to develop a methodological framework based around a set of factors which contribute to the way that groove works in breakbeats.

Chapter 2 – Groove factors

In the preceding chapter, I proposed ways of understanding the concept of 'solo groove', and in later chapters I develop ideas around the ways in which sampled breakbeats contain the potential for future musicking participants to engage with this solo groove. Here, though, I explore some of the groove factors that breakbeats encapsulate, in order to create a framework for the analyses presented in Chapters 3, 4 and 6.

Undoubtedly, one reason for the enduring appeal of certain breakbeats across boundaries of time and space must lie in the debt of influence which subsequent genres owe to the musical blueprint established by hip hop (a debt which is also evident, one could argue, in the way that MC culture has spread beyond the confines of the genre).[33] Another significant reason that accounts for the enduring appeal of these breakbeats, however, lies in their inherent rhythmic and timbral qualities. It is around this idea that my thesis revolves, because these inherent qualities are inextricably bound up with the factors that determine or contribute to each breakbeat's groove. The breakbeats used in the case studies presented in Chapter 3 have been chosen because of the frequency with which they appear in sample-based production across the last 40 years, not just in hip hop but also numerous other genres such as jungle, which I explore in later chapters. Before embarking on any discussion of specific breakbeats, however, it is necessary to outline the inherent rhythmic and timbral qualities that will inform the discussion, because these 'groove factors' — as I call them — are fundamental to the longevity of the breakbeats in question.

It is evident from the broad range of perspectives that scholars and musicians use to conceptualize groove (which I have outlined in Chapter

[33] As many scholars have argued, hip hop MC practice has its own antecedents of course, notably Jamaican 'toasting' and the militant poetry of The Watts Prophets and The Last Poets (amongst others), but the prevalence of rapping in contemporary, non-hip hop popular music seems most likely to be directly derived from hip hop itself, rather than forbears such as these.

1), that there are a wealth of factors that could be taken into account when analysing groove in breakbeats. In this chapter I develop a multi-stranded methodological framework based on several of these factors, primarily using those that are applicable to breakbeats across all of their incarnations. These groove factors establish a basis which enables comparisons to be drawn, not only between the different techniques employed by producers working with breakbeats in various genres, but also between the ways that these different approaches might engage with, alter or enhance a breakbeat's inherent groove. The methodological framework is sufficiently flexible to accommodate the range of samples and genres discussed whilst acknowledging that not all of the groove factors will necessarily apply to every example. As the breakbeats are transformed and recontextualized over time, shifts occur in which groove factor can be considered most significant; these shifts in significance, in turn, reveal interesting currents in popular music more broadly.

Inter-onset intervals

At the risk of seeming deliberately obtuse, I will begin by outlining a groove factor that I do *not* intend to use in my analyses. Its inclusion here is by way of acknowledging that inter-onset intervals (hereafter IOIs) have played an important part in the development of groove theory. The predominant use of IOIs in the work of some groovologists seems to have its origins in Keil's coining of the term 'participatory discrepancies' (hereafter PDs) in a seminal article that immediately provoked some fairly heated responses from a number of eminent musicologists.[34] Although the thrust of Keil's article is mainly concerned with qualitative aspects of group music making, he does allude to the possibility of measuring the discrepancies of timing that arise in performance between a metronomic ideal and the actual sounded notes, suggesting that such experiments would 'combine expert perceptions and lab measurements

[34] Charles Keil, "Participatory Discrepancies and the Power of Music," *Cultural Anthropology* 2, no. 3 (August 1987), 275-283.

in various ways to more tightly specify kinds and degrees of "swing" or "push"'.[35] This suggestion has inspired a number of quantitative studies of groove, resulting in a slew of data, graphs and calculations that have the effect of placing the microtiming aspect of groove very much in the foreground.[36] Such an approach is not without merit, and has yielded some illuminating observations (I hesitate to use the word 'proof') about the specific PDs in a given extract, but it does pose several challenges. Chief among these, for me, is the question of perspective arising from the divide between the experiential reality of groove at the macro level and the clinical detail of measured milliseconds at the micro level.

Changes at the micro level clearly have an impact on the experience at the macro level, but it is important to retain a holistic perspective when considering groove in context. In terms of the ways that various musicking participants experience a groove, it is probably inappropriate, and possibly even misleading, to ascribe too much power to the infinitesimal detail of such nuances of expression when there are so many other groove factors at work. This is particularly true in the case of

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[35] Ibid., 279. Interestingly, Keil refers to discrepancies of pitch as well as timing here, though this aspect of his thinking seems not to have filtered into groove theory.

[36] See, for example, Peter Freeman and Lachlan Lacey, "Swing and Groove: Contextual Rhythmic Nuance in Live Performance," in *Proceedings of the 7th International Conference on Music Perception and Cognition, Sydney*, ed. C. Stevens and others (Adelaide: Causal Productions, 2002), 548-550; Andrew McGuiness, "Microtiming Deviations in Groove" (Masters thesis, Australian National University, 2005), 177; and Josef A. Prögler, "Searching for Swing: Participatory Discrepancies in the Jazz Rhythm Section," *Ethnomusicology* 39, no. 1 (Special Issue: Participatory Discrepancies) (Winter 1995), 21-54. Freeman and Lacey's data (and therefore McGuiness's graph, which represents the same data) show the consistently delayed snare stroke on beat two of the 'Funky Drummer' break, but as Iyer concludes from a more qualitative empirical standpoint, 'the curious point about the backbeat in practice is that when performed by the most esteemed drummers, it frequently displays a microscopic lopsidedness. If we consider the downbeat to be exactly when the bass drum is struck, then the snare drum is very often played ever so slightly later than the midpoint between two consecutive pulses'. Vijay S. Iyer, "Embodied Mind, Situated Cognition, and Expressive Microtiming in African-American Music," *Music Perception* 19, no. 3 (Spring 2002): 406.

sampled breakbeats, where crude editing by a producer (whether by accident or design), quirks of technology or the masking effects of recombination with other elements can all wreak considerable havoc with the precise details of the original breakbeat's microtiming, yet without having any detrimental impact on the power of its groove whatsoever.

Perhaps inadvertently, Christopher Small sums up my ambivalence towards quantitative approaches to groove, noting that PDs 'do not conform to rule' but that rather 'they assert freedom within a stable order'.[37] That said, I remain mindful of Whitehead's prescient caution: 'you cannot evade quantity. You may fly to poetry and to music, and quantity and number will face you in your rhythms and your octaves'.[38] As will become evident, I 'fly to music' in the case studies which are presented in the following chapters. Whilst not evading quantity and number altogether, I use quantitative approaches sparingly and am careful to keep them in perspective in relation to my broader thinking around groove; ultimately, as Christopher Hasty reminds us, 'music *as experienced* is never…an expression of numerical quantity'.[39]

Patterning

Drummers construct the patterns that they play using three or four limbs to strike the various instruments that the drum kit comprises. Although all four limbs are typically used when drummers perform, the role of whichever foot is used to control the hi-hat pedal tends to be based more around controlling aspects of timbre and articulation, by dictating whether the hi-hat cymbals are closed or open, than in creating discrete

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[37] James R. Cowdery et al., "Responses," *Ethnomusicology* 39, no. 1 (Winter 1995), 91. The freedom that Small suggests is asserted by PDs gives rise to the parallel term '*expressive* microtiming'.

[38] Alfred North Whitehead, *The Aims of Education and Other Essays* (London: Williams and Norgate, 1946), 11.

[39] Christopher F. Hasty, *Meter as Rhythm* (New York: Oxford University Press, 1997), 3 (emphasis added). 'Numbers' by Kraftwerk may be an exception to this rule of course! Kraftwerk, *Numbers,* EMI, 1981.

musical events.[40] This is not always the case though, because the pedal can be used to strike the hi-hat cymbals together, thereby causing them to sound even though they have not been struck with a stick. In general this technique is only used when the drummer's hands are busy elsewhere around the kit, for example when playing the ride cymbal with the right and the snare drum with the left, and at such times the pedalled hi-hat stroke usually fulfils a stylistically-appropriate, metronomic role, as in jazz, for example, when it typically emphasizes the off-beats.

Given the nature of the majority of funk drumming, particularly as it is heard in breakbeats, the examples used in my case studies consist of patterns that are mostly constructed from three 'voices' around the kit. As I have discussed in Chapter 1, one can either conceptualize this as three, independent musical lines which groove within and between one another (thereby allowing the process of interaction between the three lines within solo drum extracts to be thought of as similar to the interaction between three musicians), or else as one line which contains a variety of timbral colour. Whilst the latter is more useful when considering a drummer's overall flow and also equates better with the idea of sampling a whole bar (or more) of a given breakbeat, the former concept can reveal aspects of groove that operate at a smaller scale than the whole bar, or which operate between various sub-groupings of instruments within the drumkit as they 'interact within their own set of participatory discrepancies'.[41] Because each approach has its merits, my case studies consider pattern in both ways, depending on which is most illuminating for each example.

As will become clear in later chapters, sample-based production techniques often necessitate a reassessment of how patterning works within breakbeats and of its consequent effect on groove. In the context of scholarly writing on sampling, the concept of patterning can lead to some

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[40] In a conventional, right-handed drummer's set-up the hi-hat pedal is controlled using the left foot, whilst the right foot is used to play the kick drum.

[41] Jeff Greenwald, "Hip-Hop Drumming: The Rhyme may Define, but the Groove Makes You Move," *Black Music Research Journal* 22, no. 2 (Fall 2002): 261.

confusion. Amanda Sewell, for example, suggests that Greenwald has wrongly identified the 'boom-boom-cha' from beats one and two of the 'Funky Drummer' break as occurring throughout A Tribe Called Quest's album *The Low End Theory*; this well-intentioned but incorrect criticism highlights the need to distinguish between quotation and sampling.[42]

Whilst Sewell mistakenly believes that Greenwald is referring to a sample, he is actually talking about similarities of patterning between various tracks on the album and how these match the patterning within the 'Funky Drummer' break. Greenwald refers to this pattern as the 'Funky Drummer beginning' and is correct in his assertion that it is prevalent throughout the *Low End Theory* album, and indeed hip hop as a genre. The confusion between these accounts leads us back to Katz's point that sampling differs from musical quotation because samples cite performances, whereas quotations cite works.[43] Greenwald, in this instance, is discussing quotation of the 'Funky Drummer' pattern, rather than sampling of the 'Funky Drummer' break. Williams has further refined this distinction, in relation to hip hop, using Serge Lacasse's distinction between 'allosonic' and 'autosonic' quotation as a helpful framework.[44]

The amount of space that exists within a pattern can impact on the extent to which groove is generated, and this is particularly evident in the context of solo groove, when such space is not filled by the playing of another instrumentalist. Whilst musicians, dancers, and listeners may all experience groove as something which is expressed physically, or which at least *invites* a physical response (whether or not this impulse is subsequently enacted physically), the significance of the silent moments

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[42] Amanda Sewell, "A Typology of Sampling in Hip-Hop" (PhD thesis, Indiana University, 2013), 31; Greenwald, *Hip-Hop Drumming,* 268; and A Tribe Called Quest, *The Low End Theory,* Jive, 1991.

[43] Mark Katz, *Capturing Sound: How Technology has Changed Music* (Berkeley, CA: University of California Press, 2010), 150.

[44] Justin A. Williams, "Musical Borrowing in Hip-Hop Music: Theoretical Frameworks and Case Studies" (PhD thesis, University of Nottingham, 2010), 9.

within groove production is noted by John Miller Chernoff and Anne Danielsen, amongst others.[45] Chernoff makes the groundbreaking assertion that, in African music, 'a good rhythm…should both fill a gap in the other rhythms [within the ensemble] and create an emptiness that may be similarly filled'.[46] In her book on funk grooves Danielsen then builds on this idea, writing that 'rhythm is conceived as an interaction of something sounding and something not sounding'.[47]

Expanding further on his pertinent idea, Chernoff outlines the *potential* that such gaps create within the drum ensemble for call-and-response interplay, not only amongst the drummers but also between drummers and dancers. His observations are derived from the context in which his research fieldwork took place, but the rhythmic relationships he describes between instruments in an African drum ensemble find an equivalent in the relationships within the drum kit, a point which Mowitt demonstrates in his discussion of call-and-response as it occurs between the snare and the bass drum in a rock-and-roll backbeat.[48] The potential for rhythmic interplay identified by Chernoff is taken up and framed in a more groove-centric way by Danielsen, who tellingly suggests that the gaps 'almost represent a field of power', an idea which is echoed in Ronald Bogue's assertion that 'the virtual may be conceived of loosely as a field of vectors of potential development and metamorphosis, each vector a line of continuous variation along which an actual process of

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[45] John Miller Chernoff, *African Rhythm and African Sensibility: Aesthetics and Social Action in African Musical Idioms* (Chicago, IL: University of Chicago Press, 1979); and Anne Danielsen, *Presence and Pleasure: The Funk Grooves of James Brown and Parliament* (Middletown, CT: Wesleyan University Press, 2006), 262. Iyer observes that 'the act of listening to rhythmic music involves the same mental processes that generate bodily motion', which supports the case — to build further on Small's thinking around participation and musicking — that listeners are *involved* in groove, even without any physical activity on their part. Iyer, *Embodied Mind*, 392

[46] Chernoff, *African Rhythm and African Sensibility*, 114

[47] Danielsen, *Presence and Pleasure*, 46-47

[48] John Mowitt, *Percussion: Drumming, Beating, Striking* (Durham, NC: Duke University Press, 2002), 26.

development and metamorphosis might unfold'.[49] I explore this virtual dimension of groove later, in Chapter 7, where I also consider the idea that gaps can exist in the timbre of a breakbeat, as was well as in its patterning.

Throughout my case studies, the important aspect of patterning is that breakbeats are not just patterns of stroke onset across time, but that these strokes each possess distinctive timbral attributes and therefore exhibit timbral relationships of similarity, difference and variation (both within each instrumental line and between sub-groupings of these lines), so I therefore conceptualize breakbeats as gestural patterns of sound across time.

Displacement

One of the ways that drummers choose to foreground the patterning in their playing is through the occasional use of displacement (a technique which could, therefore, be considered a sub-category of the patterning groove factor). Displacement is a useful technique in the context of the drummer's primary role in funk (namely to maintain a continuous pulse, which is useful for dancing and other forms of musicking participation, as I have discussed in Chapter 1), because it enables the introduction of some variation but without jeopardizing the ongoing fulfilment of this role. This is one manifestation of LeRoi Jones's 'changing same' concept, which I draw on more extensively in Chapter 5.[50]

Essentially, displacement involves shifting an existing pattern's relationship with the song's underlying pulse, whilst keeping the rhythmic relationships unchanged within the pattern itself. So, for example, the very basic pattern between the kick and snare drum shown in Figure 2.1 below might, at some point in the song, be displaced so that

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[49] Danielsen, *Presence and Pleasure*, 54; and Ronald Bogue, "Violence in Three Shades of Metal: Death, Doom and Black," in *Deleuze and Music*, eds. Ian Buchanan and Marcel Swiboda (Edinburgh: Edinburgh University Press, 2004), 97.

[50] LeRoi Jones, *Black Music* (London: MacGibbon & Kee, 1969).

the first kick drum stroke begins on beat 1&, meaning that all of the strokes fall one quaver later than normal (see Figure 2.2).

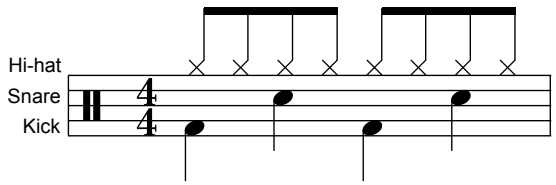

Fig. 2.1. Basic drum pattern (original position)

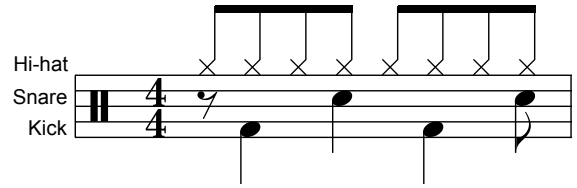

Fig. 2.2. Basic drum pattern (with kick and snare drums displaced)

This simple technique has a profound effect on the way the listener perceives the pattern, because links have already been forged between certain sounds and their location within the four-beat bar, through repetition: the low-frequency thud of the kick drum has become associated with beats one and three, whilst the high-frequency crack of the snare is expected to fall on beats two and four. When the drummer employs displacement in this way, the pattern's relationship with the song's pulse is momentarily but momentously reconfigured, thereby drawing attention to the drummer's skill in presenting a playfully changed same but without altering the overall cyclical repetition of the main pulse.

Drawing on conceptions of pulse and metre established in the work of Maury Yeston and, more recently, Harald Krebs, Mark Butler discusses a similar approach to rhythmic displacement in electronic dance music (EDM), describing this 'displacement dissonance' as a

particular category of metrical dissonance.[51] Without wishing to oversimplify Butler's work, he basically defines displacement dissonance as occurring when two or more rhythmic layers are nonaligned.

The displacement technique employed by funk drummers during drum breaks does not conform exactly to this definition however, because the layer with which the displaced drum patterns are nonaligned is the pulse itself, which is unsounded (assuming the hi-hat line is conceptualized as being part of the displaced composite rhythm rather than simply a metronomic expression of the pulse — in practice this is almost impossible to decide, given that its displaced pattern would be indistinguishable from its original pattern in most cases). Nevertheless, by the point at which a drum break occurs the pulse will typically have already been established, either through explicit statement or by inference, and so can be said to exist as a rhythmic layer in the listener's perception, whether or not it is actually sounded at the point at which the displacement occurs.

I return to Butler's ideas in Chapter 6, where they are more directly relevant to the jungle examples discussed, but it is worth noting at this stage that the basic impulse to displace rhythm patterns in order to introduce rhythmic variation, thereby sustaining the listener's interest, whilst simultaneously maintaining the groove's momentum is a strategy that is common to a range of genres. (Admittedly, this range is related, since hip hop and the broad spectrum of styles within EDM all share at least one common ancestor, in the form of funk.)

Jim Payne attributes the bold act of throwing 'the backbeat out [of] the window' to Clyde Stubblefield, who introduced this type of displacement into the main pattern of a song with his playing on James Brown's 'Cold Sweat'.[52] In fact, Stubblefield did not throw the backbeat

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[51] Mark J. Butler, *Unlocking the Groove: Rhythm, Meter, and Musical Design in Electronic Dance Music* (Bloomington, IN: Indiana University Press, 2006), 107.

[52] Jim Payne, *Give the Drummers some!: The Great Drummers of R&B, Funk & Soul* (Katonah, NY: Face the Music Productions, 1996), 260; and James Brown And The Famous Flames, *Cold Sweat,* King Records, 1967.

out of the window so much as throw it out of alignment with the pulse, thereby throwing the listeners' expectations in the process. Using displacement to manipulate expectations of timbral/temporal alignment in this way became something of a trademark approach for Stubblefield, who went on to use the technique in the main pattern of other James Brown songs such as 'I Got The Feelin'' and 'Soul Pride'.[53]

When Rose describes breakbeats as 'points of rupture in their original context', she emphasizes the added excitement that these drum-only fragments generated for listeners within the larger structure of the funk songs in which they were embedded when first recorded.[54] Her useful ideas on rupture and sampling are then extended in Miyakawa's work, which informs my own discussion of rupture and displacement in sample-based production, both in relation to hip hop (in Chapters 4 and5) and jungle (in Chapter 6).[55] However, even before sampling adds to the degree of rupture that breakbeats can embody, funk drummers use displacement as a pre-digital rupturing technique within the pattern construction of their performances.

Ghost notes

In addition to the main, accented strokes on the snare drum (usually beats two and four, as in a typical backbeat, for example), funk drummers use lighter, unaccented snare strokes — known as 'ghost notes' — to embellish their patterns. Although they are less significant if viewed within a hierarchy of dynamics, these ghost notes contribute hugely to the groove in breakbeats, even more, one could argue, than the main snare

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53 James Brown And The Famous Flames, *I Got the Feelin',* King Records, 1968; and James Brown, *Soul Pride,* King Records, 1969.

54 Tricia Rose, *Black Noise: Rap Music and Black Culture in Contemporary America* (Hanover, NH: Wesleyan University Press, 1994), 73. As an etymological aside, it is interesting to note that the word 'rupture' has its origins in the Latin *rumpere*, meaning 'to break'!

55 Felicia M. Miyakawa, *Five Percenter Rap: God Hop's Music, Message, and Black Muslim Mission* (Bloomington, IN: Indiana University Press, 2005).

drum strokes. Greenwald points out that in hip hop, 'the snare drum often emphasizes beats two and four, while the use of marginal and prominent ghost notes *adds depth to the groove*', whilst Danielsen asserts that in funk, they 'colour rhythm patterns'.[56]

If the backbeat is something that it can be generally assumed the drummer will provide more or less by default, then the option of using ghost notes at other points during the bar presents an opportunity for self-expression, even whilst the more workmanlike backbeat role continues to be fulfilled. In a related sense, ghost notes can also be used to showcase a drummer's virtuosity, again without jeopardizing the essential timekeeping and backbeat roles. Given that these strokes typically express one or more of the smaller rhythmic subdivisions in a pattern (such as the off-beat semiquavers heard in the 'Funky Drummer' break, for example), ghost notes can demonstrate agility and advanced technique. Commenting on what distinctive drumming traits Clyde Stubblefield brought to the band's sound upon first joining James Brown, for example, Christian McBride notes the drummer's 'bouncy left hand'.[57] Since the left hand, in Stubblefield's case (as a right-handed drummer), is the one which plays the majority of snare drum strokes, McBride is clearly referring here to the ghost notes in his playing and attributing this characteristic element of the groove to the drummer's advanced technical facility with this hand.

Alexander Stewart's detailed exploration of the shift from triplet to quaver, and then to semiquaver, subdivisions in the music of New Orleans gives some indication of the possible historical and geographical origin of the ghost note technique in popular music.[58] Ahmir "Questlove" Thompson suggests that ghost notes within drumming are a type of grace

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[56] Greenwald, *Hip-Hop Drumming,* 261 (emphasis added); and Danielsen, *Presence and Pleasure*, 229n4

[57] *Mr Dynamite: The Rise of James Brown,* directed by Alex Gibney (HBO, 2014) 1:00:55.

[58] Alexander Stewart, "'Funky Drummer': New Orleans, James Brown, and the Rhythmic Transformation of American Popular Music," *Popular Music* 19, no. 3 (October 2000), 293-318.

note, and proposes a theory that while they tend to be expressed in the snare drum voice, the technique is actually adapted from tambourine playing in the gospel music tradition.[59] This view might seem to contradict the idea that ghost notes emerged from the music of New Orleans, but a likely explanation is that a combination of both gospel and jazz gave rise to their use in funk (given that gospel and jazz share some common stylistic ancestry).

In terms of James Brown's band, whilst McBride's comment above suggests that Stubblefield was a skilled exponent of the technique, Jim Payne's account of the various drummers who were involved in the development of Brown's particular style of funk credits Clayton Fillyau with initially introducing snare drum ghost notes into his material.[60] Payne points to 'I Got Money' as the first James Brown song to feature this technique and argues that this 'signalled the beginning of a new era of drumming'.[61]

As the discussion thus far indicates, ghost notes are generally assumed to occur primarily within the snare drum line, presumably because drumming convention allows for greater dynamic variation in this voice than in the other voices. Nevertheless, lighter kick drum strokes are used as a means of introducing contrast within that voice in some funk drumming. Typically, these fall on the final quaver or semiquaver subdivision in a bar and act as an anacrustic gesture that anticipates another stroke, to be played with normal or even exaggerated emphasis, on the following beat. The drum break from 'Impeach The President' by

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[59] Gibney, *Mr Dynamite: The Rise of James Brown*, 1:01:10. It is, perhaps, relevant that in footage of James Brown performing with his multiple-drummer band during the late 1960s and early 1970s, whichever drummer is not on kit-playing duty in a given song will often play tambourine instead.

[60] Payne, *Give the Drummers Some*, 260

[61] Ibid.; and James Brown And The Famous Flames, *I've Got Money,* King Records, 1962. Payne also notes here that some drummers referred to these strokes as 'chatter notes' instead, a description that seems more fitting in some ways. It suggests that they contribute, in a conversational manner, to the pattern relationships within the groove, rather than merely existing as sepulchral shadows of the backbeat.

The Honey Drippers (which forms the basis of an extended case study in Chapter 4) contains just such a stroke on beat 2a, for example.[62]

Whether light kick drum strokes in funk can be considered as ghost notes, per se, is a moot point, but their relationship to the main kick drum strokes is not dissimilar to the relationship between ghost notes and the backbeat in the snare drum voice. In hip hop and, to a greater extent, jungle, deciding which sounds could be classified as ghost notes becomes more complicated, because the dynamic level of a given sound is no longer dependent on playing technique. Samples of sounds which were quiet in their original funk context can be manipulated so that they sound much more prominent in their new setting, and vice versa, so the traditional dynamics-based distinction between normal strokes and ghost notes no longer applies.

The contribution which ghost notes make to a breakbeat's groove is derived from a combination of factors. They add a nuanced level of detail to the patterning, effectively filling in some of the space between the main strokes (though this also draws attention to whatever smaller spaces remain unfilled). In doing so, they elaborate on whichever contextual or personal sense of time the drummer is engaged with, thus modifying the basic framework created by the main, accented strokes in a pattern by adding a layer of modification associated with that individual's groove. Note that in this sense, ghost notes constitute a different (if related) form of expressive gesture to that which is associated with nuances of microtiming. The ghost notes may well be performed in ways that still make use of expressive deviation in microtiming, but the point that I making here is that they represent an expressive modification of pattern, which augments the existing structure without altering its basic shape or displacing it from its original location.

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[62] This relationship in dynamic level between pairs of fast bass drum strokes makes musical sense (in that the off-beat gesture that forms the anacrusis is lighter than the following gesture, which is on the beat) but also makes physical sense in terms of the mechanics of drumming: although not impossible, it is much easier to play a quiet-then-loud pairing in rapid succession than it is to play the reverse.

In his fascinating work on the geometry of musical rhythm as it relates to culturally specific timeline patterns, Godfried Toussaint proposes the idea of the 'shadow rhythm'.[63] This term refers to the rhythm which would be created by the series of upstrokes that result from the movements required to play a series of downstrokes, in effect a kind of rhythmic inversion relating to performance practice. Whilst I am skeptical about whether the highest point in an upstroke would occur precisely midway between two downstrokes in all instances, shadow rhythm is, nevertheless, an intriguing concept that has some bearing on the relationship between the virtual and the actual elements of a rhythm.

Ghost notes, in a sense, can be seen as sounded gestures that blur the distinction between these virtual and actual elements; they are played, which suggests they belong in the 'actual' category, but they are hierarchically subordinate to the main pattern, so they hint at some of the other 'virtual' places in the bar where a main stroke could potentially have occurred. In this way, they partially fill some of the gaps in the pattern, whilst hinting at alternative rhythmic shapes that it could have assumed. By filling gaps in this way, ghost notes also impact on phrasing as a groove factor, firstly by creating contour lines in the texture of groove that smooth the starkness of the interaction between kick and snare, and secondly by acting as bridging notes that link the main strokes within an instrumental voice, thereby creating — or at least implying — longer phrases.

[63] Godfried T. Toussaint, *The Geometry of Musical Rhythm: What Makes a "Good" Rhythm Good?* (Boca Raton, FL: CRC Press, 2013), 288.

Phrasing and articulation

Drum performance does feature phrasing and articulation, even if drummers tend not to consciously think of it in those terms. The extent to which onset is prioritized in the conceptualization of drumming is reflected in the fact that standard drum notation often only specifies the start of notes, rather than their intended duration. Whilst this is a common sense approach in many respects, it does rather overlook some of the nuances of phrasing and articulation that can be produced acoustically from the drum kit, and further exaggerated via recording studio production techniques. This may also go some way towards explaining the groovological fascination with IOIs, as mentioned above.

Choices made about technique by drummers during performance — such as when to open the hi-hat cymbals and how quickly to close them, whereabouts the stick will strike the drum head for a particular snare drum stroke, whether the kick drum beater will come to rest on or off the drum head at the end of a stroke, whether to use the ride cymbal rather than hi-hat for timekeeping, and so on — all affect the way that phrasing and articulation operate around the drum kit. By varying the approach taken to each of these aspects of technique, drummers dictate the way that a series of otherwise seemingly discrete attacks actually flow together in performance.

Additionally, whenever each of these performance choices is made, it is highly likely that the chosen sound is being combined with at least one other sound from around the kit (as is seen when the kick drum coincides with the crash cymbal to create a composite texture on beat 3& of bar 4 in the Amen break, for example). In this way the number of tonal, textural, phrasing and articulation possibilities that exist at any one time is great, and the choices that a drummer makes between these various possibilities have a significant impact on the flow of a particular pattern. Several of the breakbeats that I analyse in the following chapter exhibit aspects of this kind of drum phrasing and articulation, and the ideas are also relevant to the way the producers subsequently engage with the breaks through sample manipulation, particularly in jungle.

Timbre

My initial impression at the start of this project was that timbre plays a part in the way that groove works in breakbeats. As the research has developed, this impression has become more concrete, to the extent that I now believe that timbre is at least as important a factor, in groove, as rhythm. At the same time, conversely, it seems that the nuanced microtiming in an individual musician's playing (their rhythmic feel) may be less important than scholars have tended to assert, or at least that its importance needs to be considered in balance with other factors, such as timbre. Perhaps it is because microtiming can be measured that this approach has proved a seductive inroad to groovology, though when the measurement ceases to be a means to an end, and instead becomes an end in itself, there is a risk that the focus can shift away from groove as musicians and listeners perceive it. Therefore, in keeping with the stance that I have already outlined in relation to IOIs, I consciously avoid taking a quantitative approach to timbre. Spectrograms do not feature in my methodology, but rather, timbre is discussed in more qualitative terms whenever it is relevant.

The timbral characteristics of the different instruments within the drum kit create shape within a breakbeat's pattern, as do the variations in timbre within the line played by a particular instrument, at a finer level of detail. Olly Wilson's concept of the 'heterogeneous sound ideal' presents a useful theoretical framework within which to consider timbre in relation to groove, and I draw on his ideas extensively in the following chapters.[64] His thinking is useful in the context of solo drum performance in funk, and also when considering the layers of manipulated samples in hip hop and jungle.

Certain timbral relationships within the drum kit exist in ways that are common across different contexts, so that the sound of a kick drum, a snare drum or a closed hi-hat stroke will exhibit some fundamental

[64] Olly Wilson, "The Heterogeneous Sound Ideal in African American Music," in *New Perspectives on Music: Essays in Honour of Eileen Southern*, eds. Josephine Wright and Samuel A. Floyd Jr. (Michigan, IL: Harmonie Park Press, 1992), 327-340.

similarity regardless of which drummer has played the stroke, which kit has been used, how the drums were tuned, and so on. These similarities extend beyond live drumming too, so that they will also exist (though the similarities may be less clearly defined) regardless of which producer programmed a beat, which sampler they used, whether it was recorded to analogue tape or digital hard-drive, and so on. If these similarities are sufficiently evident, then the interesting thing about timbre as a groove factor stems from the ways in which performers and producers introduce variation in timbre. These variable aspects of timbre are what inform my analyses of breakbeats as recorded performances in funk and as samples in hip hop and jungle, rather than the pre-existing timbral characteristics associated with each instrument type within the drum kit.

The studio production techniques used during the original funk recording process clearly have an impact on the way that breakbeats sound, and may, in some cases, account for their popularity as sample sources. Whilst it is beyond the scope of this project to ascertain the exact circumstances of these recording sessions, in terms of the equipment used and so on, it is still possible to make informed deductions about some of the processes involved, based on close listening to the music itself. Such deductive reasoning informs the aspects of my thinking that concern the relationship between studio production and other groove factors.

Overlap between groove factors

Of course, the groove factors that I have outlined above do not operate hermetically, but instead influence, mask, complicate, and combine with one another in the real context of recorded drum performance. Many examples could be used to illustrate this point. Factors relating to studio production, for example, such as the use of compression, artificial reverb, gating, or even simply the ambience of the recording space, can affect the way the listener perceives articulation within a breakbeat. Ghost notes complicate the way that phrasing and articulation work: a quiet snare-drum ghost note could be played during the audible decay of a louder

snare-drum backbeat with reverb, for example, or the inclusion of several ghost notes effectively might be seen as extending the presence of the snare drum across the duration of a bar, thereby blurring the simple backbeat role that might more normally be associated with this instrument. Clearly, the list of overlaps is potentially a very long one indeed. Whilst I have not felt the need to create a monstrous Venn diagram that attempts to illustrate every possible interconnection, my discussion of groove factors in relation to breakbeats throughout the thesis includes such overlaps where they are relevant.

It is unsurprising that numerous overlaps exist between the various groove factors that operate in breakbeats; whilst it is useful to delineate these factors, at times, in order to consider the agency of a particular nuance of performance or production, it is also important to retain a sense of the broader context. Christopher Small memorably describes performance as being a 'pattern of gestures', doing so in order to define it as a process, rather than an object, in support of his theory of musicking.[65] I return to his description throughout my work because its brilliant simplicity is so eminently applicable in the context of thinking about breakbeats, whether in their raw funk state or when they reappear, wildly transformed, as samples in tracks made more than forty years after the original drummer's performance was recorded.

By thinking about performance as a pattern of gestures in this way, the sense of energy and momentum with which breakbeats are imbued remains paramount, even when the focus of my analysis turns, for example, to the order in which drum strokes are played. Though the pattern made by these strokes is of interest (as the extent to which I discuss this aspect of breakbeats in my case studies suggests), the crucial point — which Small's description underscores — is that the pattern alone does not account for a breakbeat's groove, but rather that this pattern grooves because it consists of *gestures*. To return to the

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[65] Christopher Small, *Musicking: The Meanings of Performing and Listening.* (Middletown, CT: Wesleyan University Press, 1998), 219.

noun/verb issue raised in Chapter 1, the pattern is *a* groove, but the gestures allow it *to* groove.

It is also telling that Small uses the term 'pattern' rather than simply 'series', because this suggests that relationships between events can exist both forwards and backwards in time, and also that each gesture not only relates to those that occur immediately before and after it, but might also form lines and phrases that work across longer intervals. In a relevant observation, Butler suggests that breakbeats consist of 'a network of interrelated patterns', an idea that can be conflated with Small's description so that breakbeats are conceptualized, for my purposes, as *a network of interrelated patterns of gestures*.[66] This extended description applies both to breakbeats in their original funk context and also when they are recontextualized in hip hop and jungle, hence its relevance to my thinking throughout the following chapters.

[66] Butler, *Unlocking the Groove*, 89

Chapter 3 – These are the breaks:

Funk breakbeats in their original context

Despite what the title of this chapter might seem to imply, the early hip hop DJ culture in which breakbeat use initially developed was by no means limited to funk, in terms of genre, as the sole source of its vinyl raw material. Quite the opposite is true in fact, as is clear from the musical eclecticism for which pioneers such as DJ Afrika Bambaataa are celebrated. (Bambaataa's encyclopaedic knowledge and expansive vinyl collection earned him the telling soubriquet 'master of records'.) Accounts of the block party era are peppered with DJs' delighted anecdotes about how surprised their audiences would have been to discover the identity of some of the bands whose songs they were dancing to.[67] As with several key aspects of DJ culture, this eclecticism was carried forward into the aesthetics of hip hop production, and the resultant practice of 'crate digging' can be seen to exemplify the genre's ongoing drive to draw on unexpected sources of inspiration.[68] Nevertheless, for the purposes of my thesis, the case studies which I present will focus on breakbeats found on records that fall identifiably within the funk genre, rather than those which either happen to just be funky (as in the case of Led Zeppelin's 'When The Levee Breaks', for example, which opens with a very funky

[67] Bambaataa himself recounts that he would 'throw on Mick Jagger – you'd see the blacks and the Spanish just *throwing* down, dancing crazy. I'd say, 'I thought you said you didn't like rock.' They'd say, 'Get out of here.' I'd say, 'Well you just danced to The Rolling Stones.' 'You're kidding!'…I'd like to catch people who categorise records.' David Toop, *The Rap Attack: African Jive to New York Hip Hop*, 1st ed. (Boston, MA: South End Press, 1984), 66.

[68] Crate digging is, as its name suggests, a process of vinyl archaeology, whereby DJs and producers search exhaustively through the (often unpromising) stock of record shops in the hope of unearthing obscure musical gems that can then be repurposed.

drum break but is clearly a rock song) or else hold the potential for becoming funky when flipped by a producer.[69]

DJs and producers base their decisions about which breakbeats to use around a combination of aesthetic and practical reasons, which vary, as one might expect, depending on personal preferences, stylistic conventions, audience expectations, financial and legal constraints, and so on.[70] It is safe to assume that the overriding basis for the decision is driven by a desire to create music which succeeds in its intended purpose (whether that be to impel a crowd to dance, to sell millions of copies of a track or to earn the respect of a peer group), but the utilitarian appeal of a given breakbeat — how useful it can be as a tool — is dependent upon the function for which it is intended, and each function will be based on a different set of priorities. For early hip hop DJs, the breakbeat's intended function was to form part of a relatively seamless, performed whole, which they created by using two turntables and a mixer to contiguously join a series of song fragments together, in order that partygoers could dance, uninterrupted, to the resulting medley of predominantly drum-based extracts.[71] It was during this era that a canon of breakbeats was established, and while the canon has its roots in real-time, hip hop performance practice (that is, DJing), the popularity of key breakbeats from within the canon has endured beyond the genre's early live manifestation and on into the recording studio, and then further, into subsequent production-based genres, despite the shift in the breakbeats'

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[69] Led Zeppelin, *IV,* Atlantic, 1971; and Joseph G. Schloss, *Making Beats: The Art of Sample-Based Hip-Hop* (Middletown, CT: Wesleyan University Press, 2004), 106. As Schloss explains, in the context of hip hop production, the term '"flipping" refers to creatively and substantially altering [sampled] material in any way'. As such it can be seen as an umbrella term that subsumes many of the sample manipulation processes and techniques I discuss in later chapters.

[70] For a detailed ethnographic exploration of this practice see Schloss, *Making Beats*.

[71] Regarding the genre's drum-specific focus, Cobb enthuses that the drum is 'literally the *only* instrument needed for hip hop.' William Jelani Cobb, *To the Break of Dawn: A Freestyle on the Hip Hop Aesthetic* (New York: New York University Press, 2007), 29 (italics in the original).

intended function which such an evolution involved. Williams discusses the canonization of breakbeats in hip hop at length, describing the canon's formation as resulting from an interlinked combination of DJs' selections and partygoers' responses; it is easy to see how these two factors create a fertile feedback loop in which such a canon might quickly be formed.[72]

Bottom raises the point that some breakbeats have developed 'an autonomous fame', becoming widely known in their own right, distinct from the context of their original songs.[73] All of the breakbeats in my case studies exhibit autonomous fame, and are chosen based on their perennial appeal, as observed in both the ease with which they migrate across eras and the frequency with which they recur — transformed in one or more ways — across a range of genres. Such recurrence makes these breakbeats ideal for the purposes of exploring how different processes of sample manipulation affect the way that groove works, as I do in later chapters. Thus, the breakbeats analysed here are taken from the songs 'Funky Drummer', ' Funky Drummer –Bonus Beat Reprise', 'Amen Brother', 'Think (About It)' and 'Hot Pants – I'm Coming, Coming, I'm Coming'.

Methodology

My analyses are based primarily on close listening to the musical examples that I discuss. In order to ascertain the nuanced workings in the breakbeats of the groove factors outlined in the previous chapter, I employ technological tools, where appropriate, to achieve the necessary level of focus. The simple use of a digital audio workstation (DAW) — for example, to slow down audio playback or to isolate the frequencies associated with a particular instrumental timbre — has contributed

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[72] Williams, *Musical Borrowing in Hip-Hop Music,* 53-58. In the context of my research, Williams's point that 'for the early DJs associated with hip-hop, record selection was more about *sounds* than about artist or genre' is especially pertinent. Ibid., 57 (italics in the original).

[73] Simon Douglas Bottom, "The Breaks: Intertextuality and East Coast U.S. Hip Hop 1979-199" (PhD thesis, University of Liverpool, UK, 2005), 52.

significantly to my ability to engage with the gestural nuances of both instrumentalists (in this chapter) and producers (in the chapters which follow).

Outlining their methodology (which features the use of software to accurately measure onset times), Freeman and Lacey note that

> the human ear is very well attuned to the subtle variations in timbre and volume which define the "end of the note", but these timbral variations are simply not observable with waveform analysis alone.[74]

Since, conversely, a quantitative approach to IOIs is not my aim, waveform analysis does not feature in my methodology, and I instead rely on the human ear to determine variation in the groove factors.

This listening-based methodology is also informed by my twenty years' experience as a professional drummer and producer, often working in the stylistic areas that my case studies draw on. This experience is helpful in associating the perceived drum sounds and rhythm patterns with my knowledge of typical drum technique, which in turn can lead to a deeper understanding of how (and sometimes, why) a particular gestural nuance is performed. Whilst it must be acknowledged, of course, that each drummer is likely to overlay standard techniques with their own idiosyncratic approaches, there is enough common ground entailed in drum performance practice to allow me to make informed judgements about any ambiguous details; the same can also be said of studio production processes.

Butler describes two 'equally viable modes of attending' to patterning relationships in breakbeats: the first mode concerns 'particular strands within the texture', such as the snare drum line, for example, whilst the second mode focuses on the composite rhythm patterns produced by 'interlocking rhythmic attacks'.[75] These two listening modes both provide useful perspectives on breakbeats, and can be expanded to incorporate not only patterning, but also the full range of groove factors with which I am concerned. Whilst Butler does not make

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[74] Freeman and Lacey, *Swing and Groove*, 548

[75] Butler, *Unlocking the Groove*, 88

the connection explicit, these modes of attending can be mapped neatly onto Wilson's concept of the heterogeneous sound ideal (hereafter HSI), in which he argues that in African and African-American conceptions of music, the

> fundamental bias for…heterogeneity of sound…is reflected in at least two ways. First, it is reflected in…the relationship of the resultant qualities of sound produced when several instruments perform simultaneously… Secondly, the heterogeneous sound ideal is reflected in the common usage of a wide range of timbres within a single line.[76]

So the listening strategy proposed by Butler can potentially yield observations that will reveal the HSI at work.

If time is conceptualized horizontally and the instrumental voices within the drum kit are layered vertically, then the connection between breakbeats, the two modes of listening, and their equivalents in the way in which the HSI is reflected become clear. My transcriptions represent these vertical and horizontal conceptions, thereby illustrating the relationships within and between the axes, and encapsulating the numerous, interconnected ways in which groove factors are at work in each breakbeat.

Transcription

When analysing the rhythms of the MC's flow in Public Enemy's music, Robert Walser defends traditional notation as an analytical tool that is wholly appropriate to the task, citing the work of Cheryl Keyes, and Mark Costello and David Foster Wallace in his argument.[77] Conversely, drummer Clyde Stubblefield has expressed his distaste for traditional notation in several interviews, saying that it is as impenetrable to him as 'Chinese writing', though I have different reasons for preferring an

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[76] Wilson, *The Heterogeneous Sound Ideal*, 329

[77] Robert Walser, "Rhythm, Rhyme, and Rhetoric in the Music of Public Enemy," *Ethnomusicology* 39, no. 2 (1995); Cheryl L. Keyes, "Rappin' to the Beat: Rap Music as Street Culture among African-Americans" (PhD thesis, Indiana University, 1991); and Mark Costello and David Foster Wallace, *Signifying Rappers: Rap and Race in the Urban Present* (New York: Ecco Press, 1990).

alternative method of transcription! Other systems that could be used include Krims's layering graph and Miyakawa's (related) groove continuum.[78] Each of these suits the respective purposes of these scholars well, but neither is ideal in terms of my own research.

The Time Unit Box System (hereafter TUBS) is a useful way to graphically represent several of the groove factors that I have outlined in the previous chapter. It usefully depicts the overall shape of patterns, whilst simultaneously allowing for focus on smaller subgroupings of either timespan or instrumentation. It leaves little room for ambiguity about which drum or cymbal is struck on which beat (and whilst traditional notation should be similarly unambiguous, the fact that the literature is riddled with erroneous transcriptions — some of which are highlighted later in this chapter — suggests that this might not always be the case).[79] It can be adapted by using different characters and symbols to represent the various types of stroke played on a given drum, thus tailoring the system to accommodate specific stylistic traits within the

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[78] Adam Krims, *Rap Music and the Poetics of Identity* (Cambridge, UK: Cambridge University Press, 2000); and Miyakawa, *Five Percenter Rap*

[79] TUBS transcription is not always applied as accurately as it could be. Christodoulou's work on jungle contains much that is of interest, but his TUBS transcription of the 'Amen' break is so wildly inaccurate that it is unrecognizable. Other scholars have presented simplified versions of the TUBS method that are also inaccurately applied. Krims, for example, uses a TUBS-derived approach when transcribing the opening bars of 'MCs Act Like They Don't Know' by KRS-One, in order to demonstrate which beat classes predominate in the MC's flow. He uses a curious beat numbering system (from zero to three, rather than one to four) on the grounds that it is beneficial for statistical purposes, but then places several of the syllables on the wrong beat, contradicting the reality of KRS-One's performance and so partially invalidating the results of this quantitative approach. Drawing on Krims's work on this song, Sethares compounds the error further by readjusting the beat numbers (so that they begin on one, as might be expected) but copying the original layout of syllables exactly, which has the effect of making the transcription more wrong. Chris Christodoulou, "Renegade Hardware: Speed, Pleasure and Cultural Practice in Drum 'N' Bass Music" (PhD thesis, London South Bank University, 2009), 104; Krims, *Rap Music and the Poetics of Identity*, 59; and William A. Sethares, *Rhythm and Transforms* (London, UK: Springer, 2007), 73.

music. Furthermore, it can be used to present different musical extracts in a sufficiently standardized way that comparisons can easily be made between several breakbeats.

Based on a fixed grid system, as by definition they are, TUBS transcriptions do not readily accommodate the quantitative minutiae of participatory discrepancies, but these are beyond the intended scope of my research anyway, and have already been extensively researched by other scholars. The closest my transcriptions come to this approach is in the use of unequal box sizes to represent swung semiquavers (as seen in the 'Think' break, for example). Other, more qualitative or less obviously grid-based groove factors are discussed in the text rather than being shoehorned into the transcriptions via unwieldy adaptations of the system, which would require excessive explanation or justification; it should be possible to view my transcriptions and quickly get an intuitive sense of several of the groove factors which are at work.

This chapter investigates the breakbeats in their original funk context, in which they are performed whole rather than artificially looped, so it is logical to use a linear transcription method such as TUBS here. Later chapters deal with looped breakbeats, and other scholars have attempted circular transcription methods in order to acknowledge the cyclical nature of loop-based music, but these can sometimes feel contrived or overcomplicated when compared with the elegant simplicity of the TUBS system. Although the TUBS transcriptions appear linear, it is sufficient to acknowledge, where appropriate, that in practice the patterns would be looped, rather than attempting to reflect this in the diagram.

As discussed in the section on patterning in Chapter 2, the drum kit is considered to consist of three distinct voices, whose interaction creates composite rhythm patterns. Unless otherwise noted, this three-voice system is used in my transcriptions. In each, the top line represents either the hi-hat or the ride cymbal, depending on which is played in that breakbeat. If needed, strokes on the crash cymbal(s) will be included in the top line too, represented by the copyright symbol: ©. Where

appropriate, lines for additional, non-drum voices will be added (such as James Brown's vocal interjections in the 'Funky Drummer' break, for example), but only when their inclusion is relevant to the analysis of the breakbeat's groove; such voices are clearly labelled to avoid any confusion. The beat numbering system described in the introduction (beat 2&, beat 4e, and so on) is used when referring to specific points within the case study examples.

Whilst it is ultimately futile to attempt to graphically represent the full range of gestural nuance which musical performance encompasses (because the resulting depiction would be prohibitively unwieldy), transcriptions are included throughout my thesis in order to illuminate the points being made. Their presence is not intended as a deliberately reductive move: I do not pretend that my diagrams somehow distil the ineffable qualities of this music.

'Funky Drummer' (1970)

As well as being one of the most ubiquitous breakbeats used in contemporary popular music, drummer Clyde Stubblefield's performance on James Brown's 'Funky Drummer' song is also one of the extracts most frequently discussed in groovology, as I have already mentioned. These eight, fleeting yet potent bars of solo drumming have been analysed, transcribed, measured and critiqued from a number of perspectives by many scholars, who are understandably motivated by the totemic significance of this breakbeat; in effect, the 'Funky Drummer' break has become a kind of Rosetta stone for groove theory. Although my case studies do include other breakbeats, I perpetuate the tradition somewhat by focusing primarily on 'Funky Drummer' in this chapter.

The song was recorded in 1969 at the King Records studios in Cincinnati and released as a 7-inch single in 1970, achieving moderate commercial success. Due to the physical constraints of the vinyl format, the studio version of the song was trimmed in duration and then split into two parts in order to fit onto the two sides of the record, as was common practice for material which exceeded the optimal time-per-side of

approximately three minutes for a 7-inch record playing at 45rpm. Whilst this fact might initially appear to be superfluous discographical arcana, it has relevance to breakbeats, both from a practical viewpoint (because the availability of different formats and versions of songs impacted their functional potential for DJs and producers, as discussed earlier) and also in terms of questions around originality and sampling (which I explore later in this chapter, in relation to the 'Funky Drummer - Bonus Beat Reprise' edit).

The way in which 'Funky Drummer' was recorded is typical of James Brown's modus operandi in the studio, in that it is closely modelled on his approach to live performance: the whole band is recorded 'in session' (that is, concurrently, rather than with separate instrumental layers being overdubbed one after another) which allows for a greater degree of spontaneous interaction between Brown and his musicians, as can be heard in the way he directs the music. John "Jab'O" Starks, another of Brown's drummers from the period in question, remembers how this process worked from the perspective of the band:

> So many things that were done weren't written, because you just couldn't. You couldn't write that feel. Many, many times we'd just play off each other, until James would say "That's it!".[80]

Gaunt notes the prevalence of this approach in the studio work of both Brown and George Clinton, arguing that for both artists the recording studio 'was to become a vehicle for transmitting real and live localities to the listener at home'.[81]

During 'Funky Drummer', James Brown can be heard creating a sense of such a 'live locality' when he provides a useful series of

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[80] Cliff White and Harry Weinger, "Are You Ready for Star Time?" in *Liner Notes to 'Star Time'* (Polydor, 1991) section VI. Given the context suggested by his comments, it seems likely that Starks is using 'written' to mean 'composed' rather than 'notated' here, though both interpretations could be seen to apply.

[81] Kyra D. Gaunt, "The Veneration of James Brown and George Clinton in Hip-Hop Music: Is it Live! Or is it Re-Memory?" in *Popular Music: Style and Identity*, ed. Will Straw (Montreal: Centre for Research on Canadian Cultural Industries and Institutions, 1995), 118.

instructions for his musicians as he sets up the drum solo. Beginning at 4:25 in the long version of the song, he first addresses the whole band whilst they are playing, saying

> 'Fellas…I wanna give the drummer some of this funky soul we got here.'[82]

Then he turns his attention to just the drummer, suggesting that

> 'You don't have to do no soloing brother: just keep what you got! Don't turn it loose…'cause it's a mother.'

Addressing the rest of the band once again, he instructs them that

> 'When I count to four, I want everybody to lay out and let the drummer go. And when I count to four, I want you to come back in.'

Then, following a brief section of extemporized singing, Brown finally arrives at a typically funky, non-isochronous count-off, shouting 'A-one, two, three, four, get it!', at which point Stubblefield obediently complies with his orders, forgoing the opportunity to showboat and seeming, instead, to simply continue playing the groove that he has already established. Significantly, however, Stubblefield adapts his playing in many finely nuanced ways, adjusting the parameters of all of the groove factors discussed in the preceding chapter, in order to create constant, fluid variation in the pattern of gestures which constitutes his performance, yet without destabilizing the flow of the groove within these eight seminal bars of drumming. At the same time, as Danielsen highlights, nuances which have been present in his playing throughout the song become more apparent when the listener is given space to pay attention to just the drumming.[83]

A brief consideration of the musicking that takes place in the studio at this point during the song highlights the way that some of the forms I describe in Chapter 1 can overlap in the reality of performance. Stubblefield's performance is the audible focus during the drum break, suggesting that he is engaging in solo groove, but as my transcriptions below show, Brown rarely refrains from interjecting vocal encouragement during the break, thereby adding a communal dimension

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[82] The wording is slightly unclear here: it could be "funky solo" rather than "funky soul".

[83] Danielsen, *Presence and Pleasure*, 182

to the grooving. Taking into account the likelihood that, despite not actually playing during these eight bars, other band members will also have been moving to the beat, gesticulating and so on, they too can be seen to have contributed visually to the musicking process from which Stubblefield's audible grooving emerges. Whilst my analysis necessarily focuses on the drum component of the audible outcome arising from this process, the range of overlapping forms of musicking that contribute to the groove at this point demonstrates the breadth of ideas which Small's concept must be seen to encompass.

In grappling with the 'Funky Drummer' break, scholars have often either sacrificed a holistic approach for the sake of investigating the agency of one or other specific aspect within groove, or else, conversely, have provided such a broad overview that some crucial detail has been overlooked. At times these problems arise from, or are evident in, the transcription process: Stewart, for example notates the placement of the open hi-hat wrongly (see Figure 3.1 below), and in doing so misses a crucial factor in the breakbeat's groove, because the open hi-hat has an impact on both the texture and, perhaps more importantly, the phrasing and articulation of the performance.[84]

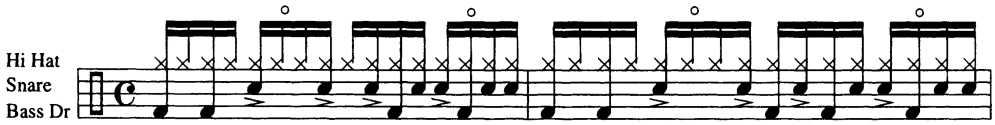

Fig. 3.1. Stewart's transcription of the 'Funky Drummer' break

This may seem trivial in the wider context of Stewart's article, because it is mainly the snare drum pattern which interests him, specifically in terms of how it can show that the development of funk drumming was influenced by a move towards straight, rather than swung, subdivisions in the 'second line' rhythm patterns of New Orleans Mardi Gras music. Nevertheless, as I have argued above, groove factors overlap and are

[84] Stewart, *'Funky Drummer'*, 305

interdependent to some extent, so it seems important to aim, where possible, for accuracy in all respects.

Another common oversight amongst scholars of the 'Funky Drummer' break is the omission of accurate detail concerning which bars of the song they are actually discussing, as well as which released version of the song (or breakbeat) these bars can be found in.[85] As with my point above regarding the tight focus of Stewart's argument, there are usually reasons why this degree of specificity may not seem important. It may be, for example, that a writer is concerned with determining what the 'standard' pattern within the eight bars of the break might be, in which case a transcription that represents the typical pattern across the whole break — rather than what is actually played in a specific bar — might make sense. Again though, this approach negates the powerful use of nuance within Stubblefield's playing by averaging out any sense of variation.

Greenwald takes this approach, and, focussing on Stubblefield's use of pattern, identifies three key aspects from which the groove derives its power. Whilst these aspects are described accurately in the text, the description of the third aspect (namely the kick drum and open hi-hat which coincide on beat 4e) is undermined somewhat by the accompanying transcription, shown in Figure 3.2 below, in which the kick drum stroke in question is written as falling on beat 4&. In fact, the kick drum does not play on beat 4& at any point during the drum break, nor indeed anywhere else in the song, so this transcription is significantly erroneous.

[85] Ibid. Stewart avoids this oversight, specifying exactly which extract he has transcribed, but this makes it all the more surprising that he notates the placement of the first open hi-hat wrongly.

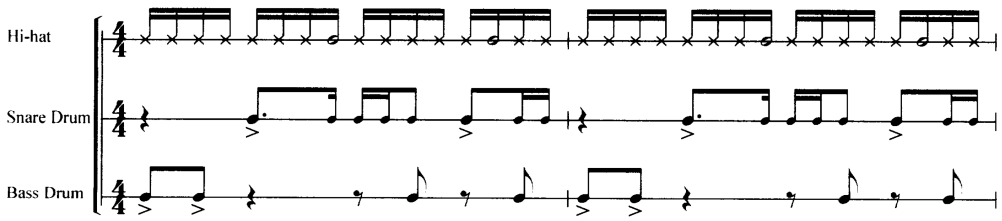

Fig. 3.2. Greenwald's transcription of the 'Funky Drummer' break[86]

Although, like Stewart, Greenwald is clear about which version of the 'Funky Drummer' break is transcribed — in this case the 'Bonus Beat Reprise' version from Brown's *In The Jungle Groove* album — the lack of attention to nuance that is evident in his erroneous transcription is further compounded by his suggestion that 'the remix version is basically just one unchanging phrase looped together'.[87] Generalizations such as this can be convenient for the purposes of a particular methodological approach, but they diminish the potential for considering groove's multifaceted nature. As my analysis of the 'Bonus Beat Reprise' version shows later in this chapter, it actually contains several phrases and many changes (some as a result of the drummer's performance, and others as a result of the editing process, or what we might call the 'editor's performance'). Whilst it is true that there is one bar that predominates, it only represents twenty-eight out of the total seventy-one bars, so accounts for less than half of the version's content.

The main aim of Freeman and Lacey's analysis of the 'Funky Drummer' break is to quantitatively assess the degree of microtiming deviation present in Stubblefield's drumming. Whilst they succeed in this respect, and thus are able to present very accurate findings about the extent to which the rhythm pattern is pushed and pulled in relation to absolute, metronomic time across the full eight-bar drum solo, their transcription (see Figure 3.3 below) is simply an annotated replica of Stewart's (Figure 3.1), so only covers two bars and suffers from the same

[86] Greenwald, *Hip-Hop Drumming*, 262.

[87] Ibid.

paucity of nuance in relation to groove factors (other than microtiming deviation) as the earlier transcription on which it is modelled.[88]

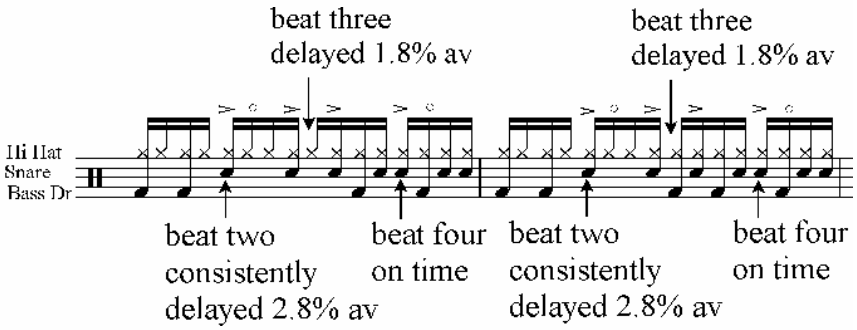

Fig. 3.3. Freeman and Lacey's transcription of the 'Funky Drummer' break

Versions of 'Funky Drummer'

In order for my own analysis to be as clear as possible, the table below (Figure 3.4) presents information about various different record releases that have included a version of the 'Funky Drummer' song, as recorded during the original 1969 session. The list is by no means exhaustive and does not include any records that contain an identical version to one of those that is listed: each version here is musically unique, either by virtue of its mix or its structure. The table is simply intended to help differentiate between the versions which are relevant, in a number of ways, to my thesis. The 'version' column gives the abbreviation that I use when referring to a particular released version of the song. Note that the table refers to released versions of the *song*, rather than just the breakbeat, although each listed version of the song contains (at least part of) the drum break. Please also note that the table only refers to the 'Funky Drummer' song by James Brown, and not to the proliferation of subsequent tracks by other artists which incorporate samples extracted from the original.

[88] Freeman and Lacey, *Swing and Groove*, 550.

Year	Release title	(Song title)	Version	Length	Label
1970	*Funky Drummer*	Side A – 'Part 1'	single	2:36	King
		Side B – 'Part 2'		2:55	
1986	*Ultimate Breaks And Beats: Volume 12*		*UBB*	2:56	Street Beat
1986	*In The Jungle Groove*	'Funky Drummer'	long	9:15	Polydor
		'Bonus Beat Reprise'	*BBR*	3:00	
1991	*Star Time*		*ST*	7:01	Polydor

Fig. 3.4. Record releases containing versions of 'Funky Drummer'

Comparisons between these versions reveal features that are peculiar to each of them and which impact, in different ways, on the consequent usefulness of each release to DJs and producers. The usefulness of each version of the song relates to the intended function of the breakbeat it contains. I described some of the typical intended functions earlier in this chapter, noting that for a DJ's live performance, for example, such usefulness would be based on a different set of requirements from those of a sampling producer. So, usefulness is dictated by context, and influenced by factors within that context, such as technology or performance practice.

As I have already mentioned, the single version of 'Funky Drummer' was shortened and split into two parts in order to fit the physical constraints of the 7-inch vinyl format. The drum break on this version occurs at the very end of 'Part 2', in the closing moments of side B of the record, and only the first four bars of the eight-bar drum break are heard because a fast fade-out occurs during the fifth bar. In 1977, an unofficial 7-inch version of 'Funky Drummer' was released, which was attributed to a fictitious band called Yvette & The Kids, although the music on the record was actually an edit of the James Brown recording; it featured a loop of the drum break and was clearly intended for use by hip hop DJs.[89] Because of this mythical record's obscurity, I have been unable to locate an audio recording in order to verify its contents, and so cannot comment with any certainty on this version, hence its omission from

[89] Yvette & The Kids, *Funky Drummer,* Voodoo, circa 1977.

Figure 3.4; a photograph of the label is available online, however, and indicates that the track's duration is 2:56, which is identical to the *UBB* version listed in Figure 3.4, suggesting that it is, perhaps, an earlier release of the same version.[90] Anecdotal evidence of hip hop's early phase describes a practice whereby DJs who wished to perform using 7-inch records such as this would glue the small records to 12-inch records whose content they did not need, utilizing the greater traction and control offered by the larger discs to control the smaller ones which had the relevant content.[91] 'Funky Drummer' was only available in 7-inch format until the 1979 release of *Super Disco Brakes: Volume 2*, an unofficial compilation album in 12-inch format.[92]

Then, in 1986, two significant new versions were released in 12-inch format. One of these records — James Brown's *In The Jungle Groove* — was an official Polydor release that compiled a wealth of adapted material drawn from Brown's funky back catalogue, and which was intended to capitalize on a renewed public appetite for funk, an appetite driven largely by hip hop's growing popularity. The other record — *Ultimate Breaks And Beats: Volume 12* — was part of an ongoing series of compilations that were released with the similarly capitalist intention of tapping into the musical zeitgeist, but which were unofficial. This series of bootlegs has been important to hip hop's development, though opinion amongst aficionados is divided as to whether it has served to consolidate

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[90] Photograph available at http://www.popsike.com/yvette-the-kids-funky-drummer-45-mega-rare-funk/140526975440.html (accessed February 10, 2015).

[91] For a relevant illustration, see the rear cover of *Born In The Bronx*, which depicts a copy of the aforementioned Yvette & The Kids *Funky Drummer* 7-inch glued to a 12-inch copy of Curtis Mayfield's *Back To The World* LP, the latter being identifiable because its label is partly visible through the jukebox-mountable centre hole of the smaller record. Johan Kugelberg, ed., *Born in the Bronx: A Visual Record of the Early Days of Hip Hop* (New York: Rizzoli International Publications, 2007), rear cover; Yvette & The Kids, *Funky Drummer*; and Curtis Mayfield, *Back to the World,* Curtom, 1973.

[92] *Super Disco Brakes: Volume 2* is not included in Figure 3.4 because it has not been possible to locate a copy of the record in order to ascertain whether the version of 'Funky Drummer' that it includes is different to those listed in the figure.

or dilute the genre's musical heritage. On one hand, the series helped to cement the canon of breakbeats which had been established through the performance practice of hip hop DJs over a period of more than a decade; on the other hand, it was perceived by some as providing a shortcut that allowed novice DJs and producers access to insider knowledge which it had previously been necessary to earn through a lengthy crate-digging apprenticeship, and thereby devaluing the work which had gone into unearthing the more obscure of these songs. Andrew Mason makes the bold but not wholly implausible assertion that 'the breaks featured on Street Beat's *Ultimate Breaks & Beats* series form the basis for modern popular rhythm'![93]

Although the fade-out at the end hints that the master tape may contain yet more material, the long version of 'Funky Drummer' from *In The Jungle Groove* can be seen as the definitive, full-length, released version of the song: at nine minutes and fifteen seconds long, it contains all of the musical material from which the other, shorter edits have been culled. As well as including all eight bars of the main drum break, the long version ends with an additional (that is, previously unreleased) six bars of solo drumming, during which Stubblefield makes extensive use of press rolls and displacement to further embellish his performance as the song fades out.[94] By contrast, the *UBB* version of 'Funky Drummer' only includes the first four bars of the first drum break. Although more precise chronological information is not available, this suggests that Luis "Breakbeat Lou" Flores only had access to the single version of the song when creating the edited *UBB* version, which points towards the

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[93] Andrew Mason, "Hip-Hop's Building Blocks," in *Wax Poetics Anthology: Volume 1* (Brooklyn, NY: Wax Poetics Books, 2007), 192.

[94] Upon its release, this previously-unavailable second drum break was immediately seized upon by producers, who already knew the potency of the existing 'Funky Drummer' breakbeat and recognized the freshness of these additional bars of solo drumming. A notable early usage can be heard in the Ultramagnetic MCs' 'Give The Drummer Some' (recorded during the two years following the release of *In The Jungle Groove*) where the press rolls are used to punctuate the main breakbeat, which is taken from the Dee Felice Trio's 'There Was A Time'.

likelihood that *Ultimate Breaks And Beats: Volume 12* was released at an earlier point in 1986 than *In The Jungle Groove*.[95] In the unofficial, *UBB* version, the first four bars from the song's first drum break are placed at the beginning of the edit and repeated once to create an eight-bar loop which is designed to be user-friendly for hip hop DJs, in that it occurs at the start of the track, making it straightforward to locate in the heat of the moment during a performance. Structurally, the *UBB* version consists of this crude eight-bar drum loop, followed by an unedited section from 'Part 2' of the single version, and then the same eight-bar drum loop again, which is extended this time to include the final, fading fifth bar of the drum break as it occurs in the single version. Although this is conjecture, it seems likely, bearing in mind that the intended function of this version was to enable hip hop DJs to keep listeners dancing, that Flores used a section from 'Part 2' of the single version because it includes a kick drum stroke on the downbeat, a feature which is conspicuous by its absence during 'Part 1'.[96] The *UBB* version was effectively rendered obsolete by the release of *In The Jungle Groove* later the same year, given that the newer record not only included the long version of the song but also the 'Bonus Beat Reprise', both of which were more useful to DJs and producers than the bootleg edit.

Timbre in the 'Funky Drummer' break

As the key to Figure 3.5 shows, the TUBS system has been enhanced in order to reflect pertinent aspects of this breakbeat. Rather than simply

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[95] Further evidence supporting the view that Flores based his edit on the single version can be heard in the inclusion of an additional layer of ska-like vocal percussion in the *UBB* version. This layer is also present in the earlier single version (as well as the medium length edit on the *Star Time* compilation) but not in the long version from *In The Jungle Groove*. The whispered, percussive vocal line emphasizes the quaver off-beats, perhaps echoing the emphasis already set up by the sound of Stubblefield's hi-hat cymbals closing together on beats 2& and 4&.

[96] The kick drum first plays on the downbeat at 3:12 during the long version of 'Funky Drummer'. In the single version, Stubblefield's playing as part of the full band during 'Part 2' is more similar to the drum break pattern than is his pattern during 'Part 1'.

indicating that a stroke occurs on a given semiquaver, the type of stroke is also indicated, with the possible types varying according to which voice within the drum kit is sounding. Thus, the snare drum row differentiates between normal strokes, ghost notes and press rolls (short and long), whilst the hi-hat row differentiates between normal strokes (for which the cymbals are typically held together using the foot pedal), strokes where the cymbals are opened, and strokes where the act of subsequently closing the cymbals again (following an opened stroke) is audible in a way which sounds different to a normal stroke. My transcription of the first drum break from the long version of 'Funky Drummer' is shown in Figure 3.5 on the following page.

Bar	Instrument	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a	1	e
1	(Guitar)	X																	
	Hi-hat	x	x	x	x	x	(o)	C	O	C	x	x	x	x	O	C	x		
	Snare					X			g		g		g	X			g		
	Kick	C		O								O			C				
2	(JB vocals)										Good	God!			Huh!				
	Hi-hat	x	x	x	x	x	O	x	x	x	x	x	x	x	O	x	x		
	Snare					X			g		g		g	X			g		
	Kick	O		O						c		O			C				
3	(JB vocals)																Heh!	Hah!	
	Hi-hat	x	x	x	x	x	(o)	C	x	x	x	x	x	x	O	x	x		
	Snare					X			g		g		g	X			(g)		
	Kick	O		C								O			C				
4	(JB vocals)	Hah!						Urgh!								Ain't	it	fun-	ky!
	Hi-hat	x	x	x	x	x	O	x	x	x	x	x	x	x	O	C	x		
	Snare					X			ppp		pp		g	X			g		
	Kick	C		C						O		O			C				
5	(JB vocals)	fun-	ky!								Ha!					Ain't	it	fun-	ky!
	Hi-hat	x	x	x	x	x	O	C	x	x	x	x	x	x	O	C	x		
	Snare					X			g		g		g	X			g		
	Kick	C		O						O		O			C				
6	(JB vocals)	fun-	ky!													Ain't	it	fun-	ky!
	Hi-hat	x	x	x	x	x	O	C	O	C	x	x	x	(o)	O	x	x		
	Snare					X			g		g		g	X			g		
	Kick	O		C								O			C				
7	(JB vocals)	fun-	ky!													Ain't	it	**fun-**	ky!
	Hi-hat	x	x	x	x	x	O	C	x	x	x	x	x	x	O	C	x		
	Snare					X			g		g		g	X			g		
	Kick	O		O						O		O			C				
8	(JB vocals)	**fun-**	ky!						A-	One		Two		Three	Four!				
	Hi-hat	x	x	x	x	x	O	C	x	x	x	x	x	(o)	O	C	x		
	Snare					X			ppp		g		g	X					
	Kick	O		O			C			C		O			C		O		

KEY

Hi-hat	Snare drum	Kick drum
x = normal stroke	X = normal stroke	O = open stroke
O = cymbals open	g = ghost note	C = closed stroke
C = audible closing	ppp = long press roll	
	pp = short press roll	

All instruments

(brackets)	show indistinct strokes
bold grey	shows the pattern shape created by main strokes
red borders	show composite timbres created by simultaneous strokes
blue shading	shows non-drum voices

Fig. 3.5. James Brown, 'Funky Drummer' long version, 5:21, first drum break

Unusually, my transcription also differentiates between 'open' and 'closed' strokes played on the kick drum: to play an open kick drum stroke, the pedal is used in such a way that the beater rebounds from the

drum head after the initial impact, producing a longer, more resonant sound, whereas a closed kick drum stroke is played by causing the beater to remain pressed against the drum head after the initial impact, thereby damping the drum skin's resonance and reducing the decay of the sound produced (as well as minutely raising its pitch, sometimes). In much Black Atlantic drumming, the use of open and closed strokes (with either the beater or a hand muffling the drum head in order to produce closed strokes) is a common way to introduce timbral variation and articulation into an instrument's rhythm pattern, which in turn enriches the textural ebb and flow of the composite pattern(s) created in an ensemble performance.

Although not totally unheard of, it is rare that this technique would consciously be applied to the kick drum by drummers in a popular music context, whose approach to timbral variation and phrasing typically revolves more around the use of varied hi-hat and snare strokes, as described above. Indeed, as Simon Zagorski-Thomas notes, over the last forty years, mainstream recording practice in relation to the drum kit has progressively sought to devolve control of articulation and timbre away from the drummer and into the remit of engineer or producer instead, through the use of gating, artificial reverb and so on.[97] Funk recordings from the early 1970s predate this shift, however, with the result that differentiation between open and closed kick drum strokes can sometimes be heard, particularly during drum breaks, when such subtleties are not obscured by the playing of any other instrumentalists.

When analysing the 'Funky Drummer' break, technology-based approaches within my methodology included both slowing the extract down considerably and also filtering the sound in order to enhance the harmonic characteristics of each instrument within the drum kit; it was during this process that the variation in Stubblefield's kick drum strokes became apparent. The use of variation here does not appear to be a

[97] Simon Zagorski-Thomas, "Real and Unreal Performances: The Interaction of Recording Technology and Rock Drum Kit Performance," in *Musical Rhythm in the Age of Digital Reproduction*, ed. Anne Danielsen (Farnham, UK: Ashgate, 2010), 195-212.

consciously planned aspect of his performance.[98] Unlike most of the other aspects, kick drum stroke variation is inconsistently employed across the eight bars, as a comparison of the pairs of strokes in the first beat of each bar shows: all four possible combinations are played — closed-open, open-open, open-closed, and closed-closed. Also, the point in the bar which demonstrates the most consistency — that is, the closed kick drum stroke which occurs on beat 4e in all eight bars — coincides with an open hi-hat stroke, suggesting that this consistency is simply a physiological by-product resulting from the hi-hat activity: when Stubblefield raises his left foot to open the hi-hat cymbals at the same time as playing a kick drum stroke with his right foot, the easiest and most natural way to stay balanced whilst seated would be to allow the right foot to support his weight by remaining pressed on the kick drum pedal, thereby inadvertently ensuring that the stroke produced is closed by default. Regardless of whether or not Stubblefield consciously intended to add shape to the timbre and articulation within the kick drum line of the 'Funky Drummer' break in this way, the variation between open and closed strokes I have described is undeniably present, and consequently affects both the musical character of the line itself and also the way that this line interacts with the other voices within the drum kit.[99]

As Figure 3.5 shows, then, a range of strokes are used in all three drum voices in order to produce a variety of sounds, and it is these varied strokes that effect the nuanced timbral, dynamic and articulatory gestures which characterize Stubblefield's performance style. These gestures — the drum strokes — are carefully placed at particular moments in time of course, and the focus on IOIs within much groovological research attests to the significance of this factor, but the timbral nature of the gestures (whether individually at a particular moment, across time within a single

[98] In fact, Stubblefield claims that *nothing* about his performance was planned, saying that 'it was just something I put together at that moment'! Mason, *Hip-Hop's Building Blocks*, 30

[99] Although the variation in the kick drum line is subtle, it provides useful clues about the way that the *BBR* version of 'Funky Drummer' has been constructed, as I will show later.

voice line, or in combination with other lines), the patterns they are arranged into, the dynamic level at which they are delivered, and the way they interact with one another are, collectively, of greater significance to the groove.

An additional, quasi-melodic factor arises from the wide range of strokes which Stubblefield employs. The normal strokes, press rolls and ghost notes in the snare drum voice, and the open and closed kick drum strokes all affect the overtones produced by these drums in different ways, creating variation in the pitch at which they each sound. On the snare, for example, some strokes alter the harmonic characteristics of the drum's resonance in such a way that the pitch produced is almost a tone higher than that produced by other snare drum strokes within the same bar. This alteration of pitch can lend a sense of melody to the drumming that, although primarily of interest because of its internal, relative shape rather than as a result of any harmonic relationship to the tonal base of the song (intended or otherwise), is nonetheless another contributing factor to the breakbeat's groove.

Production as a groove factor in the 'Funky Drummer' break

Studio production is relatively transparent in the 'Funky Drummer' break, only making its presence felt in a few subtle ways. The most noticeable of these, in terms of the groove, is in the reverb that is heard as a result of the main snare drum backbeat (beats 2 and 4), which sounds significantly more obvious than that which results from the ghost notes on the same instrument. This audible disparity between the amounts of reverb resulting from different snare drum strokes allows a number of possible recording scenarios to be deduced. Firstly, the reverberation might result naturally from the ambience of the studio's live room, or it may have been artificially applied using either a plate reverb unit or, more likely, the echo chambers built into King Studios. Secondly, since the drums were usually recorded in mono using a single microphone, and since the effect is not heard on the whole kit or throughout the entire song, the reverb heard during the breakbeat is actually that which has been applied to one

of the non-drum microphones, probably either the horn or vocal mic (since reverb is apparent on both of these elsewhere in the song). And finally, the level of reverb applies in varying degrees according to the dynamic level at which the snare drum is struck, which suggests that either there is a gate between the snare and whichever reverb source is being used, and that the gate's threshold is set at a level which only allows the louder strokes to pass to the reverb source, or else it is only the louder strokes which are picked up by those non-drum microphones which have reverb applied.

A similar disparity between the audible levels of reverb on different snare strokes is evident in the drum breaks of other James Brown songs from this period, regardless of which studio they were recorded at (such as 'Soul Pride', for example, which was recorded at Vox Studios in Los Angeles during the same session as 'Say It Loud — I'm Black And I'm Proud').[100] It seems likely, therefore, that this was a standard production technique associated with Brown's sound and that the audible reverb effect on the snare drum is actually an unintended by-product of processes relating to the vocals or horn section.

However the reverb effect on the snare drum was actually achieved, its effect on the breakbeat's groove relates to the factors of phrasing, timbre and patterning. Reverb adds a phrasing dimension to the snare drum line that is beyond the drummer's control, extending the duration of the louder gestures and differently shaping the way that the sound of these strokes decays. The extended duration means that the sound of the snare drum ends in a different position within the bar than would be the case if there were no reverb; the decay of the reverb effectively joins the initial snare drum stroke with another later sound in the bar, creating a bridge between non-adjacent sounds and thereby emphasizing different pattern relationships within the breakbeat.

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[100] James Brown, *Soul Pride*; and *Say it Loud - I'm Black and I'm Proud,* King Records, 1968.

Patterning in the 'Funky Drummer' break

As I have already pointed out, Stubblefield's use of patterning in 'Funky Drummer' has been a source of confusion amongst scholars at times, and this confusion has often stemmed from a desire to distil the eight-bar break into a shorter version — usually one or two bars — that can represent the essence of the whole. Whilst this approach, as I argued in Chapter 2, tends to negate much of the gestural subtlety in the drummer's performance, it is interesting to see which elements within each bar of the pattern are present throughout the entire break. Figure 3.6 (shown below) is based on the TUBS transcription of the 'Funky Drummer' break shown above in Figure 3.5, but the rows of the diagram are grouped firstly by instrument and then by bar number, allowing clearer comparison between the patterns within each of the three voices within the drum kit.

When the transcription is reconfigured in this way, a clear sense of which elements of the pattern are common to all bars immediately emerges. If the determining parameter in pattern shape is assumed to be whether or not an instrument plays on a given semiquaver, then the snare drum part appears to be the most consistent, with the drum being struck on the same pattern of semiquavers in every bar (with the exception of the very last semiquaver of the drum break — bar 8, beat 4a — when it is not struck). As discussed in the earlier section on timbre in the 'Funky Drummer' break, this apparent consistency is less clear-cut when the range of snare drum strokes employed by Stubblefield is taken into account, because press rolls and ghost notes vary the dynamic, timbral and articulatory character of the pattern from one bar to the next. Variation in the patterns played by other instruments around the kit also means that the individual strokes in this seemingly unchanging snare drum pattern are framed differently from one bar to the next, which consequently impacts on the listener's perception of the pattern.[101]

[101] I return to this idea in Chapter 5, in the context of a discussion about the way that a hip hop MC's flow reframes moments within a looped breakbeat, and vice versa.

Instrument	Bar	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a
Hi-hat	1	x	x	x	x	x	(o)	C	**O**	**C**	x	x	x	x	**O**	C	x
	2	x	x	x	x	x	**O**	x	x	x	x	x	x	x	**O**	x	x
	3	x	x	x	x	x	(o)	**C**	x	x	x	x	x	x	**O**	x	x
	4	x	x	x	x	x	**O**	x	x	x	x	x	x	x	**O**	**C**	x
	5	x	x	x	x	x	**O**	**C**	x	x	x	x	x	x	**O**	**C**	x
	6	x	x	x	x	x	**O**	**C**	**O**	**C**	x	x	x	(o)	**O**	x	x
	7	x	x	x	x	x	**O**	**C**	x	x	x	x	x	x	**O**	**C**	x
	8	x	x	x	x	x	**O**	**C**	x	x	x	x	x	(o)	**O**	**C**	x
Snare	1					**X**			g		g		g	**X**			g
	2					**X**			g		g		g	**X**			g
	3					**X**			g		g		g	**X**			(g)
	4					**X**			ppp		pp		g	**X**			g
	5					**X**			g		g		g	**X**			g
	6					**X**			g		g		g	**X**			g
	7					**X**			g		g		g	**X**			g
	8					**X**			ppp		g		g	**X**			
Kick	1	**C**		**C**								**O**			**C**		
	2	**O**		**O**						(C)		**O**			**C**		
	3	**O**		**C**								**O**			**C**		
	4	**C**		**C**						**O**		**O**			**C**		
	5	**C**		**O**						**C**		**O**			**C**		
	6	**O**		**C**								**O**			**C**		
	7	**O**		**O**						**O**		**O**			**C**		
	8	**O**		**O**			**C**			**C**		**O**			**C**		

KEY

Hi-hat	**Snare drum**	**Kick drum**
x = normal stroke	X = normal stroke	O = open stroke
O = cymbals open	g = ghost note	C = closed stroke
C = audible closing	ppp = long press roll	
	pp = short press roll	

All instruments

(brackets)	show indistinct strokes
bold grey	shows the main strokes
red borders	show simultaneous strokes in two voices

Fig. 3.6. 'Funky Drummer', first drum break, grouped by instrument

Butler highlights a related phenomenon in his discussion of the 'Funky Drummer' break, pointing out the way that the snare drum ghost notes on beats 2a and 3e seem to 'dance about beat 3 without actually landing on it', and that in doing so they invoke 'the unarticulated beat'.[102]

[102] Butler, *Unlocking the Groove*, 89

This relates to what Danielsen calls 'the dynamic relation between the syncopation and the beat' in James Brown's 'Sex Machine', where the listener hears 'the syncopated guitar stroke being pulled toward the beat but never touching it'.[103]

Butler goes on to point out that, when considered in the context of a whole bar, these snare drum ghost notes actually lead towards the main snare stroke on beat 4, in what he calls a 'three-note anacrustic gesture', rather than calling attention to an unarticulated beat 3.[104] What Butler's analysis overlooks, however, is the fact that beat 3 *is* articulated, but by other instruments around the drum kit (with the exception of bar 6). As both Butler's transcription and Figure 3.6 above show clearly, a kick drum stroke of one sort or another falls on beat 3 in bars 2, 4, 5, 7 and 8, whilst an accented hi-hat sound caused by the closing of the cymbals falls on beat 3 in bars 1 and 6.[105] These strokes on beat 3 are of particular significance to the groove because they emphasize the crotchet pulse that underpins the drum break and thereby throw the syncopated off-beat semiquavers (which are mostly played by the open hi-hat or the snare drum ghost notes) into stark relief. So a symbiotic framing relationship exists here, in which the off-beat gestures frame those which occur on the beat, and vice versa, each emphasizing the other by virtue of the contrast they create for one another.

The accented, closing hi-hat strokes — which fall immediately after open hi-hat strokes, for obvious reasons — contribute to the erroneous transcriptions offered by some scholars.[106] Sonically, these

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[103] Danielsen, *Presence and Pleasure*, 79; and James Brown, *Get Up I Feel Like Being A Sex Machine,* King Records, 1970.

[104] Butler, *Unlocking the Groove*, 89

[105] Ibid., 87.

[106] As mentioned earlier in this chapter, Stewart, Greenwald, and Freeman and Lacey all wrongly transcribe the strokes on beat 4& as occurring in the snare drum part, as does Butler. Greenwald makes the same mistake with beat 3 in both bars of his transcription, as well as, inexplicably, beat 3&, which is not even preceded by an open hi-hat stroke. Stewart, *'Funky Drummer'*, 305; Greenwald, *Hip-Hop Drumming*, 262; Freeman and Lacey, *Swing and Groove*, 550; and Butler, *Unlocking the Groove*, 87.

strokes occupy similar territory to the snare drum ghost notes, so it is easy to see where the confusion stems from: they are at a similar dynamic level and share some timbral characteristics. The pattern as transcribed by these scholars (that is, with a snare drum ghost note on beat 4& as well as beat 4e) is not out of the question in terms of funk drumming generally, and can be heard in numerous examples.[107] It is possible too, perhaps, that production factors such as either the microphone placement in relation to the drums or additional dynamic processing via compression might exaggerate the volume at which the hi-hat closing stroke is heard, which would also add to the likelihood that it might be mistaken for a snare drum ghost note. Nevertheless, close listening to the original 'Funky Drummer' break reveals that there is no snare drum stroke present on either beat 3 or beat 4& in any bar, and that the accents at these points in the bar must therefore result solely from the sound of the closing hi-hat. This means that the snare drum pattern during the second beat of each bar (that is, a main stroke on beat 2 and a ghost note or press roll on beat 2a) is echoed by the same pattern during the fourth beat of each bar, lending a sense of balance to the overall line, with each backbeat being followed by a ghost note after a similar interval.

A final aspect that is worth exploring here concerns Stubblefield's use of composite textures to emphasize patterning at key moments during the drum break. Given that these composite textures are achieved by striking more than one instrument simultaneously in order to combine their respective sounds, it can be seen that this type of gesture exists in the overlap between the patterning and timbre groove factors. In one sense, a composite texture is created each time either the kick or snare drum is played in the 'Funky Drummer' drum break, because the hi-hat plays a stroke on every semiquaver and therefore always forms a

[107] Indeed, more recent video footage in which Stubblefield demonstrates the kind of playing that he employed when recording the 'Funky Drummer' suggests that the addition of a snare ghost note on beat 4& has since become typical of his approach to patterning. See, for example, the video at https://www.youtube.com/watch?v=sAvRBcknTXU (accessed February 20, 2015).

composite sound with the other drums when they are also struck. Without wishing to downplay the instrument's importance to the drum kit, the hi-hat is most often considered to have a role that is primarily concerned with timekeeping. This certainly appears to be its role throughout much of the 'Funky Drummer' break, as both Figures 3.5 and 3.6 indicate (representing such strokes with a lower-case 'x'). Stubblefield himself, however, underscores the importance of the hi-hat's role in establishing a groove, stating that 'I paid more attention to my [plays hi-hat quavers] over here. This is the main course right here, for me… [You can] keep it [going], get back and put stuff in between all of that'.[108] Once this important framework of typical metronomic strokes is established though, I propose that it is the accented open and closing strokes on the hi-hat that contribute significantly to the shape of the pattern by forming composite textures with the other drums. Although much existing scholarship relating to this drum break treats these strokes as incidental, prioritising the interaction between kick and snare drum instead, their impact on the way the groove works is important, both in the breakbeat's original funk context and also when it is sampled and recontextualized in other genres.

As Figure 3.6 shows, Stubblefield consistently plays an open-hi-hat-plus-kick-drum composite texture on beat 4e in all eight bars of the drum break. Such consistency demonstrates the importance of beat 4e to the patterning: the drummer invests this moment with considerable power through regular emphasis, and this power is magnified by both the composite texture and the fact that it is used to emphasize an off-beat. By combining the depth and power of the kick with the sustained high frequency sound of the open hi-hat, the composite texture occupies a wider frequency spectrum than any of the other drums can individually, thereby demanding more of the listener's attention as it destabilizes the backbeat. If, as Butler suggests, the snare drum ghost notes on beats 2a and 3e have the effect of drawing attention to beat 3 itself, then the

[108] See video at https://www.youtube.com/watch?v=3s8V6pRfQWQ (accessed February 21, 2015). The quoted statement occurs at 3:09.

composite open-hi-hat-plus-kick-drum stroke on beat 4e has an almost opposite effect, drawing attention away from the solid, pulse-friendly backbeat on beat 4, and seemingly attempting to establish the dominance of the semiquaver off-beat instead.[109] This is a clear example of the heterogeneous sound ideal in action: Stubblefield sets up a sense of metrical contrast wherein beat 4e becomes unusually significant 'by tying this metrical contrast to a contrast in timbre'.[110] When James Brown brings the band back in at the end of the drum break, his asymmetrical count-off acknowledges the pattern which Stubblefield has established, with the spoken 'four' delivered on beat 4e, thereby coinciding with the composite open-hi-hat-plus-kick-drum stroke.

A similar composite texture is created when Stubblefield combines an open hi-hat stroke with a snare drum ghost note on beat 2a in bars 1 and 6. Although this composite texture only occurs twice during the original drum break, the use of bar 1 as the main building block in the edited *BBR* version (as discussed in the following section) has made this specific gesture part of the fabric of contemporary popular music. Whilst the snare drum pattern is the same during both the second and fourth beat of each bar, as I have pointed out, the open hi-hat pattern in bar 1 has an asymmetrical relationship with this snare pattern: in the second beat it aligns with the ghost note on beat 2a, but during the fourth beat it falls on beat 4e, in-between the snare strokes. This alternation between alignment and non-alignment (shown in Figure 3.7 below) sets up a

[109] Oddly, Butler ignores the use of the open hi-hat in the 'Funky Drummer' break entirely, instead transcribing a simple closed-stroke pattern based on quaver subdivisions, thus also omitting the crucial semiquaver framework which Stubblefield's hi-hat establishes. Cymbals seem to be something of a blind spot in Butler's analyses: although he correctly transcribes the straight quaver cymbal pattern in the 'Amen' break, he wrongly assigns this pattern to the hi-hat. Two of this break's most distinctive features are its use of the ride cymbal rather than the hi-hat, and the crash cymbal stroke which emphasizes beat 3& of bar 4. Both of these features are important to the way that the 'Amen' break works when sampled and used in the electronic music which Butler discusses, yet he overlooks them here. Ibid., 79.

[110] Wilson, *The Heterogeneous Sound Ideal*, 338

similar cycle of tension and release to that exhibited by the binary Afro-Cuban *clave* pattern, in which half of the pattern (the 'two-side') aligns with the pulse whilst the other half (the 'three-side') interlocks with the pulse.[111]

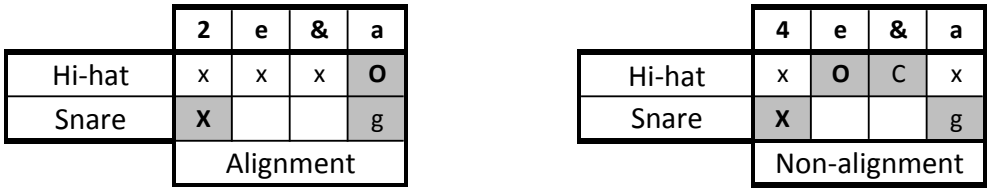

Fig. 3.7. 'Funky Drummer', open hi-hat, alignment vs. non-alignment

When the 'Funky Drummer' break is sampled in hip hop and other subsequent genres, these composite textures stand out because they tend not to align with any additional layers of programmed drums which have been added by producers, unlike the main kick and snare drum strokes in the breakbeat which are often masked to some extent by added drum machine sounds.

I have shown how several groove factors operate in the 'Funky Drummer' break as it was originally performed and recorded, and have begun to build a case for assessing this breakbeat's groove in terms of Wilson's concept of the heterogeneous sound ideal. In the following section, I take a step towards the thinking around sampling presented in later chapters, by investigating what is different about the way groove factors in the same performance operate when considered in the context of an *edited* version of the 'Funky Drummer' breakbeat.

[111] For an exploration of *clave* patterning which is as deep and complex as mine is shallow and simplistic, see David Peñalosa, *The Clave Matrix: Afro-Cuban Rhythm: Its Principles and African Origins*, ed. Peter Greenwood, 2nd ed., Vol. One (Redway, CA: Bembe Books, 2012).

‘Funky Drummer – Bonus Beat Reprise’ (1986)

As I have previously mentioned, the release of James Brown’s *In The Jungle Groove* album in 1986 marked an important point in the chronology of the ‘Funky Drummer’ break, because the record included not only the full-length version of the song containing both the first eight-bar drum break and the previously unreleased second drum break, but also the ‘Bonus Beat Reprise’ version of the song, whose inclusion was aimed squarely at the hip hop DJ community.

The *BBR* version was a tape-edit constructed by eminent disco DJ Danny Krivit, using re-ordered fragments from the first drum break. Whilst Luis Flores’s *UBB* version uses one crude edit-point to briefly extend the drum break from the single version by doubling its length from four to eight bars, Krivit’s *BBR* version, by contrast, extends the breakbeat to cover seventy-one full bars. In effect, this is a new composition built from elements within the original song, and in this sense the editing process can be seen as an early version of sampling, albeit one carried out using (late) analogue rather than (early) digital technology. Carolyn Krasnow argues that ‘[in disco] the tune was never intended to stand on its own as a complete work, but as a text that would be continually re-written and spliced into larger, momentary texts’; given Krivit’s central role as a DJ in New York’s disco scene it is unsurprising that this aesthetic — which also resonates with hip hop DJ practice — informs the edit-based compositional process in his *BBR* version of ‘Funky Drummer’.[112]

As the structure of Krivit’s edit shows (in Figure 3.8 below), he takes the ‘pattern of gestures’ that constitutes Stubblefield’s performance and reorders small groups of these gestures into new configurations. Whilst the groups used are never shorter than a crotchet — and most last for four crotchets or more — this aspect of Krivit’s editing process equates to the sample manipulation technique known as ‘chopping’ which

[112] Carolyn Krasnow, "Technologies of Authorship in Disco," in *Popular Music: Style and Identity*, ed. Will Straw (Montreal: Centre for Research on Canadian Cultural Industries and Institutions, 1995), 183.

was initially pioneered within hip hop production practice. In hip hop, chopping tends to involve the reordering of shorter fragments, operating at the crotchet, quaver or semiquaver subdivision level, so that the process generates new patterning *within* the bar, whereas in the *BBR* version the reordering process operates more at the level of the bar than the beat. Nevertheless, at every spliced edit-point, Krivit juxtaposes gestures that are non-contiguous in Stubblefield's original performance, thereby generating new patterns by bringing the gestures into new relationships with one another.

The same close-listening methodology, as previously outlined, was used to determine the structure of Krivit's edits in the *BBR* version. The origin of some sections is very obvious, such as those which feature a vocal interjection or a rhythm pattern in a particular instrument which only occurs once in the original version (for example, the open hi-hat stroke pattern in bar 1). Accurately discerning the origin of other sections, however, requires closer attention to gestural nuance.

Bar number	1		2		3			4	
FD bar	2	1	2	1	2	1		2	1
Bar number	**5**		**6**		**7**			**8**	
FD bar	2	1	2	1	2	1	4	5	
Bar number	**9**		**10**		**11**			**12**	
FD bar	6		7		8	2		1	
Bar number	**13**		**14**		**15**			**16**	
FD bar	2		1		2			3	1
Bar number	**17**		**18**		**19**			**20**	
FD bar	2	1	2	1	1	**1★**	**1★** Hit me!	1	
Bar number	**21**		**22**		**23**			**24**	
FD bar	2	1	2	1	2	1		2	1
Bar number	**25**		**26**		**27**			**28**	
FD bar	2		3		4			5	
Bar number	**29**		**30**		**31**			**32**	
FD bar	6		7		8	1		2	1
Bar number	**33**		**34**		**35**			**36**	
FD bar	2	1	2	1	2	1		2	1
Bar number	**37**		**38**		**39**			**40**	
FD bar	2	1	2	1	2	1	4	5	1
Bar number	**41**		**42**		**43**			**44**	
FD bar	2	5	6	1	2	6		7	1
Bar number	**45**		**46**		**47**			**48**	
FD bar	2	7	8	1	2	1		2	1
Bar number	**49**		**50**		**51**			**52**	
FD bar	2	1	2	1	2	1		2	1
Bar number	**53**		**54**		**55**			**56**	
FD bar	2	1	2	3	4	1		1	
Bar number	**57**		**58**		**59**			**60**	
FD bar	2		3		4			5	4
Bar number	**61**		**62**		**63**			**64**	
FD bar	5	4	5	**4★** **5★**	4	5	4	5	4
Bar number	**65**		**66**		**67**			**68**	
FD bar	5	4	5	**6★** **7★**	5	6	4 1	2	1
Bar number	**69**		**70**		**71**			**72**	
FD bar	2	1	2	7	8			Horn stab	

KEY

tape-edit point

barline in original version

★ displaced beat

Fig. 3.8. James Brown, 'Funky Drummer – Bonus Beat Reprise', structure

Considered in conjunction with other factors, the variation between open and closed kick drum strokes on beats 1 and 1& (as described earlier) can be used to deduce which first beat is being used. It is clear from initial listening that the most commonly looped bar in the *BBR* version is taken from bar 1 in the original drum break. This is evident from the distinctive pattern of opening and closing in the hi-hat voice, but the omission of the stabbed guitar chord on beat 1 suggests that the loop point occurs after beat 1 of bar 2, as Figure 3.8 shows. This possibility — which already makes logistical sense in terms of the practicalities of tape editing — is corroborated by the stroke variation in the kick drum pattern. Beats 1 and 1& both use open kick drum strokes, thereby proving that the first beat of the main loop comes from bar 2 of the original: as can be seen earlier, in Figure 3.5, if the first beat was taken from bar 1 of the original then the pattern would be 'closed-closed', and the only other bars with an 'open-open' pattern (that is, bars 7 and 8) would also include Brown's voice saying 'funky' during beat 1.

It is immediately apparent from the structural diagram in Figure 3.8 that almost all of the edit-points fall on either beat 2 or beat 4, thereby coinciding with a main snare drum stroke on the backbeat. The only exceptions to this rule are the edit-points at bars 12, 14, 19, 20 and 56, which coincide with the guitar chord from beat 1 of the original drum break, and the final edit-point at bar 72 which coincides with a horn stab (seemingly taken from an entirely different song). Such an edit-point location strategy conforms to good tape editing practice: splicing works best immediately prior to a high frequency sound on the tape, because any click noise which might result from the edit is masked by the nature of the sound it precedes. In this respect, tape editing differs from sample-looping practice in hip hop, in which the start of a loop is much more likely to fall on beat 1. (The risk that unwanted, audible clicks occur at the loop's edit-point can be circumvented by using the digital sampler's crossfade facility.) This reflects the theory that sample-manipulation techniques in hip hop production are largely evolved from DJ practice within the genre, in which successive breakbeats during a performance

would typically be introduced on beat 1. Exceptions exist in both production and performance, but the tendency to base loops around beat 1 can be generally observed in hip hop.

As is evident from the number of edit points shown in Figure 3.8, Krivit uses several different sections of tape to construct the *BBR* version of 'Funky Drummer'. When these sections are inserted into the structure, they are almost all placed in such a way that a given beat from the original drum break is still aligned to the same position within the bar. In other words, despite changing the order in which the gestures occur — and, consequently, the pattern relationships that exist between them — Krivit tends not to displace the gestures in relation to their position within the bar. Such an approach undoubtedly lends a sense of naturalism to the newly constructed breakbeat, making it less likely that the listener will detect the mediation which has taken place.

The only exceptions to this general rule occur in bars 19, 62 and 66, and these displaced fragments are clearly marked in the diagram (with a star symbol: ★). Because these sections are displaced by crotchet multiples, their new position within the bar does not emphasize syncopation or imply metrical contrast. This is different from the way in which funk drummers tend to use displacement, which usually emphasizes off-beat quavers or semiquavers, as discussed in Chapter 2. Rather, Krivit uses displacement in two different ways: firstly, in bar 19, he restates beat 1 of the original drum break three times in rapid succession — a technique that mimics the hip hop DJ practice of 'beat juggling' — which has the effect of briefly rupturing the flow of the groove and thereby toying with the listener's expectations, before the familiarity of the main *BBR* loop returns in bar 20; and secondly, in bars 62 and 66, he displaces Brown's voice saying 'funky' in order to then repeat the phrase immediately afterwards, thereby creating a sense that the edit is

building towards a climax of sorts by shortening the loop length to imply acceleration.[113]

This analysis of the techniques used in the *BBR* version to affect or enhances the groove factors that are present in the original 'Funky Drummer' break shows a symbiotic aesthetic relationship between Krivit's editing process and the inextricably-linked practice(s) of the DJ and the producer in hip hop. Although the *BBR* version is constructed using tape-based technology, rather than the decks or samplers associated with musical creativity in hip hop, its composition is informed by the same aesthetic, and thus the resulting track becomes a tool which will function in both the performance and studio contexts.

Crucially, the very nature of the *BBR* version problematizes the issue of originality in relation to 'Funky Drummer' and sampling. Other scholars have discussed the legality of sampling at length, but that is not directly relevant to the point I am making here (though it is, of course, related).[114] Rather I wish to highlight an observation that seems to be absent from existing discourse around this breakbeat, namely that the most commonly sampled bar from the *BBR* version — which is also the section used most frequently within Krivit's composition — was never actually played by Stubblefield. I do not mean, of course, that it is not Stubblefield's playing that is heard, but rather that the specific pattern of gestures which constitutes his original performance has been reordered

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[113] Mark Katz illuminates both the origins and and practicalities of beat juggling in *Groove Music: The Art and Culture of the Hip-Hop DJ* (Oxford; New York: Oxford University Press, 2012), 116-119.

[114] The legality of sampling is central to the work of Joanna Demers, and Kembrew McLeod and Peter DiCola. Since the *BBR* version was an official Polydor release, Krivit's work had presumably received Brown's seal of approval (though one suspects that Stubblefield's blessing will not have been sought, judging by the dynamic which interviews suggest existed between the bandleader and his musicians). Joanna Teresa Demers, *Steal this Music: How Intellectual Property Law Affects Musical Creativity* (Athens, GA: University of Georgia Press, 2006); and Kembrew McLeod and Peter DiCola, *Creative License: The Law and Culture of Digital Sampling* (Durham, NC: Duke University Press, 2011).

as a result of Krivit's editing process. In order to create a loop-able bar of 'Funky Drummer' containing only drumming, such reordering of Stubblefield's gestures is clearly necessary, because — despite his exhortations to the musicians that they 'lay out and let the drummer go' — James Brown himself seems unable to resist adding his distinctive vocal utterances to every bar of the original drum break (except for bar 1, which includes the guitar chord instead).

The fact that this new bar was never actually played as we hear it in the *BBR* version in no way devalues what is undeniably a special performance — on the contrary, it shows that Stubblefield's nuanced control of groove factors enables him to create gestures which can withstand such reordering without their groove being diminished. The mediating effect that Krivit's editing has on the original drum break, and which results in the creation of this one significant new bar in particular, sets a precedent for the future manipulation of existing performances via sampling. It also begins to diminish the significance of the IOIs and patterning within an instrumentalist's performance, demonstrating that if a sufficient number of the other groove factors remain unchanged then it is possible to subtly — or even radically — adjust both of these in subsequent sample-based productions without any detrimental impact on the groove. In this way, 'Funky Drummer – Bonus Beat Reprise' can be seen to represent the beginning of a shift in groove priorities, as temporal factors gradually cede to those of timbre. Later effects of this shift are manifest throughout jungle producers' use of the groove in breakbeats, as I show in Chapter 6.

'Amen, Brother' (1969)

Performed by Gregory Coleman, the four-bar drum break from 'Amen, Brother' by The Winstons is used in many hip hop tracks, but its inclusion in my case studies is predicated more on this breakbeat's subsequent fetishization within jungle production. Superficially, the patterning is very similar to that in 'Funky Drummer', at least in terms of the kick and snare

drum voices.[115] Comparisons between the patterning in the drum voices alone could lead to the conclusion that these two breakbeats are more similar than they actually are; the key differences between the performances lie in the way the cymbal voice is used in each.

In the 'Funky Drummer' break, the cymbal pattern is played on the hi-hat using semiquaver subdivisions, with timbral variation achieved through the opening and closing of the hi-hat cymbals, as I have discussed extensively. In the 'Amen' break, however, the pattern for this voice is played on the ride cymbal, using quaver subdivisions, and timbral variation is employed just once — albeit radically — through the use of the crash cymbal on beat 3& of bar 4. A number of significant contrasts between the 'Funky Drummer' and 'Amen' breaks become evident, therefore, when these cymbal lines are compared (see my transcription of the 'Amen' break in Figure 3.9 below).

Firstly, the semiquaver subdivision spelled out by the all-important hi-hat in 'Funky Drummer' creates an explicit framework with which every stroke in the breakbeat can align, whereas the quaver subdivision played on the ride cymbal in 'Amen' sets up a more spacious framework. The 'Amen' break still makes use of semiquaver subdivisions, as expressed in the snare drum ghost notes and several kick drum strokes, but these fall between the cymbal strokes, and thus interlock, rather than align, with the cymbal pattern. In practical terms, the tempo of 'Amen, Brother' is considerably faster than that of 'Funky Drummer', meaning that the semiquaver subdivision would be impossibly fast to maintain for long in a single voice within the drum kit.

[115] Butler notes that the patterning in these two breaks shares 'many of the same characteristics', and Greenwald would no doubt recognize that the 'boom-boom-cha' which he calls 'the Funky Drummer beginning' is actually also 'the Amen beginning'. Butler, *Unlocking the Groove*, 88; and Greenwald, *Hip-Hop Drumming*, 268

Bar	Instrument	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a
1	Ride	x		x		x		x		x		x		x		x	
	Snare					X			g		g			X			g
	Kick	●		●					•			●	●				
2	Ride	x		x		x		x		x		x		x		x	
	Snare					X			g		g			X			g
	Kick	●		●					•			●	●				
3	Ride	x		x		x		x		x		x		x		x	
	Snare					X			g		g					X	
	Kick	●		●								●					
4	Ride	x		x		x		x		x		©		x		x	
	Snare		g			X			g		g					X	
	Kick			●	●							●					

KEY		
Cymbals X = ride cymbal © = crash cymbal	**Snare drum** X = normal stroke g = ghost note	**Kick drum** • = normal stroke

All instruments

bold grey	shows the pattern shape created by main strokes
red borders	show composite timbres created by simultaneous strokes

Fig. 3.9. The Winstons, 'Amen, Brother', 1:25, drum break

Secondly, Stubblefield can tightly control the articulation and phrasing in the 'Funky Drummer' cymbal line by choosing when to open and close the hi-hat; the normal strokes which make up the majority of the hi-hat pattern produce a very short, clipped sound, and the few open strokes which occur produce sounds that only sustain for as long as the drummer chooses to keep the cymbals apart (typically the duration of a full semiquaver beat). In contrast, Coleman's use of the ride cymbal in the 'Amen' break creates the drumming equivalent of legato phrasing, as the long sustain from one stroke overlaps with the attack of the following stroke, cumulatively producing a smooth wash of texture containing intermittent peaks.

Considering this in terms of the heterogeneous sound ideal, whilst the legato wash of sustain reduces the scope for timbral variation in the cymbal line, it does, conversely, set up a constantly sounding texture against which all the other voices around the drum kit will be heard as contrasting. More practically, the sustained sound of the ride cymbal

creates potential for sample manipulation that is sonically interesting because the techniques used have the effect of calling attention to themselves, foregrounding the manipulation process. Chopping the sample, for example, interrupts the sustained flow, causing the cymbal's sound to end more abruptly than it naturally would and creating gaps in the manipulated breakbeat that do not exist in the original. This idea becomes especially relevant in the context of sample manipulation in jungle, as several of the case studies in Chapter 6 demonstrate.

And thirdly, although timbral variation does not occur within the ride cymbal line of the 'Amen' break (unlike that which is heard in the hi-hat line of 'Funky Drummer'), the crash cymbal is used as a jarring timbral alternative at a key moment in the drum break. The crash cymbal shares the sustaining properties of the ride, as discussed above, but has a brighter texture containing more high frequencies. Although a drummer is at liberty to play this cymbal at any point during a song, in practice it is typically used to demarcate structurally significant moments, so convention dictates that it will usually be struck on the first beat of a new section (often following a drum fill) in order to punctuate the performance.

The way in which Coleman uses the crash cymbal in the 'Amen' break, however, deviates from convention in two respects: firstly, by striking the crash cymbal on beat 3&, he uses timbral variation in the cymbal line to emphasise the quaver off-beat, but does so with a sound that is more normally associated with on-beat playing; and secondly, there is no drum fill played as a preamble to the crash stroke, so the cymbal sound leaps out of the texture and catches the listener unawares by creating a sense of timbral rupture. As I show in Chapter 6, jungle producers capitalize on the shock factor created by this specific moment of timbral rupture, recycling it to the point that it *should* lose its impact, yet somehow, when sampled and recontextualized, it retains its power to cut effectively through whatever additional textures it is swathed in.

Phrasing in the 'Amen' break

The crash cymbal stroke on beat 3& of bar 4 is also significant in terms of phrasing as a groove factor in the 'Amen' break. It acts as a kind of magic moment in which the progress of time seems briefly frozen and the listener's attention shifts to texture instead. Because, however, the texture created by the crash cymbal at this point is spread across a longer duration than, for example, the texture which results from a main snare drum stroke, the timbre becomes part of the break's phrasing, rather than just its patterning. This moment is also underscored by a kick drum stroke, of course, so the drummer is again using a composite texture in order to emphasize a significant point in the bar.

Seen in this way — that is, as phrased textural rupture — the 'Amen' break crash cymbal pre-empts the use of timestretching as a key sample manipulation technique in jungle. As such, this link between a feature of the breakbeat and a sonic process contributes to the 'Amen' break's popularity in that genre.

Tempo can also be seen to affect the way that phrasing works as a groove factor in breakbeats. Although the 'Amen' break is generally slowed down for use in hip hop tracks, the pattern of gestures still carries a trace of the more frantic way in which it was originally phrased (at 142 bpm in the source recording), which adds a driving urgency to the overall shape of the break even when it is used at slower tempos.

Displacement in the 'Amen' break

As is often the case when displacement is used in funk drumming, beat 3& becomes a target for displacement of the main pattern in the 'Amen' break. Beginning on beat 3& of bar 3, a displaced pattern runs for four beats, ending at the composite crash-and-kick-drum stroke discussed above, on beat 3& of beat 4. Figure 3.10 below shows bars 3 and 4 of the drum break, in which this displaced 'bar' is highlighted with a red border.

Bar	Instrument	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a
1	Ride	X		x		X		x		X		x		X		x		X		x		X		x		X		©		X		x	
	Snare					**X**			**g**		**g**					**X**			**g**			**X**			**g**		**g**					**X**	
	Kick	●		●								●								●	●							●					
												1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a						
												Displaced count																					

KEY		
Cymbals	**Snare drum**	**Kick drum**
X = ride cymbal	X = normal stroke	• = normal stroke
© = crash cymbal	g = ghost note	

All instruments

bold grey	shows the pattern shape created by main strokes
bold red	shows main strokes in the displaced pattern
red border	shows displaced bar outline

Fig. 3.10. The Winstons, 'Amen, Brother', 1:29, displaced four-beat grouping in bars 3 & 4 of the drum break

The significance of this four-beat grouping in the context of jungle production is discussed in Chapter 6, where I call it the 'Amen jungle bar'.[116] The use of beat 3& as a target for displacement in this way is also evident in Clyde Stubblefield's playing, influencing both the way he constructs some of his main patterns (such as in 'Cold Sweat', for example) and the way he introduces pattern variation into drum breaks without losing the forward momentum of the groove (as heard in the closing bars of the long version of 'Funky Drummer', for example). I discuss his approaches to displacement elsewhere at various points in the thesis.

By way of a tangent (though still linked to the ideas of patterning and displacement), Michael Schneider proposes that the 'Amen' break's enduring appeal may derive from its adherence to the golden ratio principle.[117] Tantalizing though this possibility initially appears, however, the evidence that Schneider provides in support of his theory ultimately fails to convince in any musical sense. By measuring proportional distances in the 'Amen' break's waveform, Schneider is certainly able to demonstrate that observable relationships based around the golden ratio exist between several peaks. The extract that he measures in order to illustrate his argument, however, begins on the second beat of a bar and is thirteen quavers long, meaning that although the golden ratio appears to be present in the peak patterns he finds, it is hard to imagine that this ratio would be perceived by the listener, given its unnatural relationship to the breakbeat's pulse. The lack of resemblance between Schneider's extract and the breakbeat as it would be played or sampled suggests a somewhat blinkered methodology, concerned more with abstraction than empirical practice.

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[116] In his analysis of the 'Amen' break, Butler refers to this displaced four-beat grouping as a 'shifted within' bar. Butler, *Unlocking the Groove*, 79

[117] Michael S. Schneider, "The Amen Break and the Golden Ratio", available at http://www.constructingtheuniverse.com/Amen%20Break%20and%20GR.html (accessed March 12, 2015).

Ghost notes in the 'Amen' break

The use of snare drum ghost notes in the 'Amen' break conforms to a fairly standard pattern, matching the placement on beats 2a and 3e that is heard in the 'Funky Drummer' break. By contrast, beat 3a in the 'Amen' break features a kick drum stroke, rather than a snare drum ghost note (which is the texture used at the equivalent point during the bar in the 'Funky Drummer' break). Overall, this means that the pattern of emphasis during beats 2 and 3 is the same in both breaks, but the different choice of texture for beat 3a — which is the semiquaver immediately preceding the main snare drum stroke on beat 4 — gives the pattern in the 'Amen' break a contrasting shape at this significant point in the bar.

In the preceding chapter I debated whether or not it was appropriate to classify quiet kick drum strokes as ghost notes, or whether this description was only appropriate to quiet snare drum strokes. In the 'Amen' break, I propose that there is a kick drum stroke that fits the description very well. It is played, softly, under the snare drum ghost note on beat 2a in bars 1 and 2, and so creates a composite texture that sounds thicker than the non-composite snare drum ghost notes that fall on the same beat in bars 3 and 4. Although this kick drum ghost note tends to be omitted from existing analyses of the 'Amen' break, it is audible during close listening. Its presence contributes subtly, but significantly, to the way that timbre operates as a factor in this breakbeat's groove.

During the much-sampled first bar of the 'Funky Drummer' break, Stubblefield emphasizes a snare drum ghost note at this same point in the bar by combining it with an open hi-hat stroke to create a composite texture. In both this example and the 'Amen' break, the drummers use a composite ghost note texture on an off-beat semiquaver subdivision as a way to exaggerate the timbral contrast between this moment and the *absence* of a kick drum stroke on the following semiquaver (namely beat 3, a point in the bar when the listener might reasonably expect to the hear the textural weight of a kick drum).

‘Think (About It)’ (1972) and ‘Hot Pants (Bonus Beats)’ (1988)

The final pair of breaks included here are both performed by John “Jab’O” Starks and, thus, are similar to one another whilst contrasting, to some extent, with those performed by Clyde Stubblefield, the colleague with whom Starks shared drumming duties in James Brown’s band during the early 1970s. A transcription of the drum break(s) in ‘Think (About It)’ by Lyn Collins is shown below in Figure 3.11.[118] A transcription of ‘Hot Pants (Bonus Beats)’ by Bobby Byrd is not directly relevant here, but some of the break’s key features are mentioned in the following discussion.[119]

As with the other breaks discussed in this chapter, ‘Think (About It)’ is included in the *Ultimate Breaks And Beats* series of compilations, appearing on *Volume 16*.[120] The original version appears in a crudely, but effectively, edited form here, in order to improve the functionality of the breakbeat it contains for use by DJs, as was also the case with the other songs that I have discussed. In fact, there are four separate drum breaks in ‘Think (About It)’, each of which lasts for just one bar in the original song, as Figure 3.11 shows. The *Ultimate Breaks And Beats: Volume 16* edit loops the first and third of these at the point during the song when each occurs (bars 23 and 42), thereby extending them to last for four bars instead of one.

Patterning in ‘Think’ and ‘Hot Pants’

The red borders in Figure 3.11 indicate where variation exists between the patterning in these four bars. It is clear that there is very little such variation in the drum part, and that what variation does exist is very subtle. Each bar features just a single kick drum stroke on beat 1, main snare drum strokes on the backbeat, and a consistent pattern of ghost notes on beats 2a, 3e and 3&. There are two distinctive things about this pattern, however, that impact on the breakbeat’s groove.

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[118] Lyn Collins, *Think (About It),* People Records, 1972.

[119] Bobby Byrd, *Hot Pants (Bonus Beats),* Urban, 1988.

[120] Various Artists, *Ultimate Breaks And Beats: Volume 16,* Street Beat Records, 1987.

Bar	Instrument	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a
A (bar 23)	Vocals							Yeah!								Woo!	
	Tambourine	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Hi-hat	x		x		x		x		x		x		x		o	
	Snare					X			g		g	g		X			
	Kick	●															
B (bar 29)	Vocals	Come	on	sis-(ters)													
	Tambourine	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Hi-hat	x		x		x		x		x		x		x		x	
	Snare					X			g		g	g		X			
	Kick	●															
C (bar 42)	Vocals											She bad				heh!	
	Tambourine	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Hi-hat	x		x		x		x		x		x		x		o	
	Snare					X			g		g	g		X			
	Kick	●															
D (bar 48)	Vocals						You're bad			sister							
	Tambourine	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
	Hi-hat	x		x		x		x		x		o		x			
	Snare					X			g		g	g		X			
	Kick	●															

KEY

Hi-hat
x = normal stroke
O = cymbals open

Snare drum
X = normal stroke
g = ghost note

Kick drum
● = normal stroke

All instruments
bold grey shows the pattern shape created by main strokes
red border shows variation in pattern
blue shading shows non-drum voices

Fig. 3.11. Lyn Collins, 'Think (About It)', drum break(s)

The first of these is the kick drum pattern. By only playing a kick drum stroke on beat 1, Starks leaves a huge amount of space elsewhere in this voice, the implications of which are twofold: it directs the listener's attention towards the timbre and pattern of the snare drum instead, and also means that when the breakbeat is sampled and recontextualized into either hip hop or jungle tracks, there is little competition in the bass register, thus allowing producers plenty of timbral scope for the inclusion of additional synthesized layers.

The second distinctive patterning feature is in the use of beat 3& as a location for a snare drum ghost notes. Rather than the typical pattern of three ghost notes on beats 2a, 3e and 3a (as seen in several other breakbeats, such as 'Funky Drummer'), in the 'Think' break, the third ghost note in this grouping occurs a semiquaver earlier, so that the pattern uses beats 2a, 3e and 3&. Thus, while the 'Funky Drummer' ghost note pattern interlocks with the quaver pulse, the 'Think' ghost note pattern moves from interlocking to aligning with this pulse, midway through the phrase. Ultimately, this shift creates a longer gap before the main snare drum stroke on beat 4, with the effect that the important backbeat stroke sounds even more prominent.

Although the patterning in the 'Hot Pants' break is not otherwise remarkable, the main snare drum stroke on beat 4 is regularly displaced, moving a quaver earlier, to beat 3&. Out of context, this displacement seems a little odd, but it makes more sense when the derivation of this breakbeat is clarified. Strictly speaking, it is not actually a breakbeat in the true sense of the term, because there is no point in the original song where the other instruments stop playing.

Rather, this 'Bonus Beats' version has been created from the multitrack master tapes, by muting all of the non-percussion instrumentation (except for some vocal phrases) in the mix. Thus, although its duration exceeds two minutes, no looping — either of tape or samples — was necessary in order to make this version, because it is simply the entire drum performance from the song. The consistency of timing, patterning and dynamics that it exhibits, throughout, are therefore wholly testament to Starks's capability as a performer, rather than resulting from any editing. Once this context is understood, and the full version of the song is heard, it becomes clear that the reason he occasionally moves the main snare drum stroke a quaver earlier is so that it will align with a particular horn phrase that punctuates the original song at key structural moments.

Timbre in 'Think' and 'Hot Pants'

Both the 'Think' and 'Hot Pants' breaks feature prominent use of a tambourine playing constant semiquavers.[121] As noted in the section on ghost notes in the preceding chapter, it was common, in James Brown's live performances, for one drummer to play tambourine when another was playing the drum kit during a given song, so it is unsurprising that the use of this additional layer of percussion filters through into the band's approach in the recording studio too.

The tambourine, in both breaks, adds a powerful combination of timbre, momentum and swing to the groove. As I discuss in Chapter 6, this timbral layer is useful in the context of jungle production, so both breaks are part of the small canon that recurs frequently in the genre.[122] The semiquaver subdivision that this voice expresses adds momentum to any composite break into which it is subsequently incorporated, and the varying amount of swing with which these semiquavers are performed blurs the rigidity of the rhythmic subdivision framework.

This concludes my detailed analysis of breakbeats in their original funk context, during which I have considered the various ways that each groove factor operates. It is noteworthy that, whilst there is common ground between aspects of the breakbeats, different groove factors might take priority in each of them. As predicted in the preceding chapter, it is also evident that varying degrees of overlap and interconnection often exist between the groove factors *within* a breakbeat, so that in some cases, for example, timbre cannot necessarily be considered without also

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[121] In fact, although not included in my transcription, there are two whole bars in the original recording of 'Think (About It)' that, following a snare stroke on the first beat, consist exclusively of this tambourine part. The lack of additional instrumental layers at this point makes the pattern ideal for sampling, of course.

[122] Comparisons between the timbral character of the tambourine in the original version of 'Hot Pants – I'm Coming, Coming, I'm Coming' and the 'Hot Pants (Bonus Beats)' version suggest that extra reverb and brightness have been added to the latter version, thereby augmenting the timbral groove factor in ways which make it better-suited, still, to recontextualization via sampling.

thinking about phrasing, because both factors relate to — or result from — the same performed gesture.

From the analyses presented here, it would seem that the definition of breakbeats as *a network of interrelated patterns of gestures* clearly applies when they are assessed in their original context. In the following chapter, I look at why these gestures might appeal to hip hop producers as potential samples, how the production techniques developed within the genre can change the patterns and their interrelationships, and what impact this process of transformation can have on the groove factors in breakbeats.

Chapter 4 – Bring that beat back:

Sampled groove in hip hop

> Hip-hop is no doubt a product of its time and could be considered a convergence of contemporary technology, twentieth-century collage cultures, African-based musical practices, and European-based borrowing traditions.[123]

At this point in time, it should be no more necessary to describe the musical functions of a digital sampler (given that they have been part of popular music production for more than thirty years) than it would be to explain how a piano works, but I reiterate a basic summary here in order to clarify some of the discussion which follows later. In essence, a sampler allows the user to record and digitally store fragments of sound that can then be played back using a range of methods, for use in either a studio production or a live performance context. The storage capacity of the sampling device, and the editing, processing and playback options offered vary from one model to the next, although they all operate using more or less the same principles. The original intention behind the sampler's design was that it would enable logistically constrained producers to incorporate otherwise inaccessible or unaffordable sounds—such as an orchestral string section, for example—into their work with a degree of realism not offered by the synthesizers of the day. [124]

It was not long, however, before the technology was subverted and its potential to extract sounds from existing recordings unleashed, allowing producers to lift classic funk drum sounds from vinyl records

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[123] Williams, *Musical Borrowing in Hip-Hop Music,* 31

[124] It is amusing to see that many of the magazine advertisements for samplers in the early 1980s also draw attention to the novelty factor that the technology offers, whereby the user can sample everyday sounds, such as a barking dog, for example. Several of these advertisements are collected online at a blog devoted entirely to the marketing materials and user-documentation of older music technology. See http://retrosynthads.blogspot.co.uk/ (accessed March 5, 2015).

and incorporate them into their own music.[125] Initially, this new approach was applied by sampling single drum strokes, but the technique was soon extended, unlocking the possibility to sample and loop longer rhythmic fragments, and thereby paving the way for the production style that is characteristic of hip hop's vaunted "golden era".

Since such creative misuse of sampler technology began, critics and scholars have typically cast sampling as being somewhere between, at best, an intertextual process which falls within the long and (ig-)noble history of artistic appropriation/quotation, and, at worst, an act of theft, cynically perpetrated for personal gain by individuals bereft of any creativity or originality of their own.[126] Offering another perspective, Steven Shaviro proposes that hip hop's creative practices can be likened to 'cultural hacking'.[127] This description hints at iconoclasm and rebellion on the part of sampling producers, rather than any spirit of sharing or engagement with earlier musicians; in Chapter 7, I propose an alternative view that is based more on the idea of collaboration across time and space. Histories of hip hop often cite high profile and infamous sampling litigation cases as the death knell of the genre's golden era, poring over the career-stalling lawsuit which Biz Markie endured as a result of appropriating Gilbert O'Sullivan's music or the costly suing De La Soul suffered in response to their use of material by The Turtles, for example.

Sampling is fairly ubiquitous in contemporary popular music, so that it is not unusual, even within genres which might initially appear to conform to older, guitar-based rock approaches, to find sampled or programmed loops running somewhere in the mix, whether in the studio or in live performance. Nevertheless, although the use of digital sampling

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[125] Approximately a year after the arrival of 'the first pure sampler' in 1981, according to Nelson George. *Hip Hop America* (New York: Penguin books, 1998), 92.

[126] By way of example, the titles of two recent books make their authors' positions on this point very clear: Kembrew McLeod, *Freedom of Expression: Overzealous Copyright Bozos and Other Enemies of Creativity* (New York: Doubleday, 2005); and Demers, *Steal this Music: How Intellectual Property Law Affects Musical Creativity*

[127] Steven Shaviro, *Connected, Or what it Means to Live in the Network Society* (Minneapolis, MN: University of Minnesota Press, 2003), 45.

as a music production technique is by no means exclusive to hip hop, its earliest, pioneering exponents were central to the genre's development from the mid-1980s onwards. The techniques introduced by producers such as Marley Marl and his peers had their roots in the established performance practice of hip hop DJ culture but gradually extended the musical possibilities of recontextualizing existing material beyond what DJs were already doing with vinyl and turntables.

Small notes 'the black genius for humanizing the mechanical in surprising ways', a point to which Harry Allen adds a culturally specific nuance, saying that 'hip hop humanizes technology and makes it *tactile*'.[128] Whilst this tendency may seem obvious in relation to the DJ's appropriation of turntable technology and the tactile, kinetic interaction which such performance demands, the ways in which producers could be said to humanize sampler technology and make it tactile are less straightforward. One could argue that by sampling a breakbeat, the producer imbues the sample technology's circuitry with a sense of human feel, but there is a counter-argument which suggests that the act of sampling a performance somehow de-humanizes the playing (temporarily, at least, as I argue in relation to the concept of disembodied groove, presented in Chapter 7).

The breakbeat as textural rupture

Some of the theoretical frameworks within which scholars have considered sampling are outlined in the introduction to my thesis. Whilst there is merit in many of the concepts that have been used as analytical tools in this way, it is the ideas of Tricia Rose, Amanda Sewell and Felicia Miyakawa that most directly inform the following discussion.

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[128] Christopher Small, *Music of the Common Tongue: Survival and Celebration in Afro-American Music* (London, UK; New York: Calder; Riverrun Press, 1994), 402; and Harry Allen, "Hip-Hop Hi-Tech," in *Step into a World: A Global Anthology of the New Black Literature*, ed. Kevin Powell (New York: Wiley, 2000), 91 (emphasis added). Acknowledging the non-musical elements of hip hop culture, Small also points towards graffiti on New York subway trains as another example of this process.

Rose argues that techniques of rupture, flow and layering constitute essential, interconnected elements in hip hop culture and proposes the significance of 'rhythmic rupture' specifically, relating this to the concept of the 'cut' or 'break' in the broader sociocultural context of African-American life.[129] This idea has relevance to funk too, where rupture plays a role in the creation of groove, as Danielsen elaborates in an exploration of James Brown's use of continuity and breaks in 'The Payback'.[130] Rose suggests that this musically (and culturally) important sense of rhythmic rupture is achieved in hip hop through various techniques that have emerged in performance practice within the genre, and that these can be seen in the activity of the MC, the DJ, and the producer.

MCs play with rhythmic rupture when they vary the way that their vocal lines flow in relation to the music, either creating rupture in these lines themselves or else using their delivery to frame moments of rupture elsewhere in the fabric of the music. I discuss this idea more, with specific reference to Rakim, in the following chapter. DJs bring about rhythmic rupture, in Rose's view, when they scratch a record, and, by extension, when they engage in any among the myriad of other approaches to vinyl manipulation which have proliferated subsequently, evolving from this simple early scratch technique.[131]

Obviously there are also aspects of the DJ's art that are more concerned with continuity than rupture, because the latter can only be perceived in relation to the former, and these aspects are paralleled, in several ways, in the producer's role. Rose highlights an apparent contradiction encountered in both roles, noting that rap music

> relies on the loop, on the circularity of rhythm and on the "cut" or the "break beat" that systematically ruptures equilibrium. Yet, in rap, the

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[129] Rose, *Black Noise*, 39

[130] Danielsen, *Presence and Pleasure*, 180-88; and James Brown, *The Payback,* Polydor, 1973.

[131] Mark Katz has written extensively about such techniques and the surrounding DJ culture. See *Groove Music: The Art and Culture of the Hip-Hop DJ*

> "break beat" itself is looped — repositioned as repetition, as equilibrium inside the rupture.[132]

Her argument here seems based partly around the idea that the moment at which the drum break occurs, in the context of its original funk performance, could be seen as a rupture in the song's overall structure. Although the drum break is undoubtedly used as a structural device that can introduce timbral variation, the extent to which it can really be considered as a point of rupture in a funk song is questionable. As James Brown himself points out in the instructions he gives to his band in 'Funky Drummer' (which I have quoted in the previous chapter), he sees no reason for Clyde Stubblefield to do anything other than what he is already doing when the time comes for the drum break. Continuity, in terms of the groove, remains paramount at all times, though one could argue that the arrangement at this point — when the other instrumentalists stop playing — forces a rupture in the overall timbre of the recording.

Whether the rupturing power of breakbeats, in funk, is conceptualized as rhythmic or timbral, when they are subsequently looped in hip hop production, these moments of rupture become equalized. The equalizing effect that looping has on a breakbeat can also be seen to account for the listener's acceptance of patterns which sound natural but were never actually performed by an instrumentalist, as in the case of the frequently sampled bar from the *BBR* version of 'Funky Drummer', which I discussed in detail in the preceding chapter.[133] Since looping is a technique common to the DJ and also the producer, Rose's points regarding breakbeats and rupture can be seen to apply to both roles.

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[132] Rose, *Black Noise*, 70

[133] By way of a reminder, the bar in question consists mainly of beats 2, 3 and 4 from bar 1 of the original drum break, but the looping process means that these seem to be *preceded* by beat 1 of bar 2. In effect, the loop re-orders the pattern of gestures that Stubblefield originally performed.

More recent research by Sewell proposes a typology of sampling in hip hop, in order to provide a useful tool for the analysis of sample-based production within the genre.[134] In summary, the typology divides samples into three types: 'structural', 'surface' and 'lyric'. To distinguish samples further, these types contain various subtypes: structural samples can be either 'percussion-only', 'intact', 'non-percussion' or 'aggregate'; surface samples, meanwhile, are grouped according to whether they are 'momentary', 'emphatic' or 'constituent'. Although, in theory, breakbeats — or fragments thereof — could be used as surface samples according to Sewell's definition, their function in hip hop typically places them in the structural category, within which they might variously occupy any of the subtypes except 'non-percussion'. As Sewell notes, 'the structural sample types in the typology constitute a track's groove', which shows why breakbeats typically fall in to this category in hip hop.[135] (In jungle, this categorisation becomes less clear-cut, as I show in Chapter 6.)

As might be expected, some crossover exists between Sewell's typology and the sample definitions used in Miyakawa's work, so, for example, what Sewell would describe as an 'intact' sample — that is, one which is chosen because all of its constituent instrumentation will be useful in the context of the new track in which it will be placed — clearly aligns with Miyakawa's idea of 'multiple-layer sampling'.[136]

There seems to be a little confusion in one aspect of Sewell's understanding of what is possible with sampling. This stems, partly, from a lack of clarity in an anecdote recounted to her by a producer interviewed during the course of her research, who explains that the high frequencies can be filtered out in order to isolate the bass part in a sample source.[137] From this, Sewell extrapolates the idea that 'producers can extract a single element from a multilayered texture', but, although filtering such as this can undoubtedly help to isolate certain instrumental

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[134] Sewell, *A Typology of Sampling in Hip-Hop*

[135] Ibid., 34.

[136] Ibid., 37; and Miyakawa, *Five Percenter Rap*, 109

[137] Sewell, *A Typology of Sampling in Hip-Hop*, 37

textures in a source recording, there are certain other conditions that this recording must also meet in order for this to be possible.[138] Nevertheless, Sewell seems certain that producers can 'isolate the drums — or bass, guitar, or horns — from a passage that originally contained multiple instrumental layers'.[139]

In 2009, German software company Celemony GmbH released the 'Melodyne DNA' application. This was the first technological development to make possible the kind of selective isolation and extraction of instrumental lines from within a composite texture that Sewell describes (and even then there is no guarantee that the software will succeed in all possible scenarios), yet the musical example which Sewell cites to illustrate the process in action is Kid 'N' Play's 'Do This My Way', released in 1988.[140] This track is based around the 'Think' break, but whilst Sewell believes that the producer has 'erased the bass, tambourine, sung lyrics, and background shouting from the source track, leaving only the drum line', what he has actually done is simply sample a point in the song when these elements are not present (except for the tambourine, which, it transpires, is audible in the Kid 'N' Play song after all).[141]

Thus when Sewell closes her section on percussion-only sampling by stating that 'drum samples can therefore be taken from a place in the source track where only the drum line is heard, such as the drum break, or they can be isolated from a thicker texture at any point during the track', only the first part of this conclusion is accurate in the context of the hip hop era with which her research is concerned. This, of course, is the reason that breakbeats became desirable within hip hop in the first place, leading to the formation of the breakbeat canon, and explains why the

[138] The instrumentation, for example, is a huge factor. Whilst it is relatively straightforward to filter out the singing from a recording which consists of sung vocals and a bass guitar — as in the scenario described by Sewell's interviewee — it would not be possible to use filtering in this way in order to isolate the viola part from a full orchestral texture (even assuming that such a bizarre need might ever arise!).

[139] Ibid.

[140] Kid 'N' Play, *Do this My Way,* Cooltempo, 1988.

[141] Sewell, *A Typology of Sampling in Hip-Hop*, 37.

dedication required to identify and locate source recordings containing percussion-only passages — no matter how fleeting these might be — was central to the practice of DJs and producers.

If the selective extraction of instrumental layers from within a thicker texture *had* been possible in the latter part of the twentieth century, hip hop's percussive DNA might have evolved differently. As it stands, the sampling producer's skill lies in the selective isolation of fragments whose constituent texture is *already* appropriate to the context into which the sample will be placed. When taking a slice from a source recording in order to perform this process of extraction, the necessary cuts can be made vertically, in time, but not horizontally, in texture.

Miyakawa draws on the same tripartite conceptual model as Rose (layering, flow and rupture) but her discussion focuses on textural rupture, more than the rhythmic ideas which are central to Rose's conception, thus expanding the scope of the concept in ways that are relevant to my thesis.[142] This shift is interesting, in terms of groove and breakbeats, because it begins to give timbral factors a more central role, paving the way for the developments in sample manipulation that occurred within jungle production practice, as I will show later. Textural rupture, according to Miyakawa, can affect both the melodic and percussive layers in a hip hop track and might be employed for several reasons: it can

> emphasize formal design, outlining, for example, the boundaries between verses and choruses. Rupture can also highlight structural repetition, helping to delineate four- and eight-bar phrasing. And finally, rupture in the form of textural changes can be used for expressive purposes, in order to stress specific moments of text.[143]

Miyakawa also discusses the type of rupture caused by a complete break in a track's musical texture. The gaps created in this way can be used to stress particular words or phrases in an MC's performance (which is typically why they might be employed) but they also call attention to the

[142] Miyakawa, *Five Percenter Rap*

[143] Ibid., 82.

surrounding features in the musical texture; if, for example, a complete rupture occurs on beat 1 and lasts for one crotchet, the kick drum which should have played on that beat will not be heard, but the snare drum that plays on beat 2 (by which point the rupture has ended) attracts greater attention than would otherwise have been the case. Complete ruptures like this can therefore be seen as another manifestation of the importance of gaps in groove, in that they both create opportunities for interaction — when filled by another voice in the texture — and also reframe the gestures between which they occur.

'Impeach The President' (1973)

At this point it is useful to consider, in context, the ways that hip hop producers use funk breakbeats, and how this might affect the groove factors that are present in the source recordings. By tracing the decade-long journey of transformation, reinterpretation and absorption taken through several hip hop tracks by one of the classic breakbeats, it is possible to chart the processes to which an original drum fragment might be subjected, as hip hop producers engage with a funk drummer's recorded performance in various ways. In accounts of the genre, as I have already mentioned, producer Marley Marl is frequently hailed as a pioneer of sample-based production techniques; because of its key role in his early forays into sampling, the drum break from the introduction of 'Impeach The President' by The Honey Drippers makes for a fitting case study here.[144]

The song opens with four bars of unadulterated solo drum groove — an ideal breakbeat, in other words — making it an obvious choice for inclusion in the hip hop DJ's vinyl collection. The drum pattern itself is uncomplicated, as the transcription in Figure 4.1 below shows.

[144] The Honey Drippers, *Impeach the President,* Alaga Records, 1973.

Instrument	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a
Hi-hat	x		x		x		x	x	x		O		x		x	
Snare					**X**								**X**			
Kick	●							●	●		●				●	

KEY		
Hi-hat x = normal stroke O = cymbals open	**Snare drum** X = normal stroke	**Kick drum** ● normal stroke
All instruments **bold grey** shows the pattern shape created by main strokes red borders show composite timbres created by simultaneous strokes		

Fig. 4.1. The Honey Drippers, 'Impeach The President', opening drum break

Overall, this breakbeat has an uncluttered feel, mainly because there are no ghost notes in the snare drum voice, although the patterning is busier, relatively speaking, during the latter half of the bar. All the strokes land squarely on quaver subdivisions, with the exception of a significant closed-hi-hat-plus-kick-drum composite stroke on beat 2a. Although this is the only point in the bar when any subdivision smaller than a quaver is sounded, this momentary gesture introduces a swung-sixteenth feel to the performance, thus setting up a contextual sense of time that the listener consequently extrapolates and applies to the entire breakbeat. When the bass and guitar enter after eight bars of solo drumming, their playing further reinforces this swung-sixteenth feel.

An open-hi-hat-plus-kick-drum composite stroke falls on beat 3&, and in accordance with Clyde Stubblefield's insistence that the hi-hat acts as a focal point for the way drum kit grooves work, the open hi-hat element within this composite stroke is important in terms of the patterning, timbre and phrasing factors. It is located on beat 3&, which is a significant point in the bar, whose potency means that it is favoured by funk drummers when employing displacement in patterning (as my analyses of other funk breakbeats show in the preceding chapter).

Although there is no real sense of displacement within the 'Impeach' break, it is interesting to see beat 3& emphasized here, again with a composite stroke. Whilst the open hi-hat stroke falls on beat 3&,

the sustain of the resulting sound, and the attendant sense of timbral change caused by the gradual closing of the cymbals, sets up a sense of phrasing which draws the ear towards the snare drum backbeat that then arrives on beat 4.

'Hihache' by the Lafayette Afro-Rock Band opens with a drum break that sounds remarkably similar to the 'Impeach' breakbeat in several respects, and since both songs were released in 1973 it is plausible that there may have been some degree of influence between the two bands at the time.[145] The breakbeats' similarity means that they share several equivalent groove factors.

Like 'Impeach The President', 'Hihache' begins with eight bars of solo drumming, though the latter contains a greater degree of pattern variation. The opening bar from 'Hihache', which is the most commonly sampled and looped, also contains an open-hi-hat-plus-kick-drum composite stroke on beat 3&, further reinforcing the significance attached to this particular off-beat quaver. There is generally greater use of the semiquaver subdivision in 'Hihache' than in the 'Impeach' break, but this occurs exclusively in the kick drum voice, which plays an anacrustic gesture on beats 1a and 4a. Neither breakbeat features the use of snare drum ghost notes at any point. One subtle difference that is of great benefit when attempting to distinguish which of these breakbeats has been incorporated into a hip hop track lies in the patterning of the hi-hat voice; in 'Hihache' this voice uses *only* quavers, whereas in 'Impeach' — although it mostly conforms to the same pattern — the closed-hi-hat-plus-kick-drum composite stroke on semiquaver beat 2a, which I have already discussed, acts as a distinctive identifier.

Crucially, in terms of its original studio production, the 'Impeach' break is recorded with a full, rounded kick drum sound, and a dry, crunchy snare drum (which contrasts well with the kick, thereby demonstrating the heterogeneous sound ideal in action and making for complementary timbral interaction between the two), as well as a

[145] Lafayette Afro-Rock Band, *Hihache,* Musidisc, 1973.

prominent, metronomic hi-hat which propels the groove when closed, then sizzles when opened. The overall timbre of the drum kit as it was originally recorded also makes this an effective breakbeat to sample, balancing a useful depth of texture with an appealing sense of timbral space.

The 'Impeach' break in hip hop

The illustrative examples that follow represent only a small fraction of the 'Impeach' break's numerous manifestations in hip hop and beyond, but they have been chosen because of the range of sample manipulation techniques which they usefully demonstrate.[146] The right-hand column in Figure 4.2 shows the examples discussed, whilst the left-hand column indicates some tracks from the same era, in genres other than hip hop, that also use the 'Impeach' break.

Other genres	Year	Hip hop
	1983	Force MCs 'Live at Broadway International'
	1986	MC Shan 'The Bridge
	1987	*Ultimate Breaks & Beats: Vol. 11*
		T La Rock 'Three Minutes Of Beatbox'
		Audio Two 'Top Billin''
		Hurby's Machine featuring Antoinette 'I Got An Attitude'
	1988	MC Lyte '10% Dis'
		N.W.A. 'Gangsta Gangsta'
Soul II Soul 'Jazzie's Groove'	1989	
	1991	De La Soul 'Ring Ring Ring (Ha Ha Hey)'
Mick Jagger 'Sweet Thing'	1992	EPMD 'Head Banger'
Janet Jackson 'That's The Way Love Goes'	1993	Wu-Tang Clan 'Wu-Tang Clan Ain't Nuthing Ta Fuck Wit'
Shaggy 'Luv Me, Luv Me'	2001	

Fig. 4.2. A selection of tracks that incorporate the 'Impeach' break

[146] There are 566 instances currently listed at the *'Who Sampled?*' website! Discussing them all is, of course, beyond the scope of this chapter, and besides, there is a high level of similarity in the way the breakbeat is used in many of these tracks. See http://www.whosampled.com/The-Honey-Drippers/Impeach-the-President/ (accessed March 8, 2015).

The first 'Impeach' break appropriation to examine here occurs in a live set by The Force MCs, recorded during a performance at Broadway International.[147] Despite the low quality of the recording, as the MCs sing their rhymes in unison (to the tune of Auld Lang Syne, amusingly), the group's DJ — Dr. Rock — can be heard cutting, scratching, and looping the 'Impeach' break using turntables and a mixer. This example establishes the fact that the 'Impeach' drum pattern was already part of the breakbeat canon in the early days of hip hop, and demonstrates its use and manipulation in the original performance mode of the DJ *prior* to digital sampling. Here, DJ Dr. Rock makes the technology tactile, engaging directly with the breakbeat and making playful use of both its sound and feel.

The next manifestation of the 'Impeach' break to consider is Marley Marl's much-discussed use of The Honey Drippers' drum sounds in his production on 'The Bridge' by MC Shan.[148] The release of this track is widely acknowledged to represent a watershed moment for the use of samplers in hip hop, because of the way that Marley Marl pioneers the sample manipulation technique of 'chopping' here, a technique which Schloss defines as 'altering a sampled phrase by dividing it into smaller segments and reconfiguring them in a different order'.[149] Chopping has since been taken to ambitious heights of complexity in hip hop (Public Enemy's album *It Takes A Nation Of Millions To Hold Us Back* is hailed as a masterpiece of chopping and dense sonic collage, for example), and the technique is central to jungle production (as I discuss in Chapter 6), but it was Marley Marl's early forays into the technique that paved the way for these later developments.[150]

Upon initial consideration of the way he interacts with the 'Impeach' break here, it seems that Marley Marl is concerned purely with its timbral qualities and has chosen to incorporate primarily the kick and

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147 Force MCs, *Live at Broadway International,* Madison Square Garage Recordings, 1983.

148 MC Shan, *The Bridge,* Bridge Records, 1986.

149 Schloss, *Making Beats*, 106

150 Public Enemy, *It Takes A Nation of Millions to Hold Us Back,* Def Jam Recordings, 1988.

snare drum sounds into the track, triggering these samples so that they play a reconfigured pattern of his own. His choice of the 'Impeach' break seems motivated by its sound, and he selects strokes to sample that will fit best into the texture of the new track he is creating, before sonically supplementing them, as appropriate, by underpinning the breakbeat's kick drum strokes with a simultaneously triggered kick-drum sound from the Roland TR-808.[151]

The open hi-hat sound used in 'The Bridge' seems to be from a drum machine too (or has, perhaps, been bolstered by a drum machine sound, as in the case of the kick drum), though it is clearly intended to invoke the sound that is heard in the 'Impeach' break. Rather than use the beat location associated with this sound in its original context however, the producer instead displaces the open hi-hat sound so that it falls on beat 4&, thereby setting up a phrased gesture that ends when the cymbals close on beat 1 of the following bar. This placement of open hi-hat sounds is a common patterning strategy in hip hop production, but marks, in this case, a departure from the groove factors of the original breakbeat, in terms of patterning (via displacement), phrasing and timbre.

Discussing the characteristics of this breakbeat's groove, Marley Marl highlights the importance of its ghost notes — the light, unstressed strokes which do not constitute part of the main drum pattern but act as a groove factor, spelling out the feel associated with, typically, the semiquaver subdivision, as I have discussed in Chapter 2.[152] In an example of inter-generational collaboration, Marl claims that Clyde Stubblefield — the original 'funky drummer' whose performance created the synonymous breakbeat — taught him about ghost notes, though whether he means this literally or metaphorically is unclear. He

[151] Marley Marl talks in detail about the 'Impeach' break's sonic qualities and its consequent appeal to him in a video available online, which also contains other insights into his production techniques. See http://blog.dubspot.com/marley-marl-classic-recipes-mc-shan-the-bridge/ (accessed March 7, 2015).

[152] See video available at http://blog.dubspot.com/marley-marl-classic-recipes-recreating-eric-b-rakim-eric-b-is-president-w-akai-mpc/ (accessed March 7, 2015).

demonstrates that by sampling the ghost notes from the 'Impeach' break and using these to fill some of the gaps in his reconfigured pattern, he can humanize its groove somewhat.

Perhaps it is an indication of his success in chopping the breakbeat into a new pattern, whilst still maintaining a sense of the original's groove, that some commentators wrongly assume Marl has actually looped the entire 'Impeach' break for 'The Bridge' (which would be an emulation of the DJ technique known as 'beat juggling', where two identical copies of a given record are used to seamlessly extend a particular section of the music—usually the breakbeat—by moving back and forth from one turntable to the other, using the mixer's crossfader to switch between audio signals, and cueing the muted record back to the appropriate start point whilst the unmuted record plays). In fact, such straightforward looping of the 'Impeach' break became more common in later years, but this technique was not used during production of 'The Bridge'.

As Figure 4.2 indicates, *Ultimate Breaks And Beats: Volume 11* was released in 1987, and this compilation included 'Impeach The President'.[153] Whilst it is technically not a hip hop release which samples the song, this record is included in the timeline because of its significance in relation to the subsequent popularization and availability of the breakbeat to producers, DJs and listeners.

I include a third manifestation of the 'Impeach' break here partly by way of an aside, because it is not actually a digital sample of the original source recording. Nevertheless, this example further enriches the sense of context here, and shows that the variety of ways in which hip hop musicians engage with breakbeats goes beyond simply sampling them. In 1987, T La Rock released the accurately named 'Three Minutes Of Beat Box', a track that showcases Greg Nice's talent for 'beatboxing' (the technique by which an MC vocally imitates drum sounds, as popularized by Doug E Fresh and refined, in more recent years, by Rahzel).[154] At 2:18,

[153] Various Artists, *Ultimate Breaks And Beats: Volume 11,* Street Beat Records, 1987.

[154] T La Rock, *Three Minutes Of Beat Box,* Fresh Records, 1987.

Nice performs six bars that call to mind the sound of a DJ cutting and scratching with the 'Impeach' break.[155]

Also released in 1987, Audio Two's 'Top Billin'' extended the possibilities that a single bar of the 'Impeach' break could offer.[156] The production on this track — handled by Milk Dee of Audio Two and Daddy-O of Stetsasonic — features a sleight-of-hand technique which makes the drum programming sound more complex than is actually the case: the drum track (which constitutes the entirety of the instrumental backing) sounds as though it has been chopped and then reconfigured into a new pattern using the same technique as discussed above in relation to 'The Bridge', but in fact it relies on another sample technique, namely 'retriggering'.

In the previous examples I have discussed, the drum stroke on each beat of the bar in the original breakbeat aligns with its equivalent placement when recontextualized into the hip hop setting. So, for example, the snare drum from beat 2 of the 'Impeach' break also occurs on beat 2 of 'Live At Broadway International' and 'The Bridge', even though the production techniques used are different for both tracks. This is not always the case with 'Top Billin'' however, because the retriggering technique used here means that some sounds are displaced from their original position within the bar.

This is achieved by loading a whole four-beat bar of the 'Impeach' break into the sampler and then retriggering its playback from the beginning of the sample at numerous points within the bar. Each time sample playback restarts in this way at any point other than beat 1, all the relationships between drum sounds and their usual position within the bar become displaced, confounding the listener's expectations and thereby generating engagement. This is an interesting practice, in terms of the ideas around syncretic reinterpretation and absorption of breakbeats that I explore in Chapter 7, because it preserves the internal sound and time relationships within the pattern (that is to say, the break

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[155] *Audio Example 4.1. T La Rock, 'Three Minutes Of Beat Box', 2:18, Greg Nice beatboxing*

[156] Audio Two, *Top Billin',* First Priority Music, 1987.

is not chopped, as such) but wrenches them into new relationships with the underlying metre of the track through displacement: other groove factors survive this reinterpretation, but the breakbeat is playfully altered in the process.

In a scenario where a breakbeat with a four-beat duration is looped, hip hop production practice dictates that the sample will be triggered to begin on beat 1, and will continue to play for the rest of the bar, before being triggered again on beat 1 of the following bar. Bars five to ten of 'Top Billin'', however, use a more complex pattern of retriggering, as shown in Figure 4.3 below.

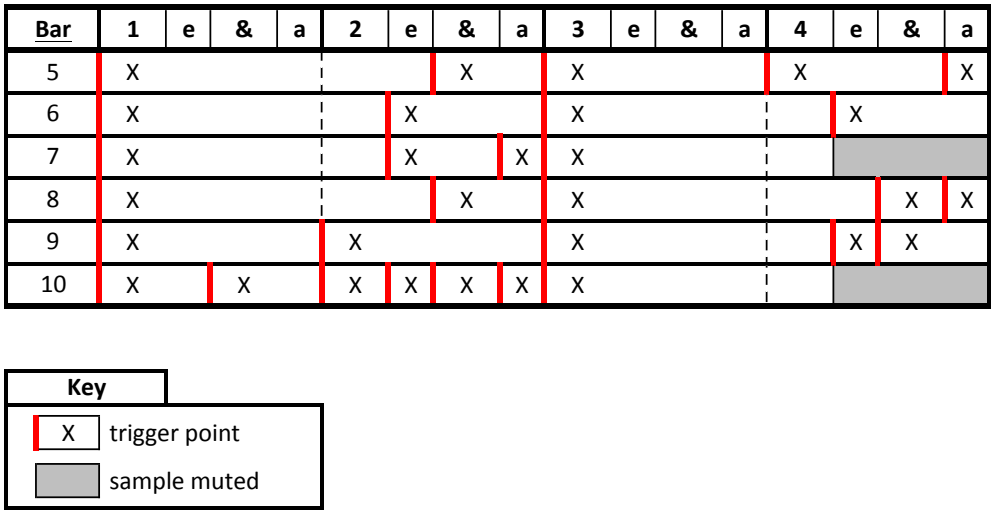

Fig. 4.3. Audio Two, 'Top Billin'', bars 5-10, sample retriggering pattern[157]

Given that the 'Impeach' break is the sole non-vocal element present here, the resulting six-bar pattern (shown in Figure 4.4 below) forms the entire basis of the track's sample programming (and therefore the entire instrumental backing); with the exception of the four-bar

[157] Note that the spacing of the grid in Figure 4.4 is adjusted to represent the swung-sixteenth feel of the breakbeat. This convention is used in all subsequent figures where the subdivisions use a swung feel.

introduction, this pattern repeats unchanged throughout the song.[158] At four points during the song, the backing is muted for a two-bar stretch, creating an elongated complete rupture that temporarily renders the MCs' flow solo, but, even while it is muted, the breakbeat pattern still continues unchanged, in terms of structure.

Bar	Instrument	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a
5	Hi-hat	x		x		x		x		x		x		x		x	x
	Snare					**X**											
	Kick	●						●		●				●			●
6	Hi-hat	x		x		x	x		x	x		x		x	x		x
	Snare					**X**								**X**			
	Kick	●					●			●					●		
7	Hi-hat	x		x		x	x		x	x		x		x			
	Snare					**X**								**X**			
	Kick	●					●		●	●							
8	Hi-hat	x		x		x		x		x		x		x		x	x
	Snare					**X**								**X**			
	Kick	●						●		●						●	●
9	Hi-hat	x		x		x		x		x		x		x	x	x	
	Snare													**X**			
	Kick	●				●				●					●	●	
10	Hi-hat	x		x		x	x	x	x	x		x		x			
	Snare													**X**			
	Kick	●		●		●	●	●	●	●							

KEY

Hi-hat	**Snare drum**	**Kick drum**
x = normal stroke	X = normal stroke	● normal stroke

All instruments

bold grey shows the pattern shape created by main strokes

sample muted

Fig. 4.4. Audio Two, 'Top Billin", bars 5-10, breakbeat pattern

In addition to re-ordering the drum pattern through this retriggering process, the producers also engage with and extend the

[158] Six is an unusual number of bars in a genre that tends to work in groupings based on multiples of four. The resulting effect destabilizes the listener's structural expectations, creating a rambling organic structure in which there is little (if any) clear distinction between verses and choruses.

'Impeach' break's original groove by exaggerating its swung-sixteenth feel. As I have already mentioned, in the original breakbeat only one subtle ghost note in each bar — the closed-hi-hat-plus-kick-drum composite stroke on beat 2a — implies the swung sixteenth feel, leaving the listener to extrapolate this feel and apply it to the whole groove. It can be seen from the triggering diagram shown earlier (in Figure 4.3) that Audio Two retrigger the sample on a different swung sixteenth note at least once per bar. This, coupled with the fact that the producers use the prominent kick drum from beat 1 of the 'Impeach' break each time they trigger the sample (which, as the original downbeat, is given greater emphasis by the drummer in the source recording), imbues their groove with a much stronger sense of the swung-sixteenth feel.

To summarize, Audio Two's use of the breakbeat retriggering technique in 'Top Billin'' is significant in terms of the displacement groove factor. Whilst the original 'Impeach' break, as performed, contains none of the displacement that is exhibited in some funk drumming — such as bars 3 and 4 of the 'Amen' break, for example — the producers build 'Top Billin'' entirely around multiple retriggering of the breakbeat. In doing so, they displace drumming so that the original start of the bar is relocated to beats 1&, 2, 2e, 2&, 2a, 3, 4, 4e, 4& and 4a. In other words, across the course of the looped six-bar pattern, there are only five out of the possible sixteen semiquaver positions in the bar where the break is *not* retriggered at some point. By incorporating a factor that is not present in the original recording, the producers augment and transform the breakbeat's groove, allowing them to exploit the familiarity of the sample's timbre whilst building new patterning via displacement. This technique indicates the start of a shift in the way that producers prioritize groove factors, which is later adopted and extended in jungle production practice, as I show in Chapter 6.

Following the release of 'Top Billin'' there was a flurry of similar releases based around the 'Impeach' break. Notable examples include 'I Got An Attitude' by Hurby's Machine featuring Antoinette, which shares a similar groove but is produced using chopping as well as retriggering, and

MC Lyte's '10% Dis' — itself a lyrical response to Antoinette's track — that alternates between sections based on a straight loop of the 'Impeach' break (underpinned with TR-808 kick drum sounds) and choruses which use the same retriggering pattern as bars nine and ten of 'Top Billin''.[159]

The remaining examples in this section show a return to more straightforward loop-based usage of the original breakbeat. The first of these is De La Soul's 'Ring Ring Ring (Ha Ha Hey)', where the break is very much in the foreground of the mix throughout the track, and has clearly not been chopped or significantly manipulated in any way other than being looped.[160] In its raw form like this, the breakbeat can be seen as an excellent groove framework against which to hear the syncopation and gestural nuance within the sampled bassline — extracted from 'Help Is On The Way' by the Whatnauts — that producer Prince Paul layers over The Honey Drippers' drums.[161]

In the song from which this bassline is sampled, the accompanying drum track is a basic disco pattern featuring a four-to-the-floor kick drum underneath a snare drum backbeat, and propelled by a simple quaver-based hi-hat pattern; against this sparse backdrop, the bassline stands out as the main point of interest. Recontextualized in the De La Soul song however, the bassline finds a more funk-inflected rhythmic foil when layered with the 'Impeach' break. New moments of alignment are thrown up by this layered pattern relationship, so that both the drums and the bass are heard differently as a result, even though no chopping or other sample manipulation has been employed. The apparent simplicity of the production process here belies the level of skill entailed, which lies more in the choice of which samples to juxtapose than in any more technology-centred expertise.

The 'Impeach' break appears, fleetingly, in 'Gangsta Gangsta' (1988) by N.W.A., when producers Dr. Dre and DJ Yella scratch it in and

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[159] Hurby's Machine featuring Antoinette, *I Got An Attitude,* Sound Check Records, 1987; and MC Lyte, *10% Dis,* First Priority Music, 1988.

[160] De La Soul, *Ring Ring Ring (Ha Ha Hey),* Tommy Boy, 1991.

[161] The Whatnauts, *Help Is On The Way,* Harlem International Records Inc., 1981.

then loop it for just two bars, beginning at 3:57.[162] Although brief and, like the previous example, simple, this manifestation of the breakbeat is powerful, calling attention to itself by occurring at a point of rupture in the song's structure. The lyrics at this point indicate that the break is being used to reference hip hop's past, thereby calling to mind musicologist Joanna Demers's assertion that sampling 'functions as a bridge linking the gangsta rapper to a 1970s funk band'.[163] In this case, N.W.A. deliberately foreground the link to the past, indulging in what Allen characterizes as 'a form of ancestor worship'.[164]

For the Wu-Tang Clan's song 'Wu-Tang Clan Ain't Nuthing Ta Fuck Wit'', producer RZA forces syncretic collaboration between funk bands who were contemporaries in the early 1970s, creating a chopped, layered drum pattern which draws on elements from the 'Impeach' break, as well as the very similar drum intro from 'Hihache' by the Lafayette Afro Rock Band mentioned earlier.[165] The same technique is applied in EPMD's 'Head Banger', though in this case The Honey Drippers are forced into a collaboration with Joe Tex, via the breakbeat from his song 'Papa Was Too'.[166] I explore the way that the groove in breakbeats might enable such collaboration in Chapter 7.

Once this composite groove is set in motion, members of the Clan take turns to each deliver one of the song's three verses: first RZA himself, then Inspektah Deck, and finally Method Man. The different lyrical flows of the various MCs within the group are apparent against the stark rhythmic backdrop of the 'Impeach' break, illustrating the way in which an individual might choose to interact with the breakbeat's groove. Even this interaction can be seen as having a transformative effect on the

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[162] N.W.A., *Gangsta Gangsta,* Ruthless Records, 1988.

[163] Demers, *Steal this Music*, 84

[164] Allen, *Hip-Hop Hi-Tech*, 91

[165] Wu-Tang Clan, *Wu-Tang Clan Ain't Nuthing Ta Fuck Wit',* Loud Records, 1993.

[166] EPMD, *Head Banger,* Rush Associated Labels, 1992; and Joe Tex, *Papa Was Too,* Dial, 1966. The drum break that opens Tex's song can be heard as an influence on the 'Impeach' break, to which it bears a strong resemblance.

breakbeat, because we hear it in relation to the changing flow of the MCs. As such, this song (as with other tracks where different group members each deliver a verse) would provide an excellent focus for a study of how different MCs' flows work in relation to an unchanging beat. The finely nuanced way in which each MC interacts distinctively with the unchanging backing reveals much about the myriad individual interpretations of the breakbeat's groove factors as they are manifested in performance. In the following chapter I explore this idea further, considering how an MC's flow can reframe the listener's perception of a breakbeat, and vice versa.

Hip hop sampling's impact on groove factors

As the preceding section shows, sample manipulation techniques in hip hop are not always employed in ways that necessarily alter the groove factors which are associated with a breakbeat. This should not be surprising, because the inclusion of funk samples in hip hop tracks is motivated by the way the original funk songs sound, in terms of their rhythm patterns, feel, studio production, and so on. In other words, since the groove factors that are inherent in a particular funk track are what motivates a producer to sample the source recording in the first place, it therefore makes sense to keep as many of those factors unchanged in the breakbeat's new context as is possible.

In the decade-long evolutionary arc that the breakbeat undergoes as it is recontextualized in the examples described above, it is noticeable that the most extensive (and imaginative) transformation occurs towards the beginning of the timeline. During this earlier phase, more of the original breakbeat's groove factors are affected by the manipulation techniques applied to the sample by successive producers (and performers, in some instances). By contrast, during the later phase there seems to be a return to naïve loop-based approaches that engage less enthusiastically with the groove factors. As I have suggested, this apparent return to simplicity might actually be a shift away from technological manipulation and towards subtler forms of engagement

with the breakbeat's groove. Alternatively, it could be that by this point in the breakbeat's existence it has become so familiar that reification has set in and it has taken on the status of 'figure' permanently, rather than existing as a pattern of gestures with which to interact.[167]

It is also noticeable that the more audacious sample manipulation techniques that are used during the early phase of the 'Impeach' break's journey — namely those I have described relating to the production in 'The Bridge', 'Three Minutes Of Beat Box', 'Top Billin'', 'I Got An Attitude' and '10% Dis' — affect and engage with those groove factors in the breakbeat that concern timbre, phrasing and displacement. Viewed in this way, a line can be drawn backwards in time, linking hip hop sample manipulation to Jamaican dub concepts, and forwards in time to the aesthetics and production practice of jungle. Indeed, it is the twin influences of hip hop and dub, primarily, which gave rise to the development of jungle in the UK in the early 1990s, and I explore jungle's use of breakbeats in more detail in Chapter 6.

[167] Another possible interpretation is that the use of the 'Impeach' break in a Mick Jagger song was indicative of its assimilation into the mainstream by this point, and that it was therefore no longer seen as a viable sample for any use in hip hop beyond nostalgic restatement. In a way, this appropriation by Jagger balances DJ Afrika Bambaataa's anecdote about playing a Rolling Stones record at early block parties, as recounted in the previous chapter.

Chapter 5 – Rebecoming analogue:

Musical synergy between the breakbeat and the MC

> Rap…expresses itself most powerfully in the dual rhythmic relationship between the beat of the drums and the flow of the voice.[168]

In this chapter I examine the groove relationships between the rhythmic flow that characterizes the hip hop MC's vocal delivery and the fixed rhythmic repetitions of the accompanying breakbeat. An exploration of several aspects of this relationship can shed further light on the multiple roles of the breakbeat in hip hop. Essentially, the focus of this section will be the way in which the breakbeat suggests a set of what Berliner terms 'rhythmic…frames of reference' within which the MC can improvise, and simultaneously on the transformative effect which the vocal has on the listener's perception of the breakbeat, elevating it above the functional realm of the timeline and recasting it as a fluid and nuanced musical entity which works in partnership with the lyricist.[169] The rhythmic synergy resulting from this interrelationship between breakbeat and MC will be discussed with specific reference to Eric B & Rakim's 'I Know You Got Soul', as well as such antecedents as Cuban *rumba* performance.[170] The importance of space within the construction of rhythmic patterns in hip hop — the gaps in groove — will be discussed, drawing on a range of literature dealing with various African diasporic musics, and this concept will be seen to underpin the synergistic relationship proposed above.

LeRoi Jones uses 'the changing same' as a term that summarizes the shifting permutations which generations of black musicians applied to a core aesthetic — which he identifies as 'the blues impulse' — as it was transferred between the trappings of jazz, the blues, R&B and

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168 Adam Bradley, *Book of Rhymes: The Poetics of Hip Hop* (New York: Basic Civitas Books, 2009), 31.

169 Paul Berliner, *Thinking in Jazz: The Infinite Art of Improvisation* (Chicago, IL: University of Chicago Press, 1994), 197.

170 Eric B & Rakim, *I Know You Got Soul,* 4th & Broadway, 1987.

innumerable sub-genres via a multifaceted African American oral tradition running throughout the twentieth century.[171] Gilroy also discusses Jones's 'changing same' concept, expanding its scope to include African diasporic communities outside the United States, with a particular interest in those of Caribbean descent in the UK.[172] Elsewhere, Gilroy suggests that, following the invention of the 12" vinyl single, the 'changing same' concept can describe the way that a given song is usually released accompanied by a number of remixes, ranging from the subtle to those which mutate the original into barely recognisable re-imaginings.[173] The remix, as a manifestation of the 'changing same', underscores the importance within African American and Caribbean musics of the practice of 'versioning' as discussed by Rose and Hebdige.[174]

This chapter, appropriately enough, proposes a further change to the term, focussing on an identically repeated 'same' which can only be perceived to be 'changing' when it interacts with a fluid, variable counterpart. It is the way in which the variable element frames moments within the fixed element differently, from one reiteration to the next, that leads to the perceived change. As I discussed in relation to the operation of groove factors, such framing is primarily a result of the combined effects of patterning, timbre and displacement.

The 'same', for the purpose of this chapter, is represented by the composite breakbeat. Rose, discussing the use of sampling in hip hop production, notes Ong's concept of a 'post-literate orality'.[175] Such a concept makes it possible to take the oral tradition that perpetuated Jones' original 'blues impulse' and transpose it into a modern

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171 Jones, *Black Music*, 180

172 Paul Gilroy, "Sounds Authentic: Black Music, Ethnicity, and the Challenge of a "Changing" Same," *Black Music Research Journal* 11, no. 2 (1991), 111-136.

173 Paul Gilroy, *The Black Atlantic: Modernity and Double Consciousness.* (Cambridge, MA: Harvard University Press, 1993), 106.

174 Rose, *Black Noise*, 86; and Dick Hebdige, *Cut 'N' Mix : Culture, Identity and Caribbean Music* (London; New York: Methuen, 1987), 12-16.

175 Rose, *Black Noise*, 86; and Walter J. Ong, *Orality and Literacy: The Technologizing of the Word* (London, UK; New York: Methuen, 1982).

technological context, within which sampling makes sense as an extension of the tradition.

If the 'same' here is the breakbeat, then the variable element which will allow it to be heard as 'changing' is the lyrical content of the hip hop track, the MC's 'flow', which Rose usefully characterizes as 'always moving within the beat or in response to it, often using the music as a partner in rhyme'.[176] Iyer also notes that verbal flow in hip hop is 'a flexible concept (analogous to *sound* in jazz) that can refer in different contexts to rhythmic acuity, lyrical prowess, or general persona'.[177] Discussing lyrics and flow in the context of hip hop, Adam Bradley suggests that 'rhyme is a sonic balance between identity (or replication) and difference', thus adding another facet to the 'changing same' construct, showing how it operates *within* the MC's flow, as well as between this flow and the breakbeat.[178]

In his exploration of the heterogeneous sound ideal Wilson argues that when the patterns played by the timbrally distinct fixed and variable rhythmic groups are combined, 'the resultant composite pattern is what is *perceived and valued*' in African conceptions of music.[179] Thinking along similar lines, Monson locates a parallel sense of value in jazz performance, arguing that the prized quality of grooving 'is produced by this dynamic tension between the relatively fixed and variable elements of the

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[176] Rose, *Black Noise*, 39

[177] Vijay S. Iyer, "Microstructures of Feel, Macrostructures of Sound: Embodied Cognition in West African and African-American Musics" (PhD thesis, University of California, Berkeley, 1998), Chapter 4.

[178] Bradley, *Book of Rhymes*, 52

[179] Wilson, *The Heterogeneous Sound Ideal*, 331. I have discussed timbre in relation to the breakbeat's groove extensively in Chapter 3, which covers the complex timbral interplay that exists acoustically within the drum kit, as well as the impact of production techniques on timbre in original funk recordings. The concept was also relevant to Chapter 4, in relation to hip hop production processes wherein multiple samples are layered, or augmented with additional electronically-produced sounds, leading to the creation of new composite textures.

ensemble'.[180] Thus, in combination, Wilson and Monson's ideas here further cement the link between timbral contrast and groove.

Fixed versus variable elements in rhythm

While repetition can exist without needing variation to provide contrast, variation, on the other hand, can only exist in opposition to a repetition that is at least implied. Christopher Hasty, in his authoritative work on the interrelationship between metre and rhythm, draws a similar conclusion, suggesting that without the framework of metre, rhythm cannot exist (at least not in any widely accepted musical way).[181] Whilst Hasty's thinking is directed primarily towards music from the Western Classical art music canon, Danielsen presents a number of similar conceptual pairings as she outlines the methodology for her detailed analysis of the funk grooves of James Brown and Parliament. The relationship between figure and gesture is central to her thinking, a duality that I propose is vital to understanding the way that breakbeats are transformed over time.[182]

To reiterate, amongst several other more or less equivalent pairings that are mentioned in her work, Danielsen states that 'rhythm is conceived as an interaction of something sounding and something not sounding'.[183] This seemingly abstract conceptual model has a physical equivalent in the 'shadow rhythms' within Toussaint's research, as I argued in relation to drummers' use of ghost notes.[184] At this stage, however, I propose that Hasty's understanding of metre can be seen as analogous to the unvaryingly repeated breakbeat in hip hop, and therefore that the MC's flow only fulfils its full potential as 'rhythm' when

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[180] Ingrid T. Monson, *Saying Something: Jazz Improvisation and Interaction* (Chicago, IL: University of Chicago Press, 1996), 83.

[181] Hasty, *Meter as Rhythm*

[182] As I have previously mentioned, Danielsen also invokes Deleuze's conception of the virtual and the actual as aspects of 'the real' in order to reinforce her argument; these ideas inform my thinking in Chapter 7. Danielsen, *Presence and Pleasure*, 47

[183] Ibid. Other dualities mentioned include Bakhtin's 'sentence' and 'utterance', Saussure's '*langue*' and '*parole*', and Hjelmslev's 'schema' and 'usage', for example.

[184] Toussaint, *The Geometry of Musical Rhythm*

heard in relation to the breakbeat (although this thinking does require a crudely reductive reassessment of the breakbeat, which is generally far from 'unvarying' in reality).

An ad hoc experiment can be carried out by listening to the acappella version of a hip hop track, such as the 'Crooklyn (Acappella)' by Crooklyn Dodgers, for example.[185] Regardless of whether the track is already familiar to them, most listeners, I suspect, will be able to deduce a sense of metre from the lyrical flow, particularly when listening for obvious patterns in the emphasis and phrase length employed by the MC. When I played this extract to an (admittedly, musically knowledgeable) audience, they had no difficulty identifying the pulse within the acappella. Whilst no disrespect is intended towards the Crooklyn Dodgers here, it is interesting to note that the MCs who are accorded the highest status (and might thus be described by their peers as having 'mad flow') tend to be those who are able to stray furthest from the strictures of metre, in much the same way that jazz soloists are lauded for their prowess at extending and adapting the source melodic material of a standard tune, while still remaining rooted (albeit, very distantly, at times!) in its harmonic structure.[186]

So although basic metre can be deduced from a hip hop acappella, the subtleties of the MC's flow mean much less without being heard in conjunction with an explicitly stated framework of periodicities. By 'explicitly stated' here, I mean rhythm patterns as they are actually sounded, as opposed to the 'shared prior knowledge' or 'inferred

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[185] *Audio Example 5.1. Crooklyn Dodgers 'Crooklyn (Acappella)', 0:55, flow with clear pulse*

[186] Whilst researchers such as Justin Williams and Tom Perchard have explored genuine connections between jazz and hip hop from a musicological perspective, elsewhere the comparison between these genres has reached a stage where it is regularly made but, perhaps, less frequently warranted. Bradley quotes eminent MC Jay-Z, who asserts that although the jazz comparison is often made, hip hop is 'really most like a sport. Boxing to be exact'. Williams, *Musical Borrowing in Hip-Hop Music*; Tom Perchard, "Hip Hop Samples Jazz: Dynamics of Cultural Memory and Musical Tradition in the African American 1990s," *American Music* 29, no. 3 (Fall, 2011); and Bradley, *Book of Rhymes*, 177

isochronous pulse' categories of contextual sense of time, or, for example, Brackett's 'internalized rhythmic syntax'.[187]

Hasty imagines a model whereby metre exists as a series of 'pulse strata' based on the various equal subdivisions of time into which a bar can be sliced, and argues that these act as 'a set of coordinated periodicities that can be sampled by the *actual* rhythm'.[188] In Hasty's model, the pulse strata exist prior to the performance itself (unlike the idea of the density referent, for example, which is a descriptive analytical tool applied after the event). There is some disagreement over whether it makes sense to conceptualize the density referent and the pulse as being strictly isochronous or whether it might instead make more sense to utilize the uneven framework of 'the timeline' as the basic building block.[189] In the context of breakbeats, the link between pulse strata and density referent is often (but not always) made explicit in the cymbal voice, so Stubblefield's semiquaver hi-hat pattern in 'Funky Drummer' acts as a timeline around which the rest of the drum pattern hangs.

This model of nearly limitless choice of rhythmic patterning displays parallels with Potter's research into the linguistic techniques employed by hip hop MCs, in which he draws on Gates' seminal work on signifying in order to describe the rapper's techniques of vertical 'stacking' and substitution.[190] To summarize, a multitude of possible word choices exist at any given point, from which the improvising MC may select. Although the range of possibilities is nearly limitless in theory, in

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[187] David Brackett, *Interpreting Popular Music* (Berkeley, CA: University of California Press, 2000), 144.

[188] Hasty, *Meter as Rhythm*, 14 (emphasis added). Although Hasty does not deliberately use the word 'actual' here in reference to the virtual/actual duality, the concept is clearly relevant.

[189] The timeline model relates to the ideas around 'solo groove' that I discussed in Chapter 1.

[190] Russell A. Potter, *Spectacular Vernaculars: Hip-Hop and the Politics of Postmodernism* (Albany, NY: State University of New York Press, 1995), 81-82; Henry Louis Gates, *The Signifying Monkey: A Theory of African-American Literary Criticism* (New York: Oxford University Press, 1988).

actual fact there are likely to be constraints that are dictated by taste, personal habit and genre conventions (not to mention the pressure of the 'freestyle battle' environment in which two MCs 'improvise' rhymes competitively, in a scenario which can be seen as an echo of both the jazz 'cutting contest' and the verbal sparring of 'the dozens'). These constraining factors inevitably influence the performer's split-second linguistic decision-making. The comparison between Hasty's model and Potter's ideas illuminates another facet of the much-chronicled link between literary and musical approaches in African American cultural expression.

If the MC's rap is conceptualized as *rhythm* in relation to the looped breakbeat's role as *metre*, then it is the individual hits within the loop that define a repeated, but irregular, 'pulse'. In effect, the breakbeat acts as a rhythmic template which, when applied to Hasty's 'set of coordinated periodicities', results in a kind of adapted pulse. This adapted pulse fits Fast's description of repetitive rhythmic grooves as 'a powerfully *constructed* present tense'.[191] Because it is a composite built from unequal rhythmic subdivisions, the adapted pulse signifies on the absolute timeline, only to then itself be signified on by the MC.

Iyer observes that in West African music, the 'sense of pulse is highly contextual', and that musicians within this tradition are 'trained in the abilities to shift their metric perspective on a rhythm and to hear and generate cross-rhythms'.[192] Whilst the underlying pulse in hip hop may still be metronomic and easily inferred, the adapted pulse of the breakbeat, with all of the gestural nuance that it embodies, overlays the basic pulse and makes it groove. In performance, and guided by the adapted pulse that the breakbeat embodies, the MC makes choices about how the lyrical flow will be delivered. Meanwhile, the listener, too, will subconsciously apply a sense of the breakbeat's adapted pulse to their

[191] Susan Fast, *Repetition and Difference: The Groove, the Song, the Body* (Seminar on Rhythm and Micro-rhythm, University of Oslo, 2005).

[192] Iyer, *Microstructures of Feel, Macrostructures of Sound,* Chapter 5

understanding of this flow, adopting what Berliner refers to as 'different rhythmic viewpoints or frames of reference'.[193]

Chang argues that the early hip hop production technique of using simple patterns programmed on a drum machine to provide the rhythm track 'stiffened the beat and reduced most rappers to sing-songy rhyming'.[194] Producer Marley Marl's groundbreaking use of a sampled breakbeat instead of, or in addition to, these programmed drum machine patterns opened up new rhythmic scope for MCs, as demonstrated notably in his 1987 production on MC Shan's 'The Bridge'.[195] As Chang notes '…on the bottom, the groove suddenly felt slippery. Inevitably [Marley Marl's] rappers responded with more intricate rhymes'.[196] Not only was Marley Marl involved in producing two remixes featured on Eric B & Rakim's *Paid In Full* album (recorded in the same year as 'The Bridge') but he was also Eric B's roommate at the time, so it seems likely that the techniques which he was pioneering filtered into the duo's approach to production.[197]

'I Know You Got Soul' (1987)

Appearing on the aforementioned album, 'I Know You Got Soul' by Eric B & Rakim is a classic of the genre and is relevant to the ideas discussed here; the following section is based around a detailed analysis of the first verse. The main loop which accompanies Rakim's flow in 'I Know You Got Soul' is a composite breakbeat that displays several characteristics which

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193 Berliner, *Thinking in Jazz*, 147. Berliner uses this description in relation to the implicitly-polymetric music of Ghanaian drum ensembles. My appropriation of his term is not intended to suggest a specific link between this music and hip hop, but the concept is a useful one nonetheless.

194 Jeff Chang, *Can't Stop, Won't Stop: A History of the Hip-Hop Generation* (London: Ebury, 2007), 246.

195 MC Shan, *The Bridge*

196 Chang, *Can't Stop, Won't Stop*, 246

197 Eric B & Rakim, *Paid In Full,* 4th & Broadway, 1987.

are pertinent to my research.[198] It is constructed from three main elements, thereby demonstrating the technique of layering which is common to much of the instrumental backing in hip hop — particularly music produced during this period — and which relates fundamentally to Wilson's heterogeneous sound ideal, as discussed in earlier chapters.[199]

By starting with the idea that combining different drum strokes simultaneously in a performance produces desirable composite textures, and then broadening the scope of the concept to accommodate breakbeats, it can be seen that layering two (or more) breakbeats so that they play simultaneously produces a greater number of these composite textures, thus augmenting the heterogeneity of the overall sound. Moreover, the textures which result from such combinations are under the control of the producer rather than the drummer(s), so are informed by a different aesthetic, potentially giving rise to fresh composites which fall outside the normal scope of drum performance practice.

In this song, the arrangement allows the listener a glimpse of the production's inner workings, as the layers are introduced gradually. The first sample that is heard consists of four bars of drumming taken from the opening of Funkadelic's 'You'll Like It Too', transcribed in Figure 5.1 below.[200] This is an unusually long sample, given that producers tend to work with loops built from extracts that only last for one or two bars, but there are two slightly unusual features of the extended breakbeat that

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[198] The terminology of hip hop is fraught with peril when used in analyses such as this. Some musicologists use the term 'beat' to refer to the whole combination of non-vocal, instrument-derived sonic elements constructed by the producer and 'flow' to denote the vocal elements performed by the MC, but it is easy to see how quickly confusion can then arise if one attempts to write about a particular beat within the beats used in the 'beat' or the way in which the flow of the 'flow' flows. Basing his usage around the precedent set by practitioners within the genre, Williams uses 'the terms 'beat' and 'flow' to separate the delivery of the rapper(s) from its 'musical' complement, acknowledging that they are nevertheless inextricably linked'. Williams, *Musical Borrowing in Hip-Hop Music,* 17

[199] Wilson, *The Heterogeneous Sound Ideal*

[200] Funkadelic, *You'll Like It Too,* LAX Records, 1981.

perhaps explain this production decision, one at each end of the looped phrase.

The first — a crash cymbal played on beat 1 of bar 1 — provides both a timbrally startling opening to the Eric B & Rakim track and a regular punctuation, demarcating the four-bar loop, around which the listener (and rapper) may orient themselves. The second unusual feature in this sample is the hectic drum fill that occupies the last two beats of the four-bar phrase. It is here that the first subtle instance of sample manipulation becomes apparent: the Funkadelic song opens with the drum fill which then leads to the crash cymbal at the start of the first complete bar, whereas in the Eric B & Rakim track this order is reversed (the drum fill being delayed until beat 3 of bar 4).

Bar	Instrument	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a
1	Cymbals	©	O	x	O	x	O	x	O	x	x	x	x	x	x	x	x
	Snare					**X**								**X**			
	Kick	●									●	●			●	●	
2	Cymbals	x	O	x	O	x	O	x	O	x	x	x	x	x	x	x	x
	Snare					**X**								**X**			**g**
	Kick	●									●	●			●	●	
3	Cymbals	x	O	x	O	x	O	x	O	x	x	x	x	x	x	x	x
	Snare					**X**								**X**			**g**
	Kick	●									●	●			●	●	
4	Cymbals	x	O	x	O	x	O	x	O								
	Snare					**X**					**X**			**X**	**X**		**X**
	High Tom									●		●			●	●	
	Kick	●											●				

KEY		
Cymbals X = normal hi-hat O = open hi-hat © = crash cymbal	**Snare drum** X = normal stroke g = ghost note	**Kick drum & tom** ● =normal stroke
All instruments **bold grey** shows the pattern shape created by main strokes		

Fig. 5.1. Funkadelic, 'You'll Like It Too', 0:01, opening breakbeat

Following the preliminary statement of the four-bar Funkadelic loop, the second and third layers of the instrumental backing both enter at bar 5, as does Rakim's rap. The second layer is another sample from a funk song: Bobby Byrd's 'I Know You Got Soul', transcribed in figure 5.2

below.[201] The significance which Eric B & Rakim attach to this original song is clear from the matching title of their own work, the writing credit attributed to Byrd in the liner notes of the rap duo's album and the centrality of the sample to their production. Byrd's original version of the song is audibly scratched into the mix from vinyl during the chorus of the Eric B & Rakim version, in a performative gesture that artfully bridges the live and studio-based spheres within hip hop. Very slight phasing is evident at these points in the song, which indicates that the vinyl and the looped sample are running concurrently.[202]

Bar	Instrument	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a
1	Hi-hat	x		O		x		x		x		O		x		x	
	Snare					**X**		**g**	**g**		**g**	**g**		**X**		**g**	**g**
	Kick	●										●					
2	Hi-hat	x		O		x		x		x		O		x		x	
	Snare		**g**	**g**		**X**		**g**	**g**		**g**	**g**		**X**		**g**	**g**
	Kick	●		●						●		●					

KEY		
Hi-hat	**Snare drum**	**Kick drum**
x = normal stroke	X = normal stroke	● =normal stroke
O = open hi-hat	g = ghost note	
All instruments		
bold grey shows the pattern shape created by main strokes		

Fig. 5.2. Bobby Byrd, 'I Know You Got Soul', 0:06, opening breakbeat

The stark, picked guitar line in this sample provides the sole pitched instrument heard during the verse sections of Eric B & Rakim's song (whereas the chorus employs the full band that play on Byrd's version via a sample taken from elsewhere in the original), so it stands

[201] Bobby Byrd, *I Know You Got Soul,* King Records, 1971.

[202] A further additional layer can be heard in a December 1987 broadcast of the seminal hip hop radio show *Mr. Magic's Rap Attack*, on station WBLS. Here, the show's resident DJ (none other than Marley Marl, demonstrating his skills beyond the recording studio context) mixes back and forth between the Bobby Byrd and Eric B & Rakim versions of 'I Know You Got Soul', gleefully foregrounding the intertextuality that lies at the heart of the genre.

out clearly against the backdrop of the two combined drum kits. Several near-identical manifestations of this guitar line recur in songs by James Brown and his associates written during this period, and Alfred "Pee Wee" Ellis — a saxophonist in Brown's horn section and the composer of 'Cold Sweat' — says of this guitar line that it is 'funky on its own'.[203] Robert Davis notes that 'one of the defining sounds of funk to emerge in [pivotal 1965 James Brown song] 'Cold Sweat' was the use of the dampened guitar sound'.[204] In an act of pre-digital sampling, the guitar line in Byrd's 'I Know You Got Soul' is a direct restatement of the line played on 'Cold Sweat', and so represents a prototypical funk approach to guitar.

Within this guitar part, though, there is minimal pitch information (just the root, fifth and minor seventh of the scale) and the articulation is extremely clipped suggesting that this is intended more as a percussive than a melodic line.[205] This percussive characteristic is typical of James Brown's music, following his decision to approach arrangements as though every instrument was a drum. If it were not for the addition of the minor seventh, the main body of the guitar line would be reminiscent of the sound produced by sets of paired bells found in West African and Brazilian percussion ensembles (variously called *gangkogui*, *agogo*, and so on). Particularly in the African context, such bells tend to supply the timeline around which the rest of the ensemble construct their playing, which suggests one possible interpretation of the role of the guitar here.

The drum part in the second sampled layer contributes some distinctive characteristics to the overall sound of the instrumental elements in Eric B & Rakim's song. It features strong timbral contrast between the open, resonant depth of the kick drum and the high-pitched crack of the snare, the drums each being tuned and played in ways which

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[203] Gibney, *Mr Dynamite: The Rise of James Brown*, 58:30.

[204] Robert Davis, "Who Got Da Funk?: An Etymophony of Funk Music from the 1950s to 1979" (PhD thesis, Université de Montréal, 2005), 196; and James Brown And The Famous Flames, *Cold Sweat*

[205] *Audio Example 5.2. Bobby Byrd 'I Know You Got Soul', 0:06, picked guitar*

emphasize these characteristics beyond the difference already inherent in the drum kit's design, thereby exaggerating its already heterogeneous timbral qualities. This kind of contrast within a breakbeat lends itself well to the sampling process because of the timbral space which remains unfilled in the sample. This space can, therefore, subsequently be filled by an additional texture of the producer's choice, either in the form of another sample, a synthesized sound or some live instrumentation or vocals.

An additional distinctive feature is the way that the hi-hat is opened on the second of every four quavers, a relatively unusual pattern in funk drumming: one might more normally expect it either to open on all the off-beat quavers, as in archetypal disco drumming, or less regularly, as in such classic samples as the 'Impeach' break, where a single open hi-hat stroke is deployed to devastating effect on beat 3&, as I discussed in the preceding chapter. In 'I Know You Got Soul' the open hi-hat acts as an anacrustic counterpart to the main snare drum hits (on beats 2 and 4, in typical backbeat fashion), emphasising the incisive, clipped crispness of the snare's backbeat by providing a contrasting note which sustains throughout the preceding quaver and is then abruptly cut off when the hi-hat cymbals are closed to coincide with the snare drum stroke. This use of the hi-hat is a characteristic feature of John "Jab'O" Starks playing style and can be heard elsewhere in much of his work with James Brown, such as 'Papa Don't Take No Mess', 'Soul Power' and 'Get Up I Feel Like Being A Sex Machine', to name just a handful of representative songs.[206]

Although the technique of layering of sampled breakbeats clearly originates in hip hop production practice, an antecedent exists in some jazz recordings that feature two kit drummers playing simultaneously. When his touring schedule was at its most intense, James Brown led a band that included up to five drummers, but they would not play concurrently, rather passing the baton from one to another according to

[206] James Brown, *Papa Don't Take No Mess,* Polydor, 1974; *Soul Power,* King Records, 1971; and *Get Up I Feel Like Being A Sex Machine*

their stylistic suitability for a given song (and also in order to retain the stamina required to play several sets each night, unamplified!). Examples of jazz recordings which feature two kit drummers and which could be seen to foreshadow hip hop's breakbeat-layering techniques include 'Spanish Key' from Miles Davis's *Bitches Brew* album and Eddie Henderson's 'Scorpio-Libra' from the *Realization* album.[207]

The third instrumental layer in the production of Eric B & Rakim's song consists of a sustained kick drum sound generated by a Roland TR-808 drum machine, rather than a sample of a pre-existing musical recording. This sound is programmed to play on beats 1, 3& and 4&, thus reinforcing the accented kick drum strokes that are heard in the Funkadelic breakbeat (see Figure 5.1 above).

A clearer sense of the overall shape of the pattern emerges when the composite beat is transcribed (see Figure 5.3 below). This TUBS transcription represents a usable framework against which to compare the pattern variations that are wrought in the MC's vocal delivery. It must be remembered that although the shape illustrated in Figure 5.3 shows where the significantly accented moments occur during the two-bar phrase, there are other nuanced factors at work which contribute to the overall groove of this composite beat. The way in which the hi-hat semiquavers are swung in the Funkadelic breakbeat, for example, is of great importance in dictating the rhythmic flow both in the composite breakbeat and the vocal delivery.

[207] Miles Davis, *Bitches Brew*, Columbia, 1970; and Eddie Henderson, *Realization*, Capricorn, 1973.

Bar	Source	Instrument	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a
1	Bobby Byrd bar 1	Hi-hat	x		O		x		x		x		O		x		x	
		Snare					X		g	g		g	g		X		g	g
		Kick	●										●					
	Funkadelic bar 1	Cymbals	©	O	x	O	x	O	x	O	x	x	x	x	x	x	x	x
		Snare					X								X			
		Kick	●									●	●			●	●	
	TR-808	Kick	●										●				●	
2	Bobby Byrd bar 2	Hi-hat	x		O		x		x		x		O		x		x	
		Snare		g	g		X		g	g		g	g		X		g	g
		Kick	●		●						●		●					
	Funkadelic bar 2	Cymbals	x	O	x	O	x	O	x	O	x	x	x	x	x	x	x	x
		Snare					X								X			g
		Kick	●									●	●			●	●	
	TR-808	Kick	●										●				●	
3	Bobby Byrd bar 1	Hi-hat	x		O		x		x		x		O		x		x	
		Snare					X		g	g		g	g		X		g	g
		Kick	●										●					
	Funkadelic bar 3	Cymbals	x	O	x	O	x	O	x	O	x	x	x	x	x	x	x	x
		Snare					X								X			g
		Kick	●									●	●			●	●	
	TR-808	Kick	●										●				●	
4	Bobby Byrd bar 2	Hi-hat	x		O		x		x		x		O		x		x	
		Snare		g	g		X		g	g		g	g		X		g	g
		Kick	●		●						●		●					
	Funkadelic bar 4	Cymbals	x	O	x	O	x	O	x	O								
		Snare					X					x			x x			x
		High Tom									●		●			●	●	
		Kick	●											●				
	TR-808	Kick	●										●				●	

KEY

Cymbals
X = normal hi-hat
O = open hi-hat
© = crash cymbal

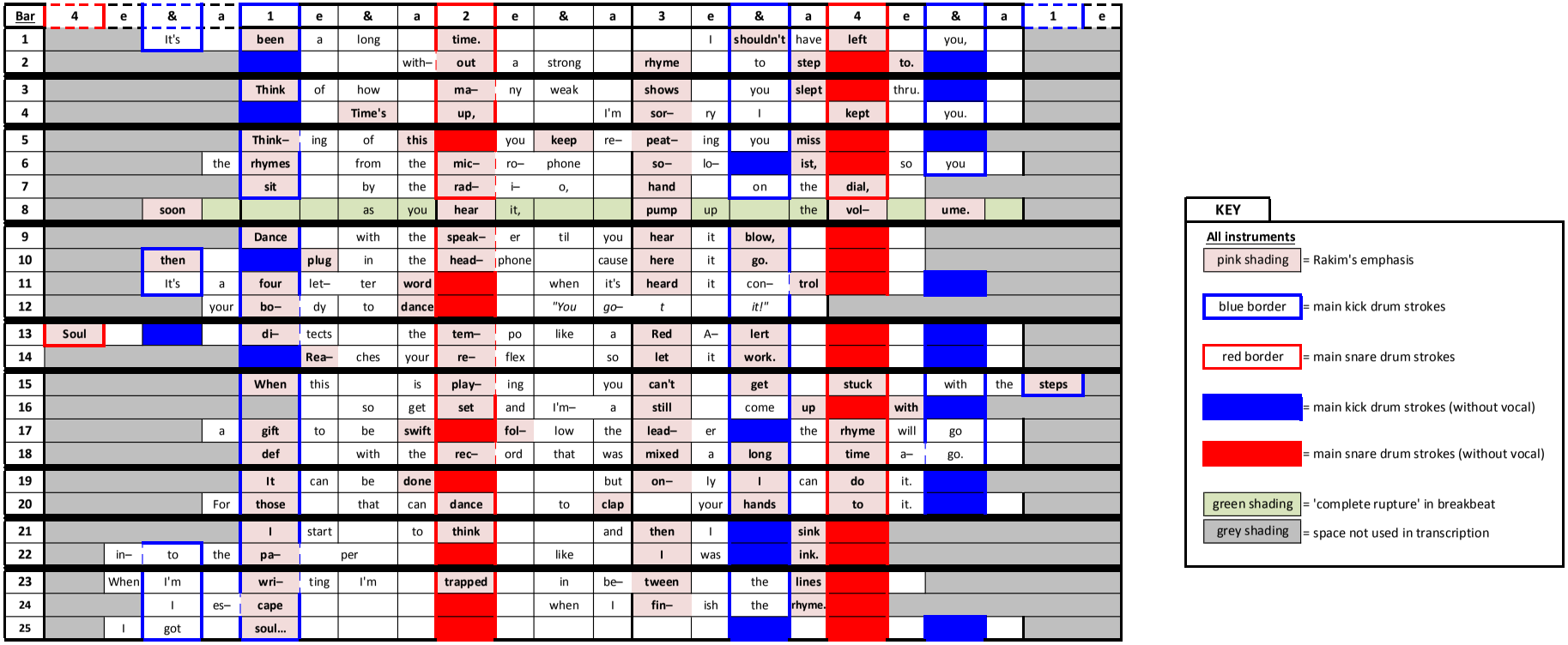
Snare drum
X = normal stroke
g = ghost note

Kick drum, high tom & TR-808
● =normal stroke

All instruments
bold grey shows the pattern shape created by main strokes
blue border shows composite kick drum strokes
red border shows composite snare drum strokes

Fig. 5.3. Eric B & Rakim, 'I Know You Got Soul', 0:09, composite breakbeat

A full transcription of the rhythm of Rakim's flow in verse one can be seen in Figure 5.4 below. The following observations are based on comparisons between the rapped rhythm and the notation of the composite beat transcribed in Figure 5.3 above.



Bar	4	e	&	a	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a	1	e
1			It's		been	a	long		time.					I	shouldn't	have	left		you,			
2								with–	out	a	strong		rhyme		to	step		to.				
3					Think	of	how		ma–	ny	weak		shows		you	slept		thru.				
4							Time's		up,			I'm	sor–	ry	I		kept		you.			
5					Think–	ing	of	this		you	keep	re–	peat–	ing	you	miss						
6				the	rhymes		from	the	mic–	ro–	phone		so–	lo–		ist,		so	you			
7					sit		by	the	rad–	i–	o,		hand		on	the	dial,					
8			soon				as	you	hear	it,			pump	up		the	vol–		ume.			
9					Dance		with	the	speak–	er	til	you	hear	it	blow,							
10			then			plug	in	the	head–	phone		cause	here	it	go.							
11			It's	a	four	let–	ter	word			when	it's	heard	it	con–	trol						
12				your	bo–	dy	to	dance			*"You*	*go–*	*t*		*it!"*							
13	Soul				di–	tects		the	tem–	po	like	a	Red	A–	lert							
14						Rea–	ches	your	re–	flex		so	let	it	work.							
15					When	this		is	play–	ing		you	can't		get		stuck		with	the	steps	
16							so	get	set	and	I'm–	a	still		come	up		with				
17				a	gift	to	be	swift		fol–	low	the	lead–	er		the	rhyme	will	go				
18					def		with	the	rec–	ord	that	was	mixed	a	long		time	a–	go.			
19					It	can	be	done				but	on–	ly	I	can	do	it.				
20				For	those		that	can	dance		to	clap		your	hands		to	it.				
21					I	start		to	think			and	then	I		sink						
22		in–	to	the	pa–	per					like		I	was		ink.						
23		When	I'm		wri–	ting	I'm		trapped		in	be–	tween		the	lines						
24			I	es–	cape						when	I	fin–	ish	the	rhyme.						
25		I	got		soul...																	

KEY

All instruments

- pink shading = Rakim's emphasis
- blue border = main kick drum strokes
- red border = main snare drum strokes
- = main kick drum strokes (without vocal)
- = main snare drum strokes (without vocal)
- green shading = 'complete rupture' in breakbeat
- grey shading = space not used in transcription

Fig. 5.4. 'I Know You Got Soul', verse 1, Rakim's flow vs. the composite break

Patterning

The first noteworthy observation arising from the transcription is that no two bars of rapping use exactly the same rhythmic pattern. Rakim ensures that variation is at the heart of his approach to rhythm, which strongly justifies the comparisons that can be drawn between this music and other African diasporic styles which operate using similar groupings of fixed versus variable patterning. Although his status as a key exponent of the form is reaffirmed throughout both popular and scholarly sources it should be noted that Rakim's vocal style has been described as an 'angular monotone'.[208] This relative lack of pitch inflection tends to be explained as evidence of his cool authority rather than any lack of dynamism. The rhythmic and lyrical invention displayed by Rakim is allowed greater space in the listener's perception as a result of the deliberate paucity of pitch variation.

Within verse one, the two pairs of bars which are most similar to one another, rhythmically, are bars 9 and 18, and bars 10 and 14 respectively, as shown in Figure 5.5. In both pairs, it is beats 1 to 3 that are identical, whilst the variation occurs during beat 4 of the bar. Reasons for the variation occurring during beat 4 will be discussed in a moment, in relation to another observation about phrasing across bar lines.

The fact that no two bars of rapping are exactly alike in this verse puts Rakim's flow in stark contrast with the seemingly identical repetitions of the breakbeat, underscoring the variable versus fixed relationship between these elements. In reality, once the other groove factors relating to nuances of performance and production are taken into account, the idea that the breakbeat repeats identically can be debunked.

[208] Harry Allen, "Soul Power," *Spin,* November-December, 1987, 61.

Bar	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a
9	**Dance**		with	the	**speak–**	er	til	you	**hear**	it	**blow,**					
18	**def**		with	the	**rec–**	ord	that	was	**mixed**	a	**long**		**time**	a–	go.	

Bar	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a
10		**plug**	in	the	**head–**	phone		cause	**here**	it	**go.**				It's	a
14		**Rea–**	ches	your	**re–**	flex		so	**let**	it	**work.**					

KEY	
All instruments	
pink shading	= Rakim's emphasis
blue border	= main kick drum strokes
red border	= main snare drum strokes

Fig. 5.5. Two pairs of rhythmically similar bars in 'I Know You Got Soul'

Danielsen notes the way that the cutting of voices can redirect listeners' attention and that 'a voice may also acquire attention as it is itself cut'.[209] Similar shifts in attention are at play in the chopping of an individual drum stroke from its original context: attention is drawn both to the chopped stroke and to the absence of the sounds between which it previously existed. I have outlined the concept of rupture in hip hop and how this relates to breakbeats in the previous chapter; the elongated cut which renders Rakim's flow solo for the whole of bar 8 is a prime example of what Miyakawa terms a 'complete rupture'.[210]

The cut is also a way of creating rhythmic and timbral space where it would not otherwise exist, whether executed by instrumentalists as a performance technique or by producers as a studio technique. In the case of the DJ technique whereby the sound of a record is chopped by using the mixer, the cut can be used as a way to create rhythm from legato source material — see, for example, the way that the continuous sound effect of screeching car tyres is cut up by Hijack's DJ in Audio Example 5.3.[211]

[209] Danielsen, *Presence and Pleasure*, 182

[210] Miyakawa, *Five Percenter Rap*, 85

[211] *Audio Example 5.3. Hijack, 'The Badman Is Robbin'', 1:43, DJ cutting a legato sound*

Phrasing

In relation to the way that Rakim considers how to phrase his delivery, Harry Allen draws attention to the 'curvature' of his flow.[212] A restlessly varied approach to phrasing certainly seems to be characteristic of Rakim's delivery, and the earlier transcription (in Figure 5.4) reflects this by showing where each phrase falls in relation to the looped composite breakbeat. In the transcription, each bar is shown with the preceding fourth beat and following first beat included too, so that the many lyrical phrases which work *across* the bar lines can be better accommodated in the diagram.

By using phrases that start before the first beat of the bar, Rakim's flow distracts the ear from hearing the loop point of the samples, thereby diminishing the perceived artificiality in the production. Although the Bobby Byrd loop is only two bars long there are phrases in Rakim's flow which last much longer than this. It would appear then that the MC, in addition to blurring the bar lines, is not hemmed in by the beginning and end of the loop either, but rather that the repetition creates a seamless continuum over which rhymes can expand into longer phrases as required.

David Brackett, summarizing the thinking of Gates and Wilson, proposes that

> the work of these authors suggests that the upbeat to the beginning of another repetition is a musical space of the utmost importance, the space for fills and melodic/rhythmic flourishes of all kinds.[213]

He goes on — in his analysis of James Brown's engagement with this important musical space in the song 'Super Bad' — to describe cases that 'exhibit a sense of play with the expectations of an emphasis on beat one.'[214] Given the multitude of variations in Rakim's approach to this

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[212] Quoted in Robert Marriott, "Allah's on Me," in *And it Don't Stop: The Best American Hip-Hop Journalism of the Last 25 Years*, ed. Raquel Cepeda (New York: Faber and Faber, 2004), 189.

[213] Brackett, *Interpreting Popular Music*, 134

[214] Ibid.; and James Brown, *Super Bad,* King Records, 1970.

same musical space in 'I Know You Got Soul' (as shown in Figure 5.4), it is clear that he also understands its importance and the way that it can be used to play with expectations.

Displacement

It is worth noting that during the first verse alone Rakim chooses to rest on the downbeat five times. The composite kick drum stroke at this point of the bar — created by layering not only the two breakbeats but also the TR-808 kick drum sound — anchors the groove effectively and dominates the sonic landscape to the extent that there is not necessarily any need for the MC to add anything, and little remaining textural space in which he could. Instead, he displaces several phrases so that the emphasis in the vocal line falls on beat 1e. This calls to mind Clyde Stubblefield's approach to creating drum patterns in the context of James Brown's band, whereby he would find ways to avoid 'getting up on somebody else's pattern' by locating moments of textural space.[215]

Berliner describes the backbeat as 'an important rhythmic target for improvisers' which could explain Rakim's tendency to end lyrical phrases on beat 3& or at the start of beat 4.[216] This technique affords him two rhythmic options for the subsequent phrase: either, he can recommence his rap *before* the bar line (in a kind of verbal anacrusis) thereby blurring the metrical delineation of the bar and contributing significantly to his reputation for flow; or, he can choose to remain silent during beat 4 (creating a moment in which both he and the listener can refocus their attention) and then make a new start on the downbeat of the following bar, thereby aligning himself with the strong kick drums in the composite breakbeat.

Both approaches fit, in different ways, with James Brown's concept of 'the One', which is considered an essential ingredient of funk and is based on the various interlocking cyclical patterns played by different

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[215] Christopher R. Weingarten, *It Takes a Nation of Millions to Hold Us Back* (New York: Continuum, 2010), 2.

[216] Berliner, *Thinking in Jazz*, 149

members of the band and the way that these revolve around, and are anchored by, a strong emphasis on the downbeat.[217] The downbeat in question need not *necessarily* align with the first beat of the bar itself (which would be the traditional understanding of the term) but can instead be displaced to alternative positions within the bar, where it functions as what Danielsen terms a 'downbeat in anticipation'.[218]

Greenwald argues that the interlocking kick and vocal pattern that A Tribe Called Quest create when they rhyme over the beginning of the 'Funky Drummer' pattern 'gives movement or groove to the phrasing'.[219] The example he highlights shows how the patterning groove factor in breakbeats creates the potential for musicians to subsequently interact with the breaks by creating new, interlocking lines. I return to this idea later, in my discussion around the idea of transpatiotemporal musicking via virtual groove nodes, presented in Chapter 7.

Since the break is already emphasising key points within the bar, the MC can choose not to merely reinforce this existing emphasis (as can seem to be the case in simpler flows, such as the Crooklyn Dodgers extract mentioned earlier, for example). If, as Potter says of African American modes of expression, 'to deviate is to remain true', then extra finesse — and, by extension, authenticity — is demonstrated by those MCs who are able to draw attention to their lyrical dexterity by moving between alignment with and deviation from the breakbeat.[220] Such a moment of alignment exists in the second verse of 'I Know You Got Soul', when Rakim briefly aligns his flow with the complex snare pattern in the Bobby Byrd

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[217] The role of 'the One' in funk is discussed at length by several scholars, including Danielsen and Hoogstad, for example. In less theoretical terms, Bootsy Collins provides a memorable, musical demonstration using only his bass guitar. Danielsen, *Presence and Pleasure*, 262; Jan Hein Hoogstad, "The Good Foot: James Brown's Revolutionary Rhythmic Interventions," in *Off Beat: Pluralizing Rhythm*, eds. Jan Hein Hoogstad and Birgitte Pedersen Stougaard (Amsterdam: Rodopi BV, 2013), 169-196; and *Lenny Henry Hunts The Funk (The South Bank Show),* directed by Tony Knox (1992)

[218] Danielsen, *Presence and Pleasure,* 73

[219] Greenwald, *Hip-Hop Drumming*, 268-9

[220] Potter, *Spectacular Vernaculars*, 22

sample.[221] This moment of synchronicity is almost shocking to hear, generating excitement at that moment and also throwing the complexity of his flow elsewhere into sharper relief.

Giving testimony to a fulfilled break

The extent to which the MC in hip hop can be said to be improvising varies according to context. At one end of the spectrum, the 'battle' scenario mentioned earlier derives its core status within hip hop from the centrality of its competitive verbal spontaneity, since the ability to 'freestyle' is fundamental to the mythic essence of MCing. Conversely, one would imagine that rhymes heard in studio recordings had been methodically written over a period of time in a manner more closely related to perceived traditions of 'songwriting'. Approaches will vary from one individual to another of course, but there is evidence which suggests that this simplistic dichotomy does not accurately summarize the situation.

Online footage of various instances in which Rakim is purportedly freestyling reveals identical, or near-identical, lyrics being performed, and with very similar delivery. Elsewhere, an interview with Rod Hui, who engineered Public Enemy's seminal *It Takes A Nation of Millions to Hold Us Back*, reveals that 'ninety per cent [of Chuck D's rapping] was *inspired by the tracking*'.[222] This is supported in an anecdotal account of Chuck D's approach in the studio, which reveals that although copious amounts of lyrical material were written in advance, the decision about which parts to use and how these would be delivered was taken in direct response to the rough tracks that had been constructed by the Bomb Squad.[223] Williams argues that during the composition process in hip hop, 'text and

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[221] *Audio Example 5.4. Eric B & Rakim, 'I Know You Got Soul', 1:34, Rakim's flow aligns with the ghost notes in the composite breakbeat*

[222] Article available online at http://mixonline.com/recording/projects/audio_public_enemys_fight/ (accessed March 11, 2015, emphasis added).

[223] Weingarten, *It Takes a Nation of Millions to Hold Us Back*, 69

music shape each other', which is a model that makes sense in the reality of collective acts of musical creation.[224] Usefully, in terms of my focus here, Williams goes on to note that this mutual shaping between text and music in hip hop also extends to the listening experience, thus agreeing with my assertions concerning the way moments within the groove are framed and reframed by one another.

Rakim claims to respond directly to the music when recording. Outlining his creative process, during an interview, he reveals that

> I like to listen to the beat and stare at the speakers until I see something. Then I go with what the beat tells me to do. I don't sit there with a plan. I sit there and come up with a plan.[225]

Small's assertion that rather than needing to be totally 'free' or 'original', improvisation within African (and therefore diasporic) musics can be built using existing frameworks or templates, lends support to my proposal that there is a synergetic relationship between the fixed and variable rhythmic groups which interact in these contexts.[226] Perhaps a useful comparison can be drawn between the intermediary role of the MC in hip hop and that of the *quinto* drum in Cuban *rumba* performance. The smallest of the three drums used in rumba, the quinto is free to improvise rhythmically over the relatively more prescribed patterns assigned to the other instruments in the ensemble, but its role is also to support and comment on the movements of the dancers (and the narrative which may be unfolding through the dance).

Similarly, the hip hop MC is rhythmically free to improvise (and need not consider pitch) but, as lyricist, their role demands that verbal meaning is present in the chosen words, even though this meaning is often obtusely buried amidst layers of densely vernacular language. So the MC and quinto both mediate between rhythm and narrative to some

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[224] Justin A. Williams, "Beats and Flows: A Response to Kyle Adams, 'Aspects of the Music/Text Relationship in Rap'," *Music Theory Online* 15, no. 2 (June, 2009).

[225] Chairman Mao, "The Microphone God," *Vibe,* December 1997, 132.

[226] Small, *Music of the Common Tongue*, 27

extent, and are constrained or energized by the rhythmic framework mapped by their unvarying counterparts.

It is interesting to note, at this point, the metaphor which Baker employs, summing up a successful hip hop performance as one where the MC's voice *dances* with the DJ's music, causing the audience to respond by giving 'testimony to a fulfilled break'.[227] The sense of interactive participation in the pursuit of musical satisfaction that Baker expresses here chimes with Small's musicking ideas generally, and, more specifically, is equivalent to Wilson's description of 'a situation in which all participants are aware of what will transpire but are unaware of how a particular performer will realize the predetermined plan'.[228]

In this respect there are clear parallels between rumba and hip hop in the links between drum, voice and dance (and even, as Jones suggests, 'religion, i.e. spirit worship', given the religious connotations that might be inferred from Baker's use of the word 'testimony').[229] The way that rhythm is what unites these different modes of performance is highlighted by the eminent breakdancer Jorge "Popmaster Fabel" Pabon, who says that 'the common pulse that gave life to all these elements is rhythm, clearly demonstrated by the beats the DJ selected, the dancers' movements, [and] the MCs' rhyme patterns'.[230]

In much of the literature there is a rough distinction between 'groove' and 'feel' based on the extent to which each phenomenon has a participatory dimension. Groove is often deemed to occur between two or more musicians, whereas feel is said to exist in the playing of a single

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[227] Houston A. Baker Jr., "Hybridity, the Rap Race, and Pedagogy for the 1990s," *Black Music Research Journal* 11, no. 2 (1991), 222.

[228] Wilson, *The Heterogeneous Sound Ideal*, 337. I give more attention in Chapter 6 to this idea of the heterogeneous sound ideal as a way to play with listeners' expectations in relation to a predetermined plan.

[229] Jones, *Black Music*, 181

[230] Jorge Pabon, "Physical Graffiti: The History of Hip-Hop Dance," in *Total Chaos: The Art and Aesthetics of Hip-Hop*, ed. Jeff Chang (New York: Basic Civitas, 2006), 19.

performer.[231] Building on Floyd's concept that swing occurs when a musician signifies on the timeline, however, it can be argued that groove does exist in the playing of a solo performer, because a participatory process is still taking place, although in this case the ebb and flow occurs between the musician and the metre or timeline, as I have argued in Chapter 1. In the context of hip hop, the timeline is manifested in the literal repetitions of the sampled breakbeat. As the discussion in the preceding chapter suggests, when the sense of gesture embodied in the original drum break is sampled and looped, the breakbeat's status shifts from that of gesture to figure (albeit a figure which is composed from a series of gestures, which may still be ordered according to the original drummer's pattern, or might, instead, have been reordered by a producer in order to create a new pattern).

Regardless of the extent to which the breakbeat has been transformed via sampling, the MC and breakbeat participate together in creating groove. Although it is not immediately obvious how a process can be said to be truly participatory if only one of the musicking entities involved seems to be active, I look at the idea of how 'reactivation' might enable this kind of participation across time, in Chapter 7.

The timeline, although seemingly passive in its lack of variation, frames the nuances of the performance, imbuing them with relational significance. Katz demonstrates his keen understanding of how samples are shaped, to some extent, by the sonic environment into which they are recontexualized, arguing that

> Sampling is most fundamentally an art of transformation. A sample changes the moment it is relocated. Any sound, placed into a new musical context, will take on some of the character of its new sonic environment. Every 'Funky Drummer' sample, however recognizable, leads a distinct life in its new home. Thus, the sound and sense of a two-

[231] As an aside, Iyer suggests a working relationship between these terms, describing 'feel' as an 'embodied sense of groove'. Iyer, *Microstructures of Feel, Macrostructures of Sound*, Chapter 4

> second drum break may change radically from song to song, even if the patterns of 1s and 0s do not.[232]

This idea perhaps explains why certain breakbeats have been able to sustain such longevity across decades and genres: the source material remains the same, but its sound and sense are shaped uniquely in each new manifestation.

To take Katz's ideas a step further, however, not only are the sound and sense of the breakbeat shaped by its new sonic environment, but the breakbeat also shapes aspects of this environment. Note that this 'new musical context' might involve the use of silence and space. In other words, sounds/gestures which had previously been part of longer phrases might now find themselves isolated, exposed and, therefore, more prominent than they had originally been. When this happens, the gesture's significance is increased and it moves into the sonic foreground.

The breakbeat — viewed as a context-specific, stylistically informed timeline — can be said to actively contribute to the dynamic vitality of the groove process. The performer reciprocates by placing their gestures (whether these be notes, beats, or phrases) in ways which will 'assert their interpretation of the beat', demonstrating an awareness of where each gesture falls in relation to the breakbeat timeline, of whether it is swung, stilted, pushing forwards or leaning back, and so on.[233] Thus the relationship between timeline and performer, or between breakbeat and MC, is seen to be synergetic. These ideas are developed further in Chapter 7, with regard to collaboration in groove via sampling.

One option that is open to the MC at any point during the bar is that of choosing to rest, thereby creating space in the flow, or gaps in the groove. Rakim exercises this option in a number of ways in relation to the framework: one noteworthy technique (which has a considerable effect on increasing the complexity of his flow) is that of resting on the main beats within the composite breakbeat framework. This allows him to weave *around* the breakbeat, which has the added effect of framing

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[232] Katz, *Capturing Sound*, 156

[233] Berliner, *Thinking in Jazz*, 150

important drum strokes with his flow, allowing them to stand out within the texture and thus become, briefly, the focus of the listener's attention. The example transcribed in Figure 5.6 below illustrates an instance when Rakim employs this technique.

Bar	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a
21	I	start		to	think			and	then	I		sink		in–	to	the
22	pa–		per				like		I	was		ink.				

Fig. 5.6. Rakim weaving around the breakbeat

Wallace Berry's ideas about the various 'interdependent impulses which comprise the metric unit' are relevant here, given that the categories he lists include initiative, reactive, anticipative and conclusive types.[234] Some of these impulses may, perhaps, not be sounded, instead existing simply as felt potential for the performer, or even just in the listener's perception via a shared contextual sense of time. Berry also goes on to propose the very apt description of metre as

> the association of interactive impulses [as listed above] within a dynamic, articulate metric unit structured as *an integrated pattern of organically interfunctional tendencies*. This is the aspect of meter which is extensible hierarchically, and *which is vitally functional and not merely referential*. Music's animate substance is accountable in significant part to this property of meter, in contrast to that aspect of meter which is a rigidly *in*animate, referential, periodicity of levelled pulsation.[235]

This concept, of an 'integrated pattern of organically interfunctional tendencies', maps neatly onto the description of breakbeats as a network of interrelated patterns of gestures, that I arrived at earlier by conflating Small and Butler's concepts of performance and breakbeats respectively.

In conclusion then, it can be seen that the metrical and rhythmic framework provided by the breakbeat is not necessarily a cage which constrains the inventiveness of the rapping, but that it may instead act as

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[234] Wallace Berry, "Metric and Rhythmic Articulation in Music," *Music Theory Spectrum* 7, no. 1 (1985), 10.

[235] Ibid., (emphasis added)

a loom around which the MC can weave his flow. This adds weight to my assertion that MC and breakbeat are co-dependent musicking participants in a synergetic grooving process. Wheeler notes that in a freestyle battle 'the rapper seems to speak his or her partner into being', suggesting that through creative goading, by which the MCs exhort and inspire one another, they are able to attain new heights in performance.[236] The partnership between MC and breakbeat can, in several respects, be similarly characterized.

Rakim, it seems, has developed the essential temporal skill of the improviser, described by Berliner as 'an unwavering sense of the beat to serve as a conceptual anchor for the flexible use of vocabulary'.[237] In the context of hip hop, the words 'beat' and 'vocabulary' both hold a double meaning of course, which deepens the applicability of Berliner's words to Rakim's lyrical dexterity. For the MC, the beat is both rhythmic sparring partner and metrical framework, and is embodied by the breakbeat, which represents — by virtue of the nuanced groove factors that are in operation — much more than simply 'a series of *evenly spaced* points' in time.[238]

In this chapter, I have looked at some ways that hip hop MCs use lyrical flow to engage directly with breakbeats, interacting with their various groove factors in order to align or interlock with them, and so weave around the composite breaks constructed by producers. In the following chapter, I explore how jungle producers engage with groove in some very different ways, often abandoning any sense of adapted pulse that the original funk recordings might embody and drawing, instead, on their timbral and gestural qualities, using the breaks as raw material for new sonic constructions.

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[236] Elizabeth A. Wheeler, "'Most of My Heroes Don't Appear on no Stamps': The Dialogics of Rap Music," *Black Music Research Journal* 11, no. 2 (1991), 197.

[237] Berliner, *Thinking in Jazz*, 150

[238] Ibid.

Chapter 6 – Breakbeat science:

Rhythm versus sound in jungle

> Jungle's immobile motor, the breakbeat carries key traits of self-similarity irrelevant of scale. It is as if there is an elastic tension between the metric number line and a secret encryption involving prime numbers in a cyclic discontinuity weaving around, converging and diverging.[239]

Jungle's origins are considered to be rooted in both African-American and Jamaican music, and, more specifically, in the way that these influences were experienced and reinterpreted in the UK.[240] In addition to the superficial association with Jamaica that is evident in its frequent use of samples from well-known reggae songs, jungle also inherits a set of textural priorities from the island's music and a dub-inflected attitude towards the use of existing recordings as sonic raw material. Consequently, whilst aspects of hip hop production inform the practicalities of sampling in jungle, the end result of the genre's breakbeat manipulation owes more to dub — and its core aesthetic of sonic deconstruction and reconstruction — than to hip hop. This may be due to the fact that, in conceptual terms, hip hop's sample manipulation techniques originally stemmed from DJ performance practice, whereas dub's techniques are informed by, and manifested in, studio practice. Ultimately, jungle assimilates aspects of practice drawn from both genres, and thus incorporates their twinned aesthetics. Utilizing the digital sampler's developing technological capabilities in ways which extend the sample manipulation techniques that emerged in hip hop, jungle producers then apply these extended techniques to breakbeats in ways

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[239] Steve Goodman, "Darkcore," *Abstract Culture*, Swarm 3, no. 13 (1998). Available at http://virtualfutures.co.uk/archive/papers/darkcore/ (accessed February 26, 2015).

[240] An alternative reading of jungle's parentage is proposed by Simon Reynolds though, who argues for the importance of house music to the genre's development. "Adult Hardcore," *The Wire*, no. 182 (April 1999), 54-58.

which transform the sonic texts as radically as the wildest dubs of Osbourne "King Tubby" Ruddock and his peers.

Jungle's apparent fixation with certain breaks (notably 'Amen', 'Think', 'Soul Pride' and 'Hot Pants') calls to mind, again, both the 'changing same' concept and the figure/gesture duality. The original, 'same' version of each breakbeat is so familiar to the listener — certainly to those with insider knowledge, whether producers or fans — that it need not even be explicitly stated within the music. Instead, endless variations can be propagated, with ongoing and (necessarily) increasing inventiveness, by using the range of sample manipulation techniques outlined below. This scenario prompts an update to Wilson's previously quoted comment regarding the ritualistic quality of performance in blues and gospel, so that the focus now shifts to become more relevant to jungle production. Thus, a performance situation 'in which all participants are aware of what will transpire but are unaware of how a particular performer will realize the predetermined plan', instead becomes a production situation 'in which all junglists are aware that the Amen break will be used but are unaware of how a particular producer will deploy it'. The timbre, more than the rhythm, of the breakbeat represents the predetermined plan. The way the producer realizes this 'predetermined plan' depends on how imaginatively they manipulate the sampled break.

At the same time, blatant restatement of the original breakbeat — unadulterated in all respects other than an increased tempo — is also very much part of the genre's sampling aesthetic, and rather than being indicative of a lack of either imagination or technique on the part of jungle producers, can instead be seen as a way to ground or decode some of the

wilder variations wrought via sample manipulation.[241] By extending some of the ideas outlined in Chapter 5, therefore, the manipulated breakbeat in jungle can be seen to embody *both* aspects of the 'changing same' concept, existing simultaneously as an implicit 'same' and an explicit 'change', or, in other words, as both figure *and* gesture.

As the three preceding chapters have shown, when a breakbeat is sampled and manipulated, the groove factors embodied in the original funk performance are forced into new relationships with one another (and with any additional layers added subsequently) and thus begin to operate in different ways, whilst still retaining aspects of the original groove. Each technique used to manipulate a sample will affect one or more of these groove factors. In the following section, I outline some of the key ways that jungle producers have extended existing sample manipulation techniques and discuss the impact that these changes have on the way in which a breakbeat's groove factors operate. (I have grouped the techniques under the 'post-hip hop' heading by way of acknowledging their use in a wide range of genres beyond just jungle, although that remains the focus here.)

Post-hip hop sample techniques and groove factors

Joseph Schloss, writing in the context of hip hop production practice, describes three advantages which digital sampling technology offers to the beat-making producer, namely, the ability

> to juxtapose the ambient qualities of different recording environments, to repeat individual notes exactly, and to organize sounds into patterns

[241] The apparently simplistic use of the same unchanged breakbeats in some jungle tracks is one of the factors which contributes to the idea that the genre is 'stupid', an accusation which Chris Christodoulou explores in detail. John Blacking's thoughts on complexity in music provide a useful counter-argument to such accusations, when he argues that 'the simplicity or complexity of the music is ultimately irrelevant: the equation should not be LESS = BETTER or MORE = BETTER, but MORE or LESS = DIFFERENT'. Christodoulou, *Renegade Hardware,* 110-16; and John Blacking, *How Musical is Man?* (London: Faber & Faber, 1976), 33-34.

> that would be difficult or impossible to perform live due to the physical demands of an acoustic instrument.[242]

Although writing from the very different perspective of a composer in the twentieth century art music tradition (and discussing analogue tape rather than digital sampling), Jonathan Kramer proffers a related set of ideas, noting that

> technology has expanded composers' relationships to musical time in three ways. It has increased their power to regulate temporal proportions; it has enabled them to compose rhythms of a complexity commensurate with the potential of their equipment; and it has opened up the compositional process to an immediacy that comes only when there is no delay between the conception and the realization of a segment of musical time.[243]

I will return to these points in further detail towards the end of this chapter, but at this stage it is useful to note that, taken in combination, Schloss and Kramer's ideas encompass many of the processes and techniques that can be heard in post-hip hop sample manipulation. Their ideas also relate to the groove factors in breakbeats: so, for example, the focus of Kramer's thinking is musical time, hence the bias towards temporal concerns, but his second point, regarding rhythmic complexity, relates clearly to patterning.

Each of the sample manipulation techniques I consider can impact the groove factors in breakbeats in various possible ways, some of which are obvious, while others are a little subtler. In the following sections, I address each technique in turn, describing the processes entailed and how they affect the groove factors. The level of detail in which the techniques are covered varies depending on the extent to which each either marks a development from hip hop practice, is distinctive to approaches within jungle, or otherwise indicates a shift in the way groove factors are prioritized in sample-based production. A series of case

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[242] Schloss, *Making Beats*, 150

[243] Jonathan D. Kramer, *The Time of Music: New Meanings, New Temporalities, New Listening Strategies* (New York: Schirmer Books, 1988), 79.

studies then follows in which I analyse specific tracks and discuss how the techniques and groove factors interact and operate in context.

Tempo

While many producers make tracks that vary from this norm, 160 bpm is considered to be a typical tempo in jungle. Practicality dictates that straying too far in either direction would make it less likely that DJs are able to include a track in a performance that is seamlessly mixed at a consistent tempo, and this could have a consequent negative impact on publicity. When Street Beat Records included 'Amen, Brother' by The Winstons on their *Ultimate Breaks And Beats: Volume 1* compilation, the version that was released featured the original drum break slowed down to 110 bpm, in order to better suit the hip hop requirements of their target market.[244] The 'Amen' break's original tempo is actually 142 bpm though, which is much closer to the typical jungle tempo of approximately 160 bpm. This similarity of tempo may explain, in part, the appeal that this particular breakbeat holds within the genre. Indeed, Renegade's 'Terrorist' is built around prominent use of the 'Amen' break and has a tempo of 149 bpm, requiring only a very small tempo increase from that of the original breakbeat.[245]

The increase in tempo that virtually all breakbeats undergo when used in a jungle track only affects the specific, original duration of IOIs

[244] Various Artists, *Ultimate Breaks And Beats: Volume 1,* Street Beat Records, 1986.

[245] Renegade, *Terrorist,* Moving Shadow, 1994.

within the pattern.[246] Assuming that the breakbeat is used whole (that is, not chopped) then the proportional relationships between IOIs will remain unchanged: the duration of each interval will simply decrease by a similar percentage.

Retriggering

To summarize what I have written about 'retriggering' thus far, I use this term in Chapter 4 to describe the process whereby a breakbeat is loaded into a digital sampler and then triggered in such a way that playback begins more than once in a given bar. Clearly this impacts primarily on displacement as a factor in groove, as outlined in Chapter 2. In sample-based hip hop, as I have previously noted, whether whole breakbeats are looped or individual hits are chopped and then re-configured, the location within the bar of a given drum sound tends to be the same in both the original and sampled versions of the breakbeat. Thus, the kick drum that falls on the downbeat in the original recording of 'Funky Drummer' is likely to also be used on beat one of whichever hip hop tracks use this as a sample source. There are exceptions to this approach, as Audio Two's 'Top Billin'' shows, for example, where retriggering is used as a simple way to generate apparently complex new patterns. In general the rule applies however, and the logic that drives this practice makes sense,

[246] Several commentators note, perhaps inevitably, the trend towards increased tempo that is clearly apparent in jungle. Both Chris Christodoulou and Benjamin Noys assess this trend in the music and relate it to the way in which broader sociocultural currents are subject to the phenomenon of accelerationism. Paul Virilio's philosophy of speed informs the thinking of both scholars. A similar tendency towards acceleration can be seen in some UK hip hop released in the years immediately prior to jungle, as heard in the 128 bpm tempo of Hijack's 'Hold No Hostage' and the 130 bpm tempo of Silver Bullet's '20 Seconds To Comply', for example, suggesting that this genre may have acted as a breakbeat-based stepping stone towards jungle's aesthetic of speed. Christodoulou, *Renegade Hardware*, 321; Benjamin Noys, "Into the 'Jungle'," *Popular Music* 14, no. 3 (October 1995), 321-332; Paul Virilio, *Speed and Politics: An Essay on Dromology* (New York: Columbia University, 1986), 162; Hijack, *Hold No Hostage,* Music Of Life, 1988; and Silver Bullet, *20 Seconds To Comply,* Tam Tam Records, 1989.

because the aesthetic which underlies hip hop's rhythmic patterning is largely derived from funk. So in funk and hip hop, both whole patterns and individual drum strokes are similarly aligned in relation to a track's metre, regardless of whether these sounds are being made by a drummer playing in real time or a producer constructing a programmed rhythm using samples.

In contrast, a distinctive aspect of jungle music results from producers realigning breakbeats differently in relation to their original bar locations. Initially this process used similar retriggering techniques to those discussed in relation to Audio Two's production. The backbeat displacement technique employed by funk drummers — especially during drum breaks, where displacement is used as a way to demonstrate virtuosity whilst maintaining the groove, as I have discussed in Chapter 2 — undergoes a reversal in jungle however, where the displaced backbeat which typically begins on beat 3& in funk is sampled and then returned, once again, to beat 1. In this way, beat 3& of bar 3 in the 'Amen' break often becomes beat 1 in jungle, creating a new four-beat pattern which I call the 'Amen jungle bar' (shown in Figure 6.1 below) when it is used in this way. Note that this is the same pattern that Mark Butler refers to as a 'shifted within' measure.[247] (To hear an extract featuring prominent use of the 'Amen jungle bar', refer to Audio Example 6.1.)[248]

Instrument	**1**	**e**	**&**	**a**	**2**	**e**	**&**	**a**	**3**	**e**	**&**	**a**	**4**	**e**	**&**	**a**
Ride	x		x		x		x		x		x		x		x	
Snare					**X**			**g**			**X**			**g**		**g**
Kick	●								●	●						

Fig. 6.1. The 'Amen jungle bar'

[247] Butler, *Unlocking the Groove*, 79

[248] *Audio Example 6.1. D.R.S. featuring Kenny Ken, 'Everyman', 0:33, pattern using the 'Amen jungle bar'*

Viewed from different perspectives, the use of displacement in jungle can either be conceived as an extension and refinement of hip hop sample techniques, thereby supporting the idea that this genre was influential in the development of jungle, or can be seen more as deriving from dub techniques. Displacement, in dub, is implied rather than explicitly stated, using techniques that either obscure, or conflict with, the music's metre. Most usually this would occur through the use of a delay effect, by muting (or unmuting) a particular instrumental voice at an unpredictable point in the bar, or by balancing the levels differently within a track so that the listener's attention is drawn to a voice that emphasizes an unusual beat. Although it is achieved using different processes, a similar obscuration of metre is created by the displacement used in the patterning of jungle's more complex tracks.

The reason displacement in dub works in these ways is that the genre is rooted in analogue tape technology. In a dub mix, the rhythm patterns and other sounds on the master tape maintain the same temporal positions in relation to one another, because the nature of the medium dictates that this must be the case. Even when a producer creates a sense of displacement by passing the sound of a snare drum, for example, through a delay effect, the original, unprocessed sound has not been displaced and will probably (though not always) be heard prior to the decaying reiterations that result from the processing.

Tracks constructed from digital samples — as is typically the case in both hip hop and jungle — are not bound by the tape-based temporal constraints associated with dub of course, so in this sense the rhythmic displacement which is often heard in jungle music could be seen as more akin to hip hop production practice. However, in terms of how this displacement tends to be applied musically in jungle, a commonly occurring breakbeat trigger pattern uses beat 1 followed by a retrigger on beat 2&, which generates the pattern shown in Figure 6.2 below.

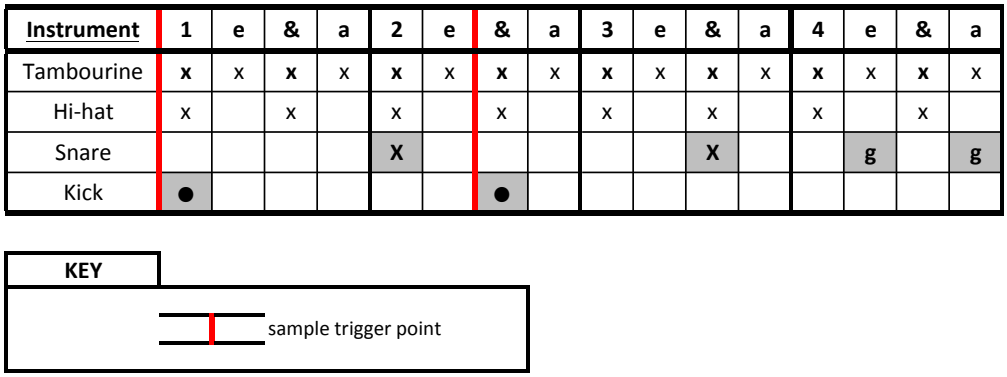

Fig. 6.2. A common triggering pattern in jungle (using 'Think' break here)

Another typical breakbeat trigger pattern takes the trigger points used above (beats 1 and 2&) and adds another on beat 4, which generates the pattern shown in Figure 6.3 below. Rhythmically, this pattern's clearest forebears are Caribbean; its implied 3-3-2 layout calls to mind the Cuban *tresillo*, but a closer stylistic tie links this type of displacement in jungle to the patterning of the drums in Jamaican dancehall, since the sonority of the kick drum is typically used to emphasize the 3-3-2 layout in both styles. Brief representative extracts that demonstrate how this timbre is linked with the pattern, in both styles, can be heard in Audio Examples 6.2 and 6.3.[249]

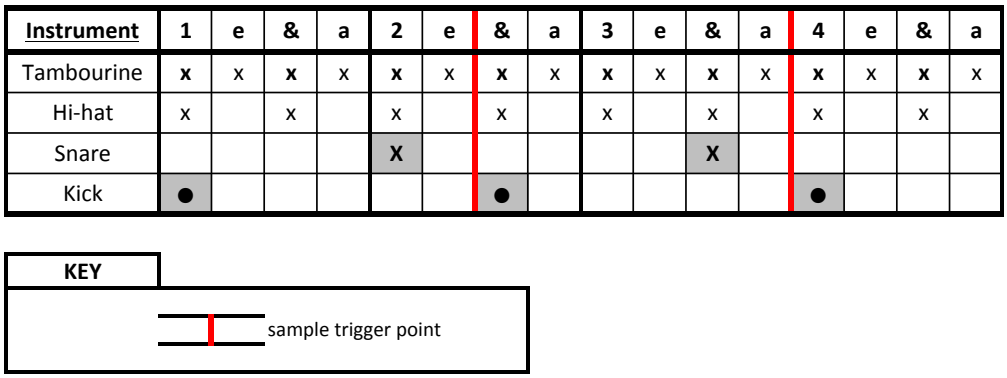

Fig. 6.3. Triggering pattern with added beat 4 (again, using 'Think' break)

[249] *Audio Example 6.2. Spragga Benz/Lady Saw, 'Backshot', 0:04, dancehall 3-3-2 rhythm; and Audio Example 6.3. Undercover Agent, 'Dub Plate Circles', 0:10, jungle 3-3-2 rhythm.*

So whereas funk drummers tend to use beat 3& as an important focal point when employing displacement, jungle producers often emphasize beat 2&, in line with a Jamaican rhythmic sensibility. This produces an interesting compounded displacement when it is the 'Amen jungle bar' that is used in this way: a four-beat pattern which began on beat 3& (a quaver off-beat) in its original funk context is displaced to begin on beat 1 (the downbeat) and then again on beat 2& (which is another quaver off-beat, but one which implies a different stylistic preference — that is, for reggae rather than funk).

Chopping

Chopping in jungle relates closely to the technique as it is used in hip hop, where producers take the constituent sounds from one or more existing drum breaks, isolate them, and then create a new rhythm pattern from the resulting fragments. In reference to the iconic early jungle track 'Renegade Snares', for example, Reynolds notes that 'like all [producer Omni Trio]'s breakbeats, it's an original construction, built up from 'single shot' samples – kicks, snares, hats, shakers, toms etc.'[250] Whereas in hip hop — certainly, post-Golden Era — the complexity of the chopping process often derives from a need or desire to disguise the sampled source material, in jungle, by contrast, producers almost revel in the blatant use of a small pool of breakbeats, whose very familiarity acts as a benchmark against which the complexity of their chopping technique can be compared. Kramer's prescient comment that technology enables individuals 'to compose rhythms of a complexity commensurate with the potential of their equipment' can be seen to apply to jungle producers, who exploit their technology's potential to the full in pursuit of ever-greater rhythmic complexity.

So the complexity of sample manipulation and track construction within the genre increases over time, and whilst jungle producers continue to use the distinctive approach to rhythmic displacement

[250] Omni Trio, *Renegade Snares - Vol. 3,* Moving Shadow, 1993; and Simon Reynolds, "Above the Treeline," *The Wire*, no. 127 (September 1994), 41.

outlined above, this comes to depend less on retriggering an entire bar (or more) of the breakbeat. Rather, individual chopped strokes are used to construct new patterns, but, in accord with the displacement tendency, these strokes are often placed at points in the bar that differ from their original locations.

As I have discussed in Chapter 3 with regard to the crash cymbal in the 'Amen' break and the open-hi-hat-plus-kick-drum composite strokes in 'Funky Drummer', the interesting moments of phrasing and texture in key breakbeats stand out more when they do not occur at obvious points in the bar, in relation to the metre, because the listener's textural expectations are geared around hearing such features at a particular point in a pattern. By displacing either whole or fragmented breakbeats in the ways described here, jungle producers confound the listener's textural expectations and thereby generate engagement with the groove, based on the resulting sense of anticipation.

Chopping has the most obvious impact on the IOIs in a breakbeat, in that the groove of the new patterns created from the individual strokes in the original drum break can no longer be said to result from the microtiming deviations in a particular drummer's performance. In this respect, jungle production practice is similar to that in hip hop: whilst the patterns created may be very different, when chopping is employed in either genre, large-scale patterns of IOIs cease to be a meaningful factor in the way that a breakbeat's groove operates in its new context.

Instead, IOIs within smaller chopped fragments take on greater significance, so that, for example, the interval between a pair of tambourine strokes from the 'Think' break which is repeated extensively in the newly constructed pattern becomes a distinctive feature. In this example, the duration of the IOI between tambourine strokes is controlled by the jungle producer, who can choose exactly how fast or slow this particular sample fragment plays when triggered, and, therefore, the extent to which it sounds straight or swung in relation to the metre of the new track. Whatever may have been magical about the way the original percussionist chose to time this pair of strokes is no

longer relevant once it has been chopped from the breakbeat (although, ironically, it may have been just this magic which initially attracted the jungle producer to the breakbeat as a potential sample source).

Looping

When displaced four-beat groupings — such as the 'Amen jungle bar' — are looped, their new relationship to the track's metre gradually becomes normalized as a result of the looping. Whilst the displacement may initially be surprising to the listener on account of the way that familiar sounds associated with a particular point in the bar are now aligned differently with the track's metre, the repetitions caused by looping soon establish the new alignment as normal. This is another example of a process that causes the breakbeat's status to shift from gesture to figure.

Rose discusses the equalizing effect that looping has on a breakbeat, as I have mentioned in Chapter 4, where I argued that this effect can also account for the listener's acceptance of drum patterns which sound natural but which were never actually performed, enabling a kind of suspension of disbelief. In jungle, producers intend the processes by which the chopped, composite breakbeats have been constructed to be audible — in keeping with the genre's technological basis — but the looping which is employed still has an equalizing effect, helping the listener to accept the apparent impossibility of the performance as it is heard.[251]

[251] As jungle's popularity increased, drummers were inspired to try and incorporate the genre's breakbeats into their live performances. Such attempts met with varied success, sometimes feeling more like a technical challenge than a valid musical contribution. Whilst technically impressive, the failings of this approach typically lies in the *sound* of the drums: programmed breakbeats can be replicated by live drummers in terms of patterning and tempo, but jungle's timbral groove factors are dependent on both the sound of sampled breakbeats and the sound of their manipulation by producers. Nevertheless, it is interesting to note this tangent in the journey of breakbeats across time.

Pitch-shift

Pitch-shifting of breakbeats is manifested in a number of ways in jungle and relates to various other production processes used in the genre. Most obvious, perhaps, is the raised pitch that occurs as a by-product of tempo increase. Current (so-called 'elastic audio') technology enables the duration of a sample to be altered without this process resulting in a concomitant change in the sample's pitch, but with the digital samplers used by jungle producers working in the early 1990s these two aspects of a sample were inextricably linked: if a faster tempo is required than that of the original breakbeat (which is almost always the case, as I have discussed above) then this is achieved by playing the sample back at a higher pitch.

One of the contributing factors in the appeal, for jungle producers, of the 'Amen' break becomes apparent when the raised pitch that results from increasing a sample's tempo is considered. As the sample's pitch is raised, there is a consequent loss in the low frequency depth of the breakbeat's overall timbre. Given the Jamaican sonic aesthetic that informs jungle production and the typical performance context in which the music might be heard, such absence of bass weight would be considered problematic.[252] This explains, in part, the use of kick drum sounds from drum machines such as the Roland TR-808 as a strategy for bolstering the low-frequency content of a track's texture. Because the 'Amen' break's original tempo is much faster than that of many the other breakbeats from the same era, a smaller tempo increase is required in order to incorporate it into a jungle track, which means that the resultant

[252] The work of both Julian Henriques and Christopher Partridge illuminates the link between bass and perceived authenticity in reggae. See Julian Henriques, "Sonic Dominance and the Reggae Sound System Session," in *The Auditory Culture Reader*, eds. Michael Bull and Les Back (Oxford, UK; New York: Berg, 2003), 451-480; and Christopher Partridge, *Dub in Babylon: Understanding the Evolution and Significance of Dub Reggae in Jamaica and Britain from King Tubby to Post-Punk* (London: Equinox, 2010).

increase in pitch is smaller and so, consequently, there is a less noticeable loss of low-frequency texture in the sound of the sampled drums.

In Chapter 2, I proposed that the groove in some funk breakbeats includes a pseudo-melodic dimension that can be perceived, particularly, in the snare drum voice and which is created when the drummer uses a varied range of strokes. Jungle producers deliberately pitch-shift individual strokes taken from chopped breakbeats and use these to add snatches of drum melody to a track, in a way which uses a wider pitch range than the subtler equivalent heard in funk and is therefore more obvious.

The melodic use of snare drum sounds from breakbeats takes a number of different forms. In some cases, the producer creates an additional layer of snare drum melody that interacts with the main snare drum pattern in a looped break; this use of the technique effectively creates new, prominent snare notes that are not present in the original version.[253] At other times, a single snare drum stroke that has been extremely pitch-shifted (either up or down) is used as a way to briefly punctuate the forward momentum of a track's groove.[254] Finally, melodic pitch-shifting can also be combined with other techniques, such as the fast roll (discussed below), for example, where it is sometimes used to add a sense that the pitch of a roll is sliding upwards or downwards.[255]

Occasionally, ludicrous extremes of pitch-shifting are used as a special effect. When a breakbeat is set to play back three octaves higher than its original pitch, for example, the patterning, proportional IOIs, ghost notes and phrasing are all still present within the sample, but the breakbeat's internal tempo becomes so fast that all of these nuanced

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[253] *Audio Example 6.4. Amazon II, 'Booyaaa! (Open Your Mind)', 5:14, melodic snare drum notes*

[254] *Audio Example 6.5. Rude & Deadly, 'Mash Dem Down', 2:02, low punctuating snare*

[255] *Audio Example 6.6. Shy FX, 'Simple 'Tings', 1:36, fast snare roll with melodic shape*

factors are indistinguishable and all that can be heard is a percussive scuttling that is reminiscent of cartoon sound effects.[256]

Layering

It is not unusual for two breakbeats to be layered in hip hop so that they run concurrently for a whole bar or longer (as is evident from the composite breakbeat used in Eric B & Rakim's 'I know You Got Soul' discussed in the previous chapter).[257] Alternatively, chopped fragments extracted from different sources might be layered vertically as well as being organized into new patterns horizontally, so that the vertically layered moments create composite textures within the newly constructed rhythm pattern. Similar approaches to the layering of breakbeats exist in jungle production practice, though certain applications of this technique are more prevalent in jungle than in hip hop.

Drawing on the tempo alteration technique described above, jungle producers often layer breakbeats that are manipulated so that they exhibit double-time and half-time relationships with one another. At such moments, the track's overall tempo can seem to become ambiguous, so that the listener might perceive a pulse of either 80 or 160 bpm, for example.[258] In all likelihood, however, the context which frames such moments (the whole track, the DJ's set, or, indeed, the norm within the genre) will have already established the dominance of the faster tempo. Nevertheless, layering of this kind creates interesting pattern relationships between the two breakbeats and throws up the possibility of some new composite textures that would not occur if the breakbeats were running at the same tempo.

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[256] *Audio Example 6.7. DJ Krome & Mr Time, 'Ganja Man (DJ Hype Remix)', 1:26, sound effect resulting from extreme pitch-shifting linked with tempo increase*

[257] Eric B & Rakim, *I Know You Got Soul*

[258] I do not mean that listeners will necessarily be able to gauge the precise tempo at such moments, but simply that their perception can gravitate to either the normal or the halved tempo.

Phrasing can also flow *between* layered breakbeats in ways that highlight features within the composite patterns. Thus, in a jungle track's layered, composite breakbeat, the crash cymbal from beat 3& of bar 4 of the 'Amen' break might flow naturally towards the snare drum press roll from beat 4& of bar 2 of the 'Soul Pride' break, for example, suggesting new phrase lines to the listener, that are formed from the pre-existing shapes in both drummers' original performances.

Timestretch

Another sample manipulation technique in jungle that can affect the groove factors in a breakbeat is the use of the 'timestretch' function. As with many of the digital sampler's other functions whose original purpose has been creatively subverted by producers, timestretching is intended as a tool that makes it possible to extend or shorten a sample's duration so that it will fit into a required timespan without the accompanying shift in pitch described above. As I have mentioned above in relation to pitch-shifting, contemporary 'elastic audio' technology has reduced the likelihood that such stretching will lead to any unwanted digital artefacts being added to the resulting sound, but the technology in use by jungle producers in the early 1990s, however, typically introduced changes in the timbre of the sample, as a result of the stretching process. Thus, in jungle, the timestretched sample acquires an obviously digital timbral sheen — described by Reynolds as 'an eerie metallic crispness' — which foregrounds the processing that has taken place.[259] By manipulating the parameters involved in this process, jungle producers are able to make the effect prominently extreme.

Audio Example 6.8 demonstrates the sound of a timestretched vocal sample, which represents a typical application of the technique; it is particularly effective when vocal sounds are processed in this way, because the natural sound of the voice is transformed into an unnaturally digital copy, whilst still retaining enough trace of the original for its

[259] Reynolds, *Above the Treeline*, 40

source to still be recognizably human.[260] Such cyborg-ification of the human voice can undoubtedly be seen as a metaphor for jungle's core aesthetic, and is also manifested in other sonic and musical aspects of the genre — such as the digital fragmentation and complex, machine-like reorganization of drum breaks that were originally performed by humans — as well as non-musical aspects such as track titles and visual imagery (a prime example of which can be seen in the logo of the Metalheadz label — a robot skull).

Although vocal samples are a more common target for this technique, timestretching is sometimes used to process breakbeats in jungle, as heard in Audio Example 6.9.[261] In terms of groove factors this primarily affects timbre, foregrounding the processed breakbeat's texture and diminishing its rhythmic role; although pattern relationships within the breakbeat remain intact, they become spread out over a longer duration and therefore relate differently to the track's metre. In some instances, only part of a breakbeat is timestretched, which obviously has an effect on the IOIs within the pattern too.

Filtering

Whilst the term 'filtering' could describe much of the audio processing (both analogue and digital) that occurs in the recording studio, I use it here to denote a specific type. Several models of digital sampler in popular use amongst jungle producers — such as the Akai S series, for example — include built-in effects and filters, thereby offering producers the advantage that these processes can be controlled with a degree of automation via MIDI. The range of filter types available, although limited, would typically include, high-, low- and band-pass, each of which demonstrates an established and enduring popularity as a production tool in most forms of electronic popular music, although the low-pass filter is arguably predominant.

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[260] *Audio Example 6.8. Dread Bass, 'Dead Dread', 1:18, timestretched vocal sample*

[261] *Audio Example 6.9. Rude & Deadly, 'Mash Dem Down', 4:04, timestretched breakbeat*

The effect produced by sweeping the frequency of a filter through which a sound is passing emerged as a musically viable gesture from King Tubby's pioneering studio experiments in dub. Another genre-specific application of the technique is heard in the basslines of acid house, generated using the Roland TB-303 synthesizer.[262]

Fast Rolls

I use this term to refer to the type of sample manipulation wherein the programming emulates the sound of a drum roll. This is achieved by repeatedly triggering the same sample a number of times in rapid succession, usually so that it is played on every semiquaver (or smaller) subdivision over the duration of an entire bar. Although one could argue that the production technique used to create the sound of a fast roll means that it is, in effect, a subtype of the retriggering technique, its musical application is sufficiently different from retriggering to warrant discussion in its own right.

Programmed fast rolls mimic a technique within drum performance practice, but the precision made possible by digital control results in a sound which is more constant — in terms of timing and dynamic levels — than that which even the most eminent human drummer could hope to produce. In this sense, programmed fast rolls demonstrate Schloss's observations that sampling enables both the exact repetition of notes and the construction of patterns that would be difficult to play live. In live drumming, the roll technique is most commonly associated with the snare drum and would be virtually impossible to

[262] In both of these cases, as with several equivalent developments discussed elsewhere in this thesis, the distinctive musical language associated with the technique results from a creative approach that augments a device's functionality by deviating from the use that its manufacturers intended.

perform on the kick drum with a standard, one-pedal set-up.[263] Jungle producers are not similarly constrained when selecting an instrumental texture for fast rolls however, because any sample can be used for this programming technique, so tracks that use the kick drum in this way, or other composite strokes involving cymbals and drums, are common.[264]

Although, as I have mentioned, each note in a programmed fast roll can be repeated exactly and at a totally consistent dynamic, jungle producers often alter aspects of the sound in order to create a sense of movement. It is usual to hear fast rolls used as a way to mark the end of a section, where they replace the main rhythm pattern, providing a brief alternative before the breakbeat begins again at the start of the track's next section. Used in this way, there are fewer other sounds for the roll to compete against for the listener's attention, so subtle alterations to the roll's sound are still audible. The filtering technique discussed in the previous section is a typical approach which producers employ to vary the sound within a fast roll. Also, the volume of each sample within a roll can be manipulated to create perfectly smooth dynamic shaping, typically in the form of a crescendo, and this technique is often combined with filtering to add sculpted lines and curves to the roll.

As is the case with retriggering more generally, the fast roll programming technique diminishes (in this case, totally) the IOIs in the original breakbeat. They demonstrate an instance in which the original breakbeat is used partially, and only for its timbral qualities.

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[263] Many contemporary drummers now use an adapted kick-drum set-up involving two pedals attached to two beaters, both of which are mounted on one kick drum. (This set-up evolved from larger drum kits that included two kick drums, a configuration associated with the heavy metal genre, in particular.) In theory, this double-pedal technology makes it possible to play drum rolls on the kick drum, but although a handful of drummers are capable of this — again, largely in heavy metal — their playing still cannot match the inhuman precision of a programmed fast roll.

[264] *Audio Example 6.10. DJ Krome & Mr Time, 'Ganja Man (DJ Hype Remix)', 0:46, snare and kick drum fast rolls*

Reverb

Jungle producers can make use of the reverb which is already present in a breakbeat as a result of the production processes used in the original funk recording, or can add new reverb effects as part of their own production; both types of reverb — originally present and newly added — offer the possibility of altering the way that articulation and phrasing operate in the groove.

Articulation can be created in a breakbeat by shortening the decay time of a sample which has originally present reverb, as this causes the ambient sound captured in the original source recording to become unnaturally curtailed.[265] In doing so, the jungle producer effectively uproots the sound of the drum strokes from the context in which they were performed, resulting in a disconnection between the performance and any sense of physical space. Bearing in mind the uncomplicated, naturalistic approach to recording drums in funk discussed earlier, sample manipulation techniques such as this have the effect of making the drums sound less natural, thereby foregrounding the jungle production processes which the breakbeat undergoes. The technique is also used to create variation within a jungle track without the need to alter other groove factors; patterning and timbre can remain unchanged, but the forced articulation introduces difference.

Conversely, sounds within the original breakbeat source that contain little or no recorded ambience can have their decay extended by the subsequent addition of reverb by jungle producers. This is a useful tool for blurring the abrupt ending of a sampled breakbeat and can be used, with longer reverb times, to smooth the joins between sections of a track's structure.

[265] *Audio Example 6.11. Rude & Deadly, 'Mash Dem Down', 1:25, forced articulation via sample decay manipulation*

Reversal

Reversing all or part of a breakbeat is a simple process for the jungle producer to carry out, but one which instantly creates sounds that it would be impossible for a drummer to perform, thereby reinforcing Schloss's view that sampling offers options 'that are not open to musicians who use live instruments'.[266] This technique has an impact on the IOIs within a breakbeat. The loud peaks that had previously been at the onset of each stroke are moved to the end of each sound when the sample is reversed, but these still maintain the same relationship with one another (albeit backwards). Because each sound in the original breakbeat decays differently, however, when the sample is reversed, and the tail ends of these decays become the new onsets, a new pattern of onsets is generated. This explains why reversed breakbeats can sound more different from their un-reversed counterparts than might be expected: as well as the unnatural sound of the reversed amplitude shapes, there is a new set of IOIs for the ear to contend with which is actually different and not simply reversed.

In some instances, only parts of a breakbeat are reversed, so the flow of the overall pattern remains familiar, but interest is generated by the presence of the reversed fragments, as they impact on the breakbeat's phrasing, dynamic flow and expected timbral shape.

Breakbeats in jungle

Having established the main types of sample manipulation employed by jungle producers, the following series of brief case studies demonstrates how they are put to musical use. The jungle tracks analysed here do not include every imaginable nuance of sample-based programming, but the selection is broadly representative of approaches within the genre. Rather than attempting to discuss every feature of every track, the purpose here is to draw attention to those relevant aspects that illustrate the empirical application of the techniques described above as they are used in practice.

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[266] Schloss, *Making Beats*, 150

Transcriptions, where included, are used to represent the main patterning characteristics in a given track and should be viewed on the basis that, when listening, many variations on the transcribed pattern are likely to be heard (in line with the 'elastic tension' and 'cyclic discontinuity' between metre and breakbeat, that Goodman identifies at the heart of the genre).[267]

Dread Bass 'Dead Dread' (1994)

As in much jungle from this period, the genre's connection with reggae is made explicit here via a vocal sample that is used in the track's introduction. The source, in this case, is the spoken introduction from Dr. Alimantado's 'Poison Flour' — "What the time you 'ave there, dread?" — although Dread Bass's choice of title implies that the sampled fragment is intended to be heard as "What the time you 'ave *dead* dread".[268] It is easy to arrive at this more sinister interpretation thanks to the sonic obfuscation caused by the timestretch processing that has been applied to the sample. The track is built around a layered, composite breakbeat (shown in Figure 6.4 below) created from chopped versions of the 'Amen' and 'Think' breaks, the latter providing a light, funky counterpart to the stridency of the former. Several features of the new breakbeat are of interest, in terms of groove factors.

The swung semiquavers of the tambourine in the 'Think' break and the insistent ride cymbal quavers in the 'Amen' break sit well together in the overall mix, whilst exhibiting heterogeneity of both timbre and pattern. There is little activity in the kick drum voice, leaving plenty of space for the synthesized bassline that the producers add to the track. Both snare drum lines are very busy and, when combined, exhibit melodic shape that results from both the interplay between the snare drum in each break and the descending pitch-shift that the producers apply to the snare from the 'Amen' break.

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[267] Goodman, *Darkcore*

[268] Dr Alimantado, *Poison Flour,* Ital Sounds, 1976.

Break	Instrument	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a
Amen	Ride	x		x		x		x										x		x		x		x		x							
	Snare					**X**			**g**	**g**	**g**	**g**	**g**	**g**	**g**	**g**						**X**			**g**	**X**		**g**	**g**		**g**	**g**	
	Kick	●		●														●		●													
										Descending pitch																Descending pitch							
Think	Tambourine	**x**	x	**x**	x	**x**	x	**x**	x	**x**	**x**	**x**	x	**x**	x	**x**	**x**	**x**	x	**x**	x	**x**	x	**x**	**x**	**x**	x	**x**	x	**x**	x	**x**	x
	Hi-hat	x		x		x		x		x	x	x		x		x	x	x		x		x		x	x	x		x		x		x	
	Snare					**X**				**X**	**X**	**X**				**X**	**X**	**X**						**X**	**X**	**X**		**X**		**X**		**X**	
	Kick	●																															

KEY

Cymbals/Tambourine	**Snare drum**	**Kick drum**
X = normal stroke	X = normal stroke g = ghost note	● normal stroke

All instruments

bold grey shows the pattern shape created by main strokes

Fig. 6.4. Dread Bass, 'Dead Dread', 1:31, main pattern

As well as this main pattern (and its variations throughout the track), 'Dead Dread' contains several other noteworthy moments. A typical jungle fast roll occurs at 3:27, created using a snare drum sound from within the track's composite breakbeat. The sample is triggered on every demisemiquaver subdivision, illustrating the extremely rapid repetitions that result from demisemiquavers played at this tempo (168 bpm).[269] The roll lasts for a whole bar and includes no variation of other factors — such as timbre (via filtering), pitch or dynamic — sounding very mechanical as a consequence. In his use of the fast roll technique here, the producer takes the snare drum gesture as originally performed by the drummer and, through the use of simple but exact (and rapid) repetition, creates a new machine-like gesture that seems to parody drum performance practice. It is curious to note that rapid repetition, when used in this way, creates a sense of temporal stasis. Rather than contributing to the groove's momentum, as might be expected from their pace, the demisemiquavers' total lack of variation instead implies that progress has stalled, and the only tactic that can dispel this inertia is the reintroduction of the breakbeat at the start of the following bar.

A similarly patterned fast roll is repeated at 4:24, but with the dynamic level of the samples adjusted in order to create a gradual crescendo throughout the bar.[270] This contrasts with the previous, unchanging example, thus demonstrating that the lack of variation in the roll at 3:27 is by design (or, perhaps, sheer bloody-mindedness) rather than through lack of technique or imagination on the part of the producer.

At 2:43 there is a section that features a phasing effect produced by the near-simultaneous triggering of identical breakbeats. When retriggering is used in the ways discussed so far, it is usually assumed that each successive time a given sample is triggered, the preceding iteration

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[269] *Audio Example 6.12. Dread Bass, 'Dead Dread', 3:27, fast roll technique without variation*

[270] *Audio Example 6.13. Dread Bass, 'Dead Dread', 4:24, fast roll technique with crescendo*

will immediately stop playing, in order to prevent the overall texture of the track from becoming unduly cluttered. To achieve the phasing effect heard at this point in 'Dead Dread', however, two iterations of the same sample must play alongside one another, with just a momentary difference between the times at which they are triggered.

In summary, the main, characteristic techniques used to construct the new composite breakbeat are chopping, layering, fast rolls and phasing via retriggering. These techniques alter all of the original breakbeats' groove factors to some extent, and have a particularly noticeable impact on the patterning (and IOIs), phrasing, ghost notes and displacement in each. Conversely, the character of the composite breakbeat's groove is dependent primarily on the phrasing and timbre factors of the original breaks. This is a model that will be seen to recur, with some slight variations, throughout most of the case studies presented here.

Bass Master Warriors 'Ten Grand Dub Plate' (1994)

As with the preceding track, the composite breakbeat in 'Ten Grand Dub Plate' is achieved through layering. Rather than combining layers taken from two funk drum breaks, however, Bass Master Warriors use the 'Amen' break (which they chop comprehensively) and a reggae sample that features the 'one-drop' rhythm, that is, a composite kick-plus-snare drum stroke on beat 3 of every bar. As Figure 6.5 shows, a synthesized reggae bassline is also added, built from a sound whose nature occupies the grey area (at least, in jungle) between bass instruments and low drums.

Break	Instrument	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a
Amen	Ride	x		x		x		x		x		x		x		x		x		x		x		x		x		x		x		x	
	Snare	X			g		g	X			g		g	X			g		g	X			g		g	X			g	X			g
	Kick																																
Sample 1	Kick-plus-Snare									X																X							
Sample 2	Kick/Bass	●		●		●		●		●		●		●		●		●				●				●							

KEY

Ride cymbal	Snare drum	Kick drum/bass
X = normal stroke	X = normal stroke g = ghost note	● normal stroke

All instruments

bold grey shows the pattern shape created by main strokes

Sample 1 = typical reggae 'one-drop' drum pattern, using composite kick-plus-snare-drum stroke

Sample 2 = synthesized kick drum/bass sound playing a typical reggae bassline

Fig. 6.5. Bass Master Warriors, 'Ten Grand Dub Plate', 1:34, main pattern

Whilst several sample manipulation techniques are employed in the production of this track, the chopping and layering, and the way that each of these relies on double-time/half-time metrical contrast, provide the main focus for discussion. With a tempo of 174 bpm, 'Ten Grand Dub Plate' is at the faster end of the typical jungle range. The one-drop and bassline layers combined to form a reggae-inflected whole which implies a tempo of 87 bpm, against which the breakbeat's tempo seems, in contrast, very fast.

Several of the chopped sections from the 'Amen' break used here, however, are slowed to run at 87 bpm instead, using either pitch-shifting or timestretching to achieve this change. When the half-time sections are then interspersed amongst full tempo sections in the newly constructed break, the tempo lurches back and forth, alternately doubling and halving. Although there is a consistent underlying pulse which grounds this variation, it is disorienting to the listener, especially when the leaps in pitch and timbre that also result from the tempo changes are taken into account. Figure 6.6 below shows a brief extract that features this type of half/double tempo interplay.

This approach is taken to extremes in a section beginning at 1:45, where, in addition to the half/double tempo chopping described above, the producers displace the chopped sections by a quaver in relation to the track's metre, thus compounding the listener's disorientation by emphasizing the off-beat. The track's reggae bassline continues unchanged throughout this section, providing a shred of temporal continuity, but because this is framed differently by the displaced breakbeat, some concentration is required in order to maintain a true sense of the metre at this point.

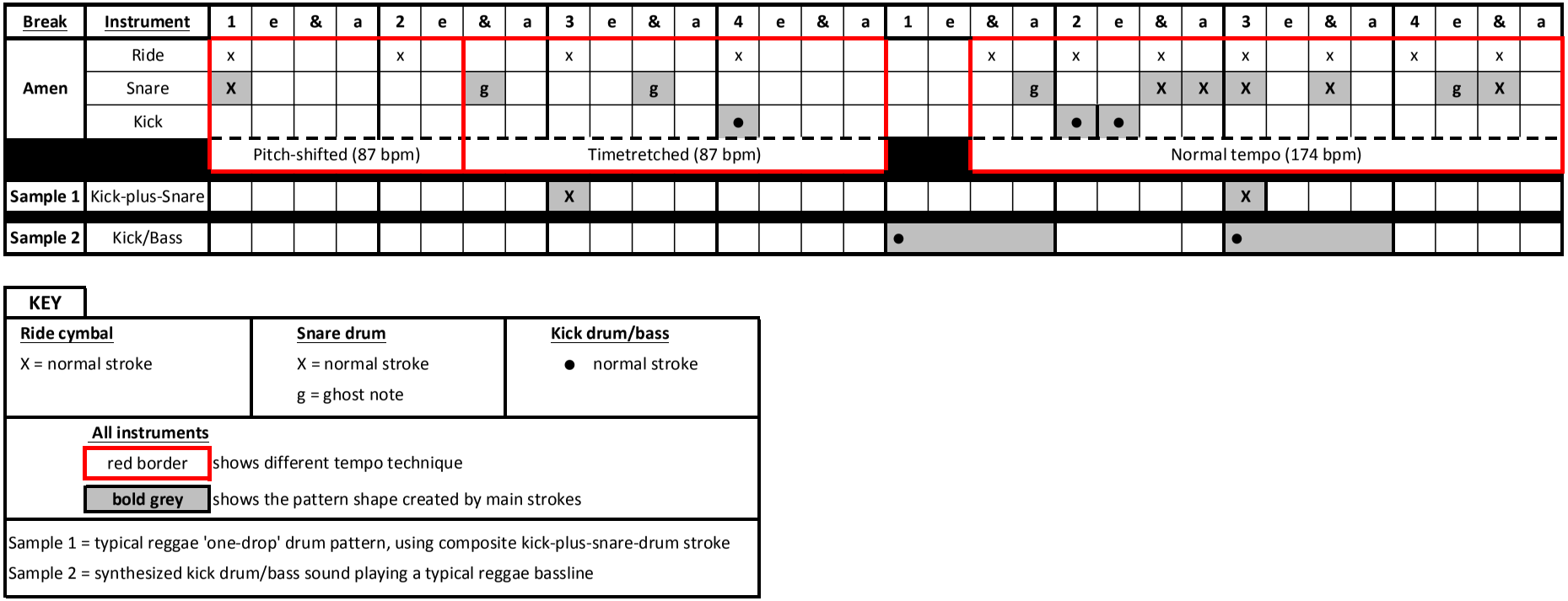

Fig. 6.6. Bass Master Warriors, 'Ten Grand Dub Plate', 2:40, half/double tempo interplay

In this track, then, Bass Master Warriors show two different ways that jungle producers make playful use of the interaction between breakbeats that have a half/double tempo relationship. The first of these ways works vertically, when two layers that have this type of tempo relationship play concurrently. In jungle, the slower layer might typically be sampled from a reggae track, as is the case in 'Ten Grand Dub Plate'. The second way works horizontally, when Bass Master Warriors exploit this type of tempo relationship by briefly inserting half-tempo fragments of the original breakbeat in between full-tempo fragments, calling to mind Goodman's point that 'the breakbeat carries key traits of self-similarity *irrelevant of scale*'.[271]

At some points in the track, the producers use both approaches to the technique at the same time, creating a myriad web of metrical relationships that function both vertically and horizontally. Given that they also use two different techniques to achieve the various tempo changes here (either pitch-shifting by an octave or timestretching by 200%), this track is representative of the inventiveness which jungle producers use when applying simple techniques in creative ways, in order to generate a wide range of timbral and temporal groove factor variation from minimal sonic raw material.

Dopestyle 'You Must Think First' (1994)

Here, DJ Hype (working under his Dopestyle alias) layers chopped versions of the 'Think' and 'Soul Pride' breaks, undergirding the resultant composite breakbeat with unusually rapid drum-machine kick drum sounds. As the transcription in Figure 6.7 below shows, these kick drum sounds make extensive use of the semiquaver subdivision, a pulse stratum which tends to be the preserve of higher-frequency sounds in jungle patterning, such as the hi-hat cymbal or snare drum strokes.

[271] Goodman, *Darkcore*, (emphasis added)

Break	Instrument	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a
Soul Pride	Hi-hat	x		x		x		x		x		x		x		x		x		x		x		x		x		x		x		x	
	Snare		X				X			X		X				X						X		g	g			X		X			
	Kick	●		●		●		●																									
Think	Tambourine			x				x		x		x	x	x	x	x	x	x	x	x	x	x	x			x			x	x	x	x	
	Snare			g				g		X			g		g				g		g		g			X			g				
	Kick																																
Sample	Kick/Bass	●				●												●	●	●	●	●	●	●	●	●							

Break	Instrument	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a
Soul Pride	Hi-hat	x		x		x		x		x		x		x		x		x		x		x		x		x		x		x		x	
	Snare		X				X			X						X			g			X			g			X		X		X	X
	Kick	●		●		●		●																									
Think	Tambourine			x				x		x			x	x	x	x				x			x	x	x	x		x	x	x	x	x	
	Snare			g				g		X			g		g					X						X			g		g			
	Kick																																
Sample	Kick/Bass	●				●												●	●	●	●	●	●	●	●	●							

KEY		
Cymbals/Tambourine	**Snare drum**	**Kick drum**
X = normal stroke	X = normal stroke	● normal stroke
	g = ghost note	

All instruments

bold grey shows the pattern shape created by main strokes

Fig. 6.7. Dopestyle, 'You Must Think First', 1:17, main pattern, breakbeats and kick

There are no physical constraints for a producer wishing to create patterns built around fast kick drum repetitions (unlike the challenge they pose for live drummers) because one sampled sound can be triggered as easily as another, as I have already noted in relation to the fast roll technique. Nevertheless, convention within the genre dictates that drum-machine kick drum sounds tend to use the crotchet and quaver subdivisions primarily, and to do so in ways that emulate reggae approaches to bassline composition (as I have shown in above, in relation to 'Ten Grand Dub Plate'). The grouping of eight successive kick drum semiquavers in 'You Must Think First' bucks this trend and, in so doing, energizes the low-frequency end of the track's overall timbre.

In addition to the layered composite breakbeat, Dopestyle incorporates a sample from a reggae song into the structure at various points during the track. Whilst this source is used chiefly because of its sung vocal line, other elements from the original song — such as the bass and drums — can be dimly perceived when there is a brief respite from the composite breakbeat, though the producer has minimized their presence by using equalization to filter out the lower frequencies.

The tambourine voice in the 'Think' break is one of its distinctive features, and is often the reason jungle producers choose to use this breakbeat, as I have mentioned in Chapter 3. The timbre of the tambourine line sits well amidst the typical texture of a jungle track, so that its characteristic, slightly swung semiquaver feel propels the groove of its new musical context. At certain points during 'You Must Think First', however, the producer uses the 'Think' break tambourine to create stasis in the groove. He does this by stopping all other drum sounds for nearly two whole bars, and filling this space with a loop built from identically repeating semiquaver pairs of tambourine strokes. As is clear from my transcription of the 'Think' break in Chapter 3, the kick drum barely features in the original pattern and it is, instead, the interaction between the tambourine and the snare drum which creates the groove; listeners who are familiar with the breakbeat have therefore come to associate the sound of these two instruments playing together with a particular

pattern, and so have a textural expectation that the snare drum will be heard after a certain number of tambourine strokes have elapsed. Dopestyle plays with this sense of expectation by using looping to extend the solo tambourine line and thus create stasis that lasts from beat 1& until beat 4 of the following bar, withholding the arrival of the snare until that point. When the snare does eventually play, the stasis is broken and the track begins to groove again.[272]

There are several instances when melodic snare drum patterns are heard in this track: some of these result naturally from the differences in the tuning, dimensions and production of the two snare drums as they were originally recorded, and the way these interact melodically now that the breakbeats have been layered; others are caused by the producer's deliberate pitch-shifting of samples. Many bars — such as the one heard in Audio Example 6.15, for instance — contain melodic snare patterns that result from both types of technique.[273]

The introduction uses a section from the 'Soul Pride' break, alternating between normal and reversed sample direction from one bar to the next.

Northern Connexion 'The Bounce' (1995)

Built around a pattern constructed from an extensively chopped 'Amen' break (shown in Figure 6.8 below), this track is something of a tour de force, drawing on a wide range of the sample manipulation techniques associated with jungle production. Whilst it is worth acknowledging the wide range of techniques used in 'The Bounce', there is no need to describe all of them in detail, because several have already been discussed in the preceding case studies. There are two that are worthy of specific mention here, however.

[272] *Audio Example 6.14. Dopestyle, 'You Must Think First', 0:56, tambourine-induced stasis*

[273] *Audio Example 6.15. Dopestyle, 'You Must Think First', 1:21, melodic snare drum patterns*

Break	Instrument	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a
Amen	Ride	x		x		x		x		x		x		x		x		x		x		x		x		x		x		x		x	
	Snare					X			g			X			g								X			g			X		X			g
	Kick	●								●						●		●								●							
Soul Pride	Hi-hat	x				x				x	x	x	x			x	x	x	x			x	x	x	x			x	x	x	x		
	Snare			X				X					g	X					g	X					g	X					g	X	
	Kick	●				●																											
Sample	Kick/Bass	●				●						●						●				●						●					

Break	Instrument	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a
Amen	Ride	x		x		x		x		x		x		x		x		x		x		x		x		x		x		x		x	
	Snare					X			g			X			g												X			g	X			g
	Kick	●								●						●		●				●											
Soul Pride	Hi-hat	x				x				x	x	x	x			x	x	x	x			x	x	x	x							x	x
	Snare			X				X					g	X					g	X					g	X		X		X			g
	Kick	●				●																											
Sample	Kick/Bass	●				●						●						●				●				●							

KEY		
Cymbals/Tambourine	**Snare drum**	**Kick drum**
X = normal stroke	X = normal stroke	● normal stroke
	g = ghost note	
All instruments		
bold grey shows the pattern shape created by main strokes		

Fig. 6.8. Northern Connexion, 'The Bounce', 1:39, main pattern

As a sample manipulation technique, looping originated in hip hop production practice during the mid-1980s, where it was a logical progression from DJ performance practice (and an equivalent to the less directly influential but, nonetheless, aesthetically similar technique of tape-based looping). By using the digital sampler's loop function in this way, hip hop producers demonstrated the lateral-thinking approach to technology that has acted as a catalyst for many stylistic developments in popular music. The loop function, that was subsequently subverted in hip hop, had originally been intended to enable the relatively natural-sounding elongation of a sample by repeating a section within it (ideally one with a consistent dynamic level, so that the loop can run smoothly). If, for example, a sample of a bowed violin note has a duration of two seconds but it is actually required to play for longer, judicious use of the loop function should make this possible.

In composing 'The Bounce', the producer rekindles this application of the loop function, extending the distinctive sound of the crash cymbal from beat 3& of bar 4 in the 'Amen' break as a way to fill a long interlude which occurs twice during the track, between breakbeat sections. Even while this move can be seen as a step back from hip hop's subversion of the loop function and closer to its intended application, there is a different kind of subversion in Northern Connexion's strategy here. By applying the loop function to a crash cymbal stroke, the sound becomes transformed so that it will sustain indefinitely, rather than decaying as it normally would. Given the significance, within jungle, of the 'Amen' break — and the crash cymbal stroke in particular — extending the gesture in this way could be read as an acknowledgement of its importance.

Northern Connexion's subversive extension of the 'Amen' crash cymbal gesture is compounded by his choice of a loop point that is far from subtle. Because of this, the operation of the loop function can be clearly heard, so jungle's technological production processes, and their power to mediate the performances embodied in breakbeats, are brought into the foreground of the listener's perception. As if to further reinforce this mediation, the producer also manipulates the pitch of the sample

while it is looping, so that the artificially extended gesture glides up and down by the interval of a tone.[274]

'The Bounce' also makes use of chopping as a way to impose articulation onto an otherwise smoothly phrased pattern. This occurs when the producer takes individually chopped drum gestures and shortens the decay time of the sample's amplitude, creating short gaps between strokes which had originally flowed from one to the next (mainly as a result of the ride cymbals natural sustain). The technique occurs in the following case study too, where it is discussed in more detail.

D-Bridge 'Cornered' (2012)

Although there are many tracks which use the technique of chopping in order to impose articulation on sampled phrases, this approach is absolutely central to the character of 'Cornered', hence its inclusion here. Released in 2012, this is a more recent track than those covered in the other case studies, but producer D-Bridge nevertheless continues the jungle tradition whereby a limited set of resources is exploited to maximum effect, through the use of sample manipulation to alter and augment a breakbeat's groove factors. In contrast with the prevalence of the 'Amen' break throughout many of the examples discussed (and the genre itself, more widely), D-Bridge bases this track on the 'Funky Drummer' break. Although 'Funky Drummer' is used fairly often in jungle, it does not enjoy the same ubiquity as it seems to in other genres.[275]

Rather than always sampling directly from a James Brown version

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[274] *Audio Example 6.16. Northern Connexion, 'The Bounce', 5:06, the 'Amen' crash cymbal extended by looping, with added pitch-shifting*

[275] One reason for this may lie in the fact that the hi-hat plays the semiquaver subdivision throughout the 'Funky Drummer' break. By contrast, the space that exists between the ride cymbal quavers in the 'Amen' break make this an ideal candidate for use with the faster tempos of jungle, while the tambourine semiquavers of the 'Think' and 'Hot Pants' breaks — although potentially more cluttered in terms of subdivision — somehow make sense at faster tempos too, because the playing technique that is used to produce them implies a quaver subdivision (with the off-beat semiquavers resulting from the up-strokes, as a by-product of the quaver down-strokes, in effect).

of the song, tracks which do feature the break sometimes use a secondary sample source instead, where 'Funky Drummer' is just one strand in a composite break: this is the case with 'Terminator' by Metal Heads, for example, which samples the breakbeat from 'Smoke Filled Thoughts' by Fresh 4, a source where the 'Funky Drummer' break has already been layered, conveniently, with that of Bobby Byrd's 'Hot Pants (Bonus Beats)'.[276]

D-Bridge, however, samples the original 'Funky Drummer' break for 'Cornered' and uses it as the only source of percussive textures in his production here, rather than adding any additional breakbeat layers. He also incorporates syllables from Brown's vocal line, chopping the phrase 'Good God! Huh!' from bar 2 of the original drum break and reordering it as shown in Figure 6.9 below, so that Brown now seems to be saying 'cornered', from which the track's title presumably derived.

Once this pattern is established it does not change throughout the track, in terms of either the order in which the drum gestures play or the point in the bar where each occurs. (There are small variations in the placement of the vocal syllables.) Instead, D-Bridge varies the sample decay time as a way to effect gradual shifts in the timbre and phrasing of the drums, sculpting these changes so that they occur across relatively long time-spans. In a genre where, in line with its fundamental aesthetic of speed, variation in these parameters tends to cover a wide range and occur very quickly (as heard in the filtering of fast rolls in 'The Bounce', for example), the gradual nature of the sample manipulation in 'Cornered' presents an alternative approach.

[276] Metal Heads, *Terminator,* Synthetic, 1992; Fresh 4 (Children Of The Ghetto), *Smoke Filled Thoughts,* 10 Records, 1989; and Byrd, *Hot Pants (Bonus Beats)*

Instrument	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a	1	e	&	a	2	e	&	a	3	e	&	a	4	e	&	a
Vocals																											God				Huh	
Hi-hat	x		x		**C**		x		**C**		x		x		**C**	x	x		x		x		x		**C**		x		x		O	
Snare							**X**						**X**			**g**							**X**						**X**			
Kick	●		●								●						●		●								●					

KEY		
Hi-hat x = normal stroke O = cymbals open C = audible closing	**Snare drum** X = normal stroke g = ghost note	**Kick drum** ● normal stroke

All instruments

bold grey shows the pattern shape created by main strokes

blue shading shows non-drum voices

Fig. 6.9. D-Bridge, 'Cornered', 1:30, main pattern

Once the drum pattern first enters, it takes thirty-two bars for the sound to progress from the very clipped snatches heard initially, through to the eventual full phrasing. During this time the sample decay time is incrementally lengthened until, after twenty-two bars, it reaches its full extent, at which point the drumming sounds natural, because the full ambience of the original 'Funky Drummer' recording is audible. In order to continue the gradual process of elongation *beyond* this point, however, D-Bridge begins to apply additional artificial reverb, so that each drum sound extends beyond the length of its chopped samples and blurs across the start of the following sound. Audio Examples 6.17 to 6.20 present bars taken from four points during this progression, to demonstrate various stages along the continuum of articulation and phrasing which the producer creates using the technique.[277]

In this way, the producer presents a progression from an unnaturally short sound, to a normal length sound, and then beyond to an unnaturally elongated sound. Since this transformation is wrought from a chopped version of the 'Funky Drummer' break, there is a familiar core buried within the timbres that emerge during the process, but D-Bridge's simple, yet effective, sample manipulation plays with the listener's expectation of how these familiar sounds exist, individually, in time. Writing about sampling, Kodwo Eshun proposes that we might think of the breakbeat 'in terms of a motion capture device being made on vinyl'.[278] The metaphor that he suggests — whereby the breakbeat encapsulates coded data about a series of performed gestures — feels particularly apt in light of the sample manipulation technique used in 'Cornered': the producer reveals how the sampled gestures can be presented either as discrete sonic entities (which can be seen as captured moments within a longer gestural motion) or as fully-phrased new patterns (once the captured moments are run together), depending on how the relevant groove factors are manipulated.

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[277] *Audio Examples 6.17-6.20. D-Bridge, 'Cornered', main drum pattern in bars 5, 19, 23 and 31 respectively*

[278] Kodwo Eshun, "Motion Capture," *Abstract Culture*, Swarm 1, no. 2 (1996).

A shift in groove priorities

In groove, musicians — both performers *and* producers — are not just making choices with regards to rhythmic intervals, but are thinking about how to distribute timbre across time. Whilst a funk drummer must make these choices in real time during performance, and a jungle producer, conversely, can take a more measured approach to the same decisions (probably trying various options before eventually committing to a particular outcome), both approaches essentially consist of deciding not only when the listener will hear a sound, but also what that sound will be. This is also a cumulative process of course, so both the timing and timbre of the preceding sound have a bearing on this decision, as does the possibility of what sound will come next (and when it will arrive). Whether the timbral heterogeneity of simultaneously occurring sounds and the timbral variation within a given voice across time are determined in performance, by the funk drummer, or in the studio, by the jungle producer, both individuals create music that demonstrates Wilson's heterogeneous sound ideal in action.

In jungle, breakbeats are treated as sonic raw material, as much as rhythmic building blocks. The ways that producers in the genre exploit and extend a given breakbeat's groove rely significantly on timbral factors, as well as temporal ones. Noys suggests that the Jamaican influence in jungle is manifested primarily in the 'ragga jungle' subgenre, which, he argues, only represents a fairly marginal current within the broader genre, basing this view on the way the subgenre uses reggae samples.[279] In addition to explicit links, such as this, that tie jungle to reggae however, there are deeper textural connections that are forged through jungle's treatment of breakbeats as sonic source material, an approach that has some parallels with — and can be argued to have developed from — dub's approach to the 'riddim' tracks of reggae.

Despite the way that some accounts of the genre downplay the influence of Jamaican sonic and musical aesthetics, there is evidence to

[279] Noys, *Into the 'Jungle'*, 324

suggest that practitioners within jungle acknowledge, and even celebrate, this link. As a jungle producer states, in a 1994 documentary on the nascent scene, 'it's the most forward music around that's being made, simply because it's taken the hip hop beats and combined them with reggae culture'.[280] The same is true of the way that hip hop culture, when imported to the UK from America beginning in the 1980s, was often infused with specifically Afro-Caribbean references and influences (beyond those that are generally attributed to the genre anyway, such as toasting, the outdoor sound system, and so on), as manifested in songs like London Posse's 'My Beatbox Reggae Style', for example.[281]

As I mentioned in Chapter 4, whilst the way that breakbeats are used in hip hop means that they typically fall into the 'structural' sample type within Sewell's typology, this is less clearly the case in jungle, where they can be seen to migrate more freely between types and subtypes.[282] The typology is intended to be applicable in the context of sample-based hip hop, so it is unsurprising that some adaptation of the theory might be necessary in order to accommodate the developments of jungle. Since, however, the processes (if not always the aesthetic) of sample manipulation in jungle have their roots in hip hop, as I have argued, it is still useful to use the existing typology as a starting point.

Attempting to categorize the samples in a track like 'The Bounce' by Northern Connexion (as discussed earlier) shows that while there are aspects of the typology that could be used as they are, there are others that require some adaptation in order to be applicable. The breakbeats used can be classified as structural, because they constitute what Sewell

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[280] *All Junglists: A London Somet'Ing Dis,* directed by Rachel Seely (Sharp Image Productions, 1994), 1:39.

[281] Hybrids between the music of Jamaica and hip hop are not the exclusive preserve of the UK of course, as the work of groups such as Born Jamericans, based in Washington, D.C., demonstrates. Nevertheless, both reggae and hip hop, as experienced by British musicians during the 1980s and 90s, existed in a different cultural milieu to that of the US and therefore exerted a specific, combined influence that led to jungle.

[282] Sewell, *A Typology of Sampling in Hip-Hop*, 26

terms the track's groove.[283] They fit the 'percussion-only' subtype, since they consist (almost) entirely of drum kit performance.[284] Technically, they are also 'intact', according to the definitions within the typology: no filtering or equivalent processing to remove unwanted layers of instrumentation is required because the drums are solo at these points in each source recording and are sometimes used unchopped in jungle.[285]

The typology also proposes a subtype of 'aggregate' structural samples, whereby structures are built from multiple layers sampled from different sources.[286] This represents the point at which jungle production practice diverges from the conventions associated with hip hop. To continue with the same example, the main pattern in 'The Bounce' has an aggregate structure (including samples of both the 'Amen' and 'Soul Pride' breaks) but the producer adds multiple layers using *the same sample* at certain points. Sewell and Miyakawa both refer to the practice of using samples taken from different points within the same source recording, and this approach makes sense when a hip hop producer wants to co-opt a sense of the original song's structural progression for use within the new track.[287]

Such concurrent use of multiple layers built from the same sample — albeit manipulated in various ways, such as tempo halving, pitch-shifting or timestretching, for example — falls beyond the scope of the typology and therefore demonstrates an important aspect of the progression in breakbeat manipulation brought about by jungle production practice. This is another example of the 'self-similarity irrelevant of scale' that Goodman attributes to the breakbeat in jungle; producers weave elaborate textures and structures from the same,

283 Ibid.

284 Ibid., 36.

285 Ibid., 37.

286 Ibid., 43.

287 Ibid.; and Miyakawa, *Five Percenter Rap*, 190

limited source material by engaging with the potential for interaction that is held in the breakbeat's groove factors.[288]

What emerges from my analyses of breakbeat-based production approaches in both hip hop and jungle, in terms of groove factors, is an ongoing shift in priorities towards the timbral factors. In the following chapter I speculate about the way that the groove in breakbeats enables musicking to occur across boundaries of time and space, drawing on ideas and examples from the preceding chapters in order to illustrate my thinking.

[288] Goodman, *Darkcore*

Chapter 7 – Transpatiotemporal musicking:

Some conclusions

> 'Technology has broken time down.' [289]
>
> —Goldie

In this final chapter I draw some conclusions that are based on the various ways of thinking about groove, breakbeats and sampling presented in the preceding chapters. I then look forward to some possible directions in future research, that will allow me to further develop the ideas established in my thesis.

Sampling as collaboration

As the preceding chapters have shown, digital sampling played a pivotal role in the development of hip hop and jungle. This fact is widely acknowledged and has been examined from various perspectives, both aesthetic and legal, by numerous scholars. In the following section, I argue that the creative interplay between the producer who samples and the drummer whose performance is sampled can be read as a process of collaboration (albeit one which may stretch the term somewhat, as will be seen).

Small's ideas around the term 'musicking' as a verb, where he argues for music to be conceptualized as a process whose meanings are generated by the various participants in a given performance (whether composer, performer, listener, and so on), provide a useful framework within which to begin considering such interaction as collaboration.[290] In the musicking that occurs when a hip hop producer engages with fragments of existing performances from the past via sampling, a kind of collaboration becomes possible for musicians working across temporal,

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[289] *Last Angel of History,* directed by John Akomfrah (Black Studio Film Collective, 1996) 38:10.

[290] Small, *Musicking*

geographical, and stylistic boundaries.[291] I call this process 'transpatiotemporal musicking' and propose that *groove* acts as the mechanism that makes it possible.

In the opening chapter, I summarized several of the approaches and ideas that are encompassed within the field of groovology, noting that despite its range and variety, a broad consensus emerges that groove in music relies on the interconnected ideas of participation (whether on the part of musicians, listeners or dancers) and embodiment. Over the course of my thesis, as well as in the work of other groovologists (such as Danielsen, for example), a virtual dimension within groove has begun to emerge, but in order to bring this idea further into the discussion and consider how it makes transpatiotemporal musicking possible, it is first necessary to find a way of diminishing these two characteristics typically associated with groove — namely, participation and embodiment — given that they are seemingly at odds with the process of sampling breakbeats.

In a section of Chapter 1 dealing with the idea of 'solo groove' I began to address several questions, such as whether it is possible for one musician to groove on their own, and, if so, how might participation feature in this process. As will be seen, both of these questions are relevant to the way in which sampling enables collaboration via groove. I propose that the existence of breakbeats provides an empirical answer to the first question. When, for example, drummer David Garibaldi plays the often-sampled solo introduction to Tower Of Power's 'Squib Cakes', he is undeniably generating a groove; we can say that he is grooving.[292] Therefore, in answer to another of the questions that I posed in Chapter 1,

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[291] It is, of course, unnecessary to exclude producers from inclusion in this term. When it becomes helpful to the discussion, I distinguish between "instrumentalists" and "producers", but this is always done on the assumption that both groups are still "musicians" first and foremost. Interestingly, in an article on Eric B & Rakim, Harry Allen refers to DJ/producer Marley Marl as an "instrumentalist". Allen, *Soul Power*, 59

[292] Tower Of Power, *Squib Cakes,* Warner Bros., 1974.

the term 'groove' is shown to function as both a noun and a verb, in much the same way as Small's theory of music and musicking.

As for the second question, which deals with the idea of participation in solo groove, when Garibaldi is playing in this way, he is participating with time itself, aligning his drum strokes with it, playing against it, and so on. The real-time performance choices he makes during this participatory groove process (in terms of dynamics, patterning and feel, for example) will be based on a contextually nuanced sense of musical time. The ways that the context dictates the nuanced sense of musical time could be based around fixed timeline structures such as the Afro-Cuban clave, less fixed (but no less important) stylistic conventions such as swing in jazz, or simply the individual musician's rhythmic feel (whether consciously intended or otherwise). If the listener shares a sense of musical time that is informed by at least some of the same contextual nuances as Garibaldi's then they will be able to engage with the groove too, at which point the drummer is not only grooving with time but also with the other participants in the musicking process.[293]

If we can accept that solo groove is a viable concept because it involves a form of participation with time itself, rather than with other musicians, then the prevailing view that groove participation occurs primarily between musicians playing together can be put aside, thereby setting the scene for a discussion about the role of sampled breakbeats. This idea therefore provides the basis for the thinking outlined in the later section on *virtual groove*, which aims to answer a third question that is crucial to this chapter: what happens when solo groove is sampled and how can producers (and other musicians) be said to interact with the sampled groove?

[293] When this point is reached then arguably the groove can no longer be said to be 'solo' as such, although its sounded dimension — the drumming — is still being generated by a single musician.

Disembodying the groove

Once the concept of solo groove has usefully altered our perception of how participation works as a factor in groove, it is the sampling process that strips away the next significant factor by effectively disembodying the breakbeat's groove. One could argue, of course, that from the invention of the phonograph in 1877 onwards, any technology designed for the purpose of capturing audio (a delightfully roguish term which sits well alongside the larcenous characterizations of sampling mentioned earlier) effectively disembodies performances, at least in terms of allowing them to be reproduced independently of an actual performer's body.[294] As I discuss later, several scholars have addressed this phenomenon in relation to the recording process, that is, the transference of a performance generated by a live musician into a storage medium of some variety, most often for the purpose of mass reproduction.[295] Because the source material which sampling producers traditionally favour tends to be stored on physical artefacts which result from this mass reproduction (that is, drum breaks on vinyl records), sampling adds an additional remove to the disembodiment inherent in the recording process: it not only decouples the breakbeat from the drummer who originally played it, but also from the medium into which it was subsequently embodied (or reincarnated, perhaps).

Shaviro makes an observation which directly relates the idea of (dis)embodiment to sampling practice, arguing that hip hop is a musical environment in which the digital '*rebecomes analog*'.[296] He is referring here to the process that occurs when a digital sample (for the sake of

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[294] Philip Auslander suggests that the listener hears the reproduced performance as '*deracinated* from its original context'. Philip Auslander, "Reactivation: Performance, Mediatization and the Present Moment," in *Interfaces of Performance*, eds. Maria Chatzichristodoulou, Janis Jefferies and Rachel Zerihan (Farnham, UK; Burlington, VT: Ashgate, 2009), 84 (emphasis added).

[295] Amanda Bayley's work brings together some fine, representative examples. Amanda Bayley, ed., *Recorded Music : Performance, Culture and Technology* (Cambridge, UK; New York: Cambridge University Press, 2010).

[296] Shaviro, *Connected*, 45 (italics in the original)

relevance, let us assume that this sample is a breakbeat) is played back in audio form as part of a hip hop production. When this happens, at a literal, technological level the digital code that represents the sample is passed through a digital-analogue converter and thus arrives at the sampler's output ready to be played back through a loudspeaker. At a more figurative level, however, the drummer's original performance, which had been digitally disembodied during the sampling process, can be thought of as rebecoming analogue.

This way of characterizing the use of samples in hip hop is exciting because rather than implying passive playback of an inert historical artifact, Shaviro's use of language here suggests vitality and energy, inviting comparison with Walter Benjamin's idea of 'reactivation' (which I discuss later with reference to Auslander's illuminating commentary on the topic).[297] Together, these parallel ideas — 'rebecoming analogue' and 'reactivation' — help to build a context in which collaboration via sampling can be understood, but before considering this in more detail it would be useful to reiterate the virtual aspects of groove and how these might enable such collaboration.

Virtual groove

There is, undeniably, a virtual dimension to groove, and I argue that it is this which makes collaboration via sampled breakbeats possible. I initially outlined this virtual aspect in Chapter 2, in relation to the gaps that exist in the patterning within a breakbeat, drawing on Chernoff's idea that 'a good rhythm…should both fill a gap in the other rhythms [within the ensemble] and create an emptiness that may be similarly filled', as well as Danielsen's related idea that 'rhythm is conceived as an interaction of something sounding and something not sounding'.[298] I pointed out that Chernoff's thinking chimes with Small's ideas around

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[297] Walter Benjamin, *Illuminations*, ed. Hannah Arendt, trans. Harry Zohn (New York: Schocken, 1969); and Auslander, *Reactivation*

[298] Chernoff, *African Rhythm and African Sensibility*, 114; and Danielsen, *Presence and Pleasure*, 46-7

musicking too, in that the emptiness which he describes has the potential to be filled by a dancer, rather than necessarily a drummer.

It is worth pointing out that this is not a binary system, so a gap does not simply hold the potential to either be filled or be empty. Such a system would be very limiting when, in fact, there is a range of options available at any given point to another musician who is participating by interacting with the gaps in a groove. As my analysis of Rakim's flow in Chapter 5 shows, when listening to the way that an MC's flow interacts with a looped breakbeat in hip hop, it becomes clear that there are moments when the rhymes interlock with the drum patterns by filling the gaps, whilst at other times the syllables coincide with main drum strokes, thereby leaving the gaps empty and so drawing attention to them and reinforcing their power.

At a smaller scale, there are many nuanced degrees of potential rhythmic placement which the MC could choose to enact *within* a given gap, ranging from the metronomically straight to the extremely swung, hence the idea — derived from Danielsen and Bogue, in Chapter 2 — that the vectors of potential development represent a *field* of power.[299] The choices that the MC makes in enacting these possible nuances dictate how the overall lyrical flow will sound, and this flow's character also depends on the way it is heard in relation to the breakbeat.

So to summarize the ideas presented thus far, when a drummer originally performs a breakbeat, the gaps in the groove hold potential for other musicians to participate in the performance, and indeed may even be seen to invite such participation. When the breakbeat is subsequently sampled, the original groove becomes disembodied, taking on a digital status until such time as it is replayed, at which point the breakbeat rebecomes analogue and the groove is reactivated. Following Bogue's assertion about the virtual, the gaps in groove can be seen as virtual nodes from which flow vectors of potential development and metamorphosis, and these in turn become an actual process of

[299] Ibid.; and Bogue, *Violence in Three Shades of Metal*, 97

development once another musician participates in the reactivated groove.

When Benjamin writes about reactivation, he is concerned with the mediating effect of reproduction on the relationship between the audience and the work.[300] Conveniently enough, a later translation of the same essay does not use the term 'reactivate', but rather 'actualize', thus aligning the concept — at least, superficially — with the virtual/actual duality that I have discussed at various points.[301]

Therefore, it is the notion of participating in, or working with, a reactivated groove that builds a sense of *co-labor* into sample-based production. Whilst it is obviously true to say that, in the vast majority of cases, such a process of working together is not consensual on the part of the sampled artist and therefore cannot be seen as an equal collaboration, it can be argued that at the level of the groove itself, whatever composite sound emerges from the process is a result of the work of both the sampling producer and the sampled drummer; for the purpose of my argument here, this is 'collaboration', and the virtual potential of groove is what makes it possible.

Collaboration across time

The basis for comparison may not be immediately apparent, but collaboration across time has a precedent in multitrack recording, although admittedly this usually works on a shorter timescale than the sampling-based collaborations that are the focus of my work. In multitrack recording practice, the constituent layers of the song are typically added one at a time, often beginning with the drums, followed by the bass, then the guitars, and so on until all the elements have been captured, at which point the mixing that is required to convey the illusion of a co-present performance can begin. The timescale during which the recording phase is completed can vary of course, depending on a number

[300] Benjamin, *Illuminations*, 221

[301] Walter Benjamin, *The Work of Art in the Age of Mechanical Reproduction* (London: Penguin, 2008), 7.

of factors, but is likely to be measured in days or weeks, rather than the years or decades which might elapse between a breakbeat's original recording and its subsequent appropriation as a sample. At a superficial level then, the collaboration between musicians during the multitrack recording process described here does not appear to rely on the virtual dimension of groove, presumably because the musicians spend at least some of their time in the same room making creative decisions (even if this co-presence is more likely to occur in the studio control room during the mixing phase of the process, rather than the live room during the recording phase). In that sense, their collaboration can be understood in the traditional, co-present sense of the term, but if we consider the way in which, for example, the bass player interacts with the tracks already pre-recorded by the drummer, then the virtual dimension of groove — as described in the previous section — is undoubtedly at work. The virtual nodes established by the drummer's recorded solo groove are there for the bassist to interact with, inviting participation in the groove process even though the drummer himself is not playing at the same time.

Thus the precedent for collaboration across time emerges: indeed, one could argue that when the combined groove of the drummer and the bassist is created in this way, it makes little difference whether the drum take was recorded moments before the bass take or several years earlier! Writing about phonography, with an emphasis on the relationship between recording and jazz (regarding spontaneity and performance, in particular), Brown decries the negative impact that he perceives as resulting from the use of such multitrack recording practice in jazz fusion. He writes that 'solos are often simply laid on top of tracks already recorded, so that the impression of players reacting to each other's moves is sheer illusion'.[302]

The exact meaning Brown intends by his use of the word 'moves' here is unclear. Is he describing the physical movements by which musicians playing together might communicate their intentions regarding

[302] Lee Brown, "Phonography, Repetition and Spontaneity," *Philosophy and Literature* 24, no. 1 (2000), 123.

tempo, structure, and so on to one another during an improvised performance, in a kind of communal, non-verbal conducting role based around significant glances and subtle gestures? If this is the case then it is clear that multitrack recording practice (and, to a greater extent, interaction with a sampled breakbeat) negates the possibility of reaction to such embodied movement. Or is he perhaps describing the musical interaction itself, casting the improvisation as a chess game in which notes, phrases and rhythms are likened to moves made by rival players as they act and react to one another's actions? In this case, there is no reason why either multitrack techniques or interaction with sampled breakbeats need be seen as problematic for other musicians who subsequently add layers to existing recordings.

Moving beyond standard contemporary multitrack recording practice, conceptually speaking, Stanyek and Piekut describe a longer-term version of collaboration across time in their article on 'deadness', which assesses the phenomenon of posthumous duets.[303] The examples which Stanyek and Piekut cite are mostly vocal duets, in which the interaction hinges primarily around melody, harmony and timbre rather than groove, though one could argue that similar virtual nodes to those found in groove also exist in these other aspects of music, thus enabling the duets to take place between the living and the dead. The article is playful and wide-ranging, exploring the topic in great detail (from both technological and philosophical perspectives) and presenting a strong case for the posthumous duets to be considered as collaboration. Amongst other things, the 'deadness' concept represents a playful twist on Auslander's thinking regarding 'liveness', though there is, perhaps, a tenuous terminological link here between the concept of posthumous

[303] Jason Stanyek and Benjamin Piekut, "Deadness: Technologies of the Intermundane," *TDR: The Drama Review* 54, no. 1 (Spring 2010), 14-38. Justin Williams explores the related idea of postmortem borrowing in hip hop. Williams, *Musical Borrowing in Hip-Hop Music,* 189-236

collaboration and Mtume's damning conclusion that hip hop sampling is, in effect, 'artistic necrophilia'! [304]

Several anecdotal sources corroborate the idea that hip hop producers feel, in some way, as though they are collaborating creatively with the instrumentalists whose performances they sample. Retelling the tale of Marley Marl's apparently accidental discovery of drum sampling, Chairman Mao envisages the outcome as 'enabling funky drummers from his scratchy record collection to cross decades and sit in on his own productions'.[305] Note that Mao's turn of phrase suggests it is the drummers themselves who 'cross decades' here, rather than just the sound of their drumming. DJ Abilities gleefully announces that 'when I'm sampling, I have all these artists; they're in my band', before name-checking such jazz luminaries as Wes Montgomery and Art Blakey in order to illustrate which players his disembodied band lineup might include.[306]

Commenting from the perspective of an original instrumentalist whose performance is appropriated by hip hop producers, Clyde Stubblefield opines that he would 'prefer to get [his] name on the record saying "This is Clyde playing!"... The money is not the important thing'.[307] The legal framework around sampling dictates that even when a hip hop producer has official authorization to use Stubblefield's performance in a track, no part of the associated sample-clearance fee would be paid to the drummer himself, because James Brown, rather than the musicians in his band, owns the rights to 'Funky Drummer'. What Stubblefield says, however, suggests that whilst he has long come to terms with the financial implications of this situation, he actually places more value on recognition of what his sampled performance contributes, musically, to

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[304] Philip Auslander, *Liveness: Performance in a Mediatized Culture* (London: Routledge, 1999); and George, *Hip Hop America*, 96

[305] Chairman Mao, "Behind the Boards: The Legacy of Marley Marl," *Ego Trip,* 1998, 88.

[306] *Copyright Criminals,* directed by Benjamin Franzen (New York: Indiepix Films, 2010) 10:12.

[307] Ibid., 53:56.

any subsequent productions. His attitude demonstrates a remarkable spirit of camaraderie (or perhaps resignation) on the part of someone who is arguably entitled to bear more of a grudge towards his subsequent collaborators in groove, whose participation has been non-consensually forced upon him.

The perspectives quoted above reinforce the view that the collaborative process is severely lopsided: the breakbeats and the groove they encapsulate only travel through time in one direction, from the past to the present. What is harder to identify immediately is any sense that the collaborative participation of contemporary musicians somehow reaches backwards in time to engage with the original musicians whose performance is sampled. Theorizing the way that we understand original performances by listening to recordings, however, Auslander proposes that such understanding emerges from a 'conversation between ourselves and the performance, *a conversation to which both sides are understood to contribute*'.[308] As with so many of the ideas presented in my thesis, Small's musicking concept is again seen to be relevant here.

Ascertaining the 'degrees of collaborative agency' that are involved in sampled breakbeat production techniques may also help with the issue of imbalance in the collaboration.[309] Catts and Zuur acknowledge that non-equal collaborations exist and it seems that this might be an apt way to describe the collaboration between the sampling producer and the drummer whose beats are sampled.[310] In this relationship, the producer (who is in a position to make unilateral decisions that affect the final musical outcome) clearly has a considerably greater degree of

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[308] Auslander, *Reactivation*, 87 (emphasis added)

[309] Johannes Birringer, "*Saira Virous*: Game Choreography in Multiplayer Online Performance Spaces," in *Performance and Technology: Practices of Virtual Embodiment and Interactivity*, eds. Susan Broadhurst and Josephine Machon (Basingstoke, UK; New York: Palgrave Macmillan, 2006), 49.

[310] Oron Catts and Ionat Zuur, "The Tissue Culture and Art Project: The Semi-Living as Agents of Irony," in *Performance and Technology: Practices of Virtual Embodiment and Interactivity*, eds. Susan Broadhurst and Josephine Machon (Basingstoke, UK; New York: Palgrave Macmillan, 2006), 153-168.

collaborative agency than the drummer, even though the decisions would not be necessary, or even possible, if the breakbeat had not been performed in the first place.

The idea of engaging with recorded performance through a kind of conversation is further refined by Weheliye, who argues that as usage of the phonograph became more widespread it had the effect of geographically disrupting call-and-response patterns in African American life, because musical activity recorded in one place would now be listened to in a growing number of increasingly far-flung, remote locations. In a similar vein, sampling could perhaps be seen to temporally disrupt call-and-response patterns.[311] Schutz, however, remains unconcerned by this development, discussing the 'interposition of mechanical devices' in the relationship between performer and listener in an enlightened tone that suggests this is not problematic. He goes on to say that the performance context could be

> a small group of persons in a private room, a crowd filling a big concert hall, or the entirely unknown listeners of a radio performance or a commercially distributed record. In all these circumstances performer and listener are "tuned-in" to one another, are living together through the same flux, are growing older together while the musical process lasts.[312]

If I add 'the producer who samples breakbeats' to the possible contexts listed above, Schutz's thinking here can be updated to incorporate the idea of sampling as collaboration, thus making his ideas relevant to my argument, particularly if sampling is seen as 'an extension of the call-and-response tradition'.[313] As I have discussed, when a breakbeat is sampled, its gaps act as *virtual groove nodes* via which collaboration can occur across time, thereby allowing the hip hop producer to provide a

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311 Alexander G. Weheliye, *Phonographies: Grooves in Sonic Afro-Modernity* (Durham, NC: Duke University Press, 2005), 20-21.

312 Alfred Schutz, "Making Music Together: A Study in Social Relationship," in *Collected Papers (Volume 2): Studies in Social Theory*, ed. Arvid Brodersen (The Hague, Holland: Martinus Nijhoff, 1964), 174-75.

313 McLeod and DiCola, *Creative License*, 49

contemporary response to the call of the original breakbeat in its pre-sampling context.

Transpatiotemporal musicking

When assessing the various states through which the breakbeat shifts in its journey across time during the process of collaboration in groove, Danielsen's previously mentioned conceptualization of rhythm as interaction between sounding and unsounding elements provides a useful framework within which to work. In her writing on groove, she refers to the *actual*, played element of this pairing as 'gesture' and the *virtual*, unsounding temporal framework as 'figure'.[314] During its evolution from funk through successive eras of hip hop and then into jungle (and beyond) however, the breakbeat shifts back and forth between these roles, migrating across the interface between the analogue and digital domains, as I have discussed in earlier chapters.

In its original funk setting, the breakbeat is a played *gesture* — or pattern of gestures — that interacts with the unsounded figure consisting of both the song's pulse and a generic funk feel. When the breakbeat is sampled, however, different shifts occur depending on the sample manipulation techniques that the producer employs. If the breakbeat is looped, it becomes a kind of sounded *figure*, a temporal framework or adapted pulse with which other musicians, vocalists or programmed layers can interact via gestures of their own. If the breakbeat is chopped into smaller constituent drum sounds and reconfigured, as is common in both hip hop and jungle, then it becomes a *new gesture* — or pattern of gestures — created by the producer (albeit one whose sonic signature will still carry traces of the original gesture). If the break remains intact but is displaced in relation to the pulse by being retriggered at a point other than the downbeat then it becomes a kind of hybrid: it is both a *gesture* that has become a *figure* (as is normally the case with looped breakbeats) but it is, in turn, being restated as a new *gesture* that is

[314] Danielsen, *Presence and Pleasure*, 47

metrically realigned in relation to the pulse of the original breakbeat. Throughout the convoluted series of possible transitions between figure and gesture that it might undergo, Shaviro's aforementioned notion of a musical environment in which the digital 'rebecomes analog' is fundamental to the breakbeat's role.[315]

As I showed in Chapter 4, at various points during its journey of development and metamorphosis, the breakbeat from The Honey Drippers' 'Impeach The President' has been employed by different hip hop producers in manifestations that utilize all of the advantages which, Schloss proposes, are offered by sampling.[316] In Wu-Tang Clan's 'Wu-Tang Clan Ain't Nuthing Ta Fuck Wit'', RZA juxtaposes the breakbeat's original recording environment with that of the Lafayette Afro Rock Band's 'Hihache' break; in MC Shan's 'The Bridge', Marley Marl uses the control over individual notes which sampling offers as a way to construct a reconfigured pattern from the constituent drum strokes within the original breakbeat; and in Audio Two's 'Top Billin'', Milk Dee and Daddy-O organize the sounds into patterns that (although not impossible to perform live) defy the conventions of normal drum performance in terms of the way the retriggered patterns function in relation to the song's metre.[317]

In Katz's view, whereas 'traditional musical quotations typically cite *works*; samples cite *performances*', and, as I have already mentioned, much groovological research supports this view and therefore uses the nuances of rhythmic gesture within an individual's performance as a focus for study.[318] In the early stages of sampler usage in hip hop however, timbre — as heard on vinyl, resulting from funk production techniques — seems to have been an equally important attractor of the sampling producer's attention. In interviews Marley Marl enthusiastically

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[315] Shaviro, *Connected*, 45

[316] Schloss, *Making Beats*, 150-51; and The Honey Drippers, *Impeach the President*

[317] Wu-Tang Clan, *Wu-Tang Clan Ain't Nuthing Ta Fuck Wit'*; Lafayette Afro-Rock Band, *Hihache*; MC Shan, *The Bridge*; and Audio Two, *Top Billin'*

[318] Katz, *Capturing Sound*, 150 (italics in the original)

highlights the Impeach break's timbral qualities as the factor that draws him to it, and indeed his preference for chopping rather than looping this breakbeat indicates that he is less concerned with the rhythmic subtleties of the original *feel* than with how he can use the *sounds* it contains.

So how does this preference fit with the theory that gaps in groove act as virtual nodes enabling participation, and therefore collaboration, across time and space? If the gaps in groove are only conceived of as spaces between events on a horizontal temporal axis then the theory falters somewhat in the face of those sample manipulation techniques that prioritize timbre over rhythm. I propose, however, that gaps in groove can also be conceptualized vertically, in terms of timbral space.

This makes sense when we consider the recombinant qualities of African diasporic music: the drum patterns researched by Chernoff, the rock-and-roll backbeat, and the chopped and reconfigured breakbeat all feature interdependent internal relationships not only in their rhythm, but also their sound.[319] Thinking about the potential for groove interaction with a breakbeat via its sound as well as (or even instead of) its rhythm, broadens the scope of transpatiotemporal musicking so that it can also accommodate the range of post-hip hop developments in sample manipulation techniques, as used in jungle, for example, where timbral factors take priority over rhythmic ones.

In jungle, the figure of the looped breakbeat is broken down and reconfigured, by the producer, into a new pattern of gestures. This new pattern is heard in relation to the (possibly unsounded) breakbeat figure. So, although the breakbeats are used rhythmically in jungle, it is their inherent timbral qualities that are being exploited by producers when creating groove, rather than their microtiming.

Iyer outlines the apparent contradiction in jungle's treatment of breakbeats:

> A sampled "beat" — i.e., a brief recording of a human drummer — is sliced into small temporal units. These units are played back in rearranged orders, sped up or slowed down, multiply triggered, and

[319] Chernoff, *African Rhythm and African Sensibility*

> otherwise manipulated electronically. Because the original sampled recording bears the microrhythmic traces of embodiment, the result sounds something like a human drummer improvising with often amusing flourishes and ample metric ambiguity. Momentarily regular, almost human-sounding pseudo-drumming devolves into inhumanly rapid sequences of rhythmic attacks, fast enough to resemble digital noise. Such electronic manipulation of familiar musical sounds serves to problematize the listener's ecologically sound image of a human drummer.[320]

Harry Allen asks a rhetorical question — 'How small is a piece of funk?' — in relation to sample chopping in hip hop, but it is also relevant here because of the shift in groove priorities that I have described. If, over time, sonic groove factors become more important in the way that producers interact with breakbeats, as my research suggests, then how do the sonic aspects of groove encapsulate gesture?

When a single drum stroke from within a breakbeat is sampled and recontextualized (probably in conjunction with either hits or phrases taken from other breaks or programmed drum sounds), the timbre of this fragment carries associations that link it to the original source recording from which it has been extracted. This metonymic relationship between the individual stroke and the breakbeat works in a different way to that between the break itself and the original song from which it is taken, but it may shed some light on the former to first explore the latter in more detail.

Although in some instances the breakbeat is selected in order to reflect an affinity with a particular song (as seen in Eric B & Rakim's approach in 'I Know You Got Soul', for example), the link is usually more deliberately oblique.[321] The listener is not necessarily encouraged to identify the break's origins or, therefore, to connect the current track with

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[320] Iyer, *Microstructures of Feel, Macrostructures of Sound*, Chapter 8

[321] Eric B & Rakim, *I Know You Got Soul*

the original source material.[322] Thus a game of cat-and-mouse ensues amongst the aspiring hip hop cognoscenti, whereby membership of the club is dictated by one's ability to correctly identify the source material of samples.[323] The Internet has undermined the exclusivity of this club membership somewhat, but previously the ability to 'spot the sample' was predicated upon both carefully developed aural skills and access to a large music collection, a combination which implied considerable investment of time and money, and which therefore signified sufficient devotion to the cause to justify aficionado status.

Now, websites such as *Who Sampled* can act as remarkably effective bluffers' guides, leading the casually inquisitive listener to most of the sample sources for many tracks and helpfully linking to complete versions of both songs, as well as specifying precisely the point from which a particular extract has been sampled.[324] If the ability to spot entire breaks that have been appropriated has become a less effective measure of hip hop insider status, perhaps the single drum stroke's metonymic relationship with its parent break raises the stakes sufficiently as a new yardstick. The crucial shift between these types of recognition is that whilst the ability to identify an entire break (typically lasting one or two bars) is based on patterns of rhythm and/or pitch (harmony or melody), the ability to recognize a single hit is based almost entirely on timbre.

Discussing gesture in funk grooves, Danielsen argues that a gesture 'might be…just one beat, as long as it is perceived as forming an

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[322] This could be seen to hark back to the days when early hip hop DJs and, previously, their Jamaican musical forbears — the sound-system selectors — anonymized their vinyl by soaking off the labels in order to prevent rivals from learning the identity of their best material.

[323] Williams proposes the idea of the breakbeat as shibboleth. Another equivalent is seen in the clipped abstraction of hip speech, as discussed by Ford. In both scenarios, one needs to be an insider with tacit, shared knowledge in order to crack the code. Williams, *Musical Borrowing in Hip-Hop Music*, 87; and Philip Ford, "Somewhere/Nowhere: Hipness as an Aesthetic," *The Musical Quarterly* 86, no. 1 (Spring 2002), 49-81.

[324] See http://www.whosampled.com (accessed March 13, 2015).

entity, a sounding gestalt'.[325] Extending this idea a little, perhaps gesture need not necessarily include a sense of rhythmic timing, but instead the phrasing within the gesture might imply a temporal dimension to the sound. If this is so, then the listener might also infer a sense of gesture from timbre (which is related to phrasing, as I have shown in relation to the 'Amen' break crash cymbal), which results from both performance techniques and production processes.

At first glance, the art of sampling funk breakbeats and using them as the basis for new tracks in genres such as hip hop and jungle appears to have neither a collaborative nor a participatory dimension. By seeking out and exploring both the virtual aspects of the solo groove of breakbeats and the disembodying process of sampling, however, a multi-layered sense by which grooving is inherent in this practice emerges. Once this sense has been established, it becomes clear that it is precisely this quality that makes viable the suggestion that there is a collaborative dimension to the process of engaging with breakbeats via sampling. Whilst there is a clear difference between this and the more widely accepted understanding of collaboration as something which takes place between artists working together at the same time (if not in the same place), anecdotal evidence from hip hop practitioners indicates that the engagement with the past made possible by sampling can rightly be seen as a two-way conversation rather than either the unimaginative plundering or dutiful quotation of a fossilized musical artifact.

Once a sampled breakbeat is reactivated in its new, updated context, and so rebecomes analogue, the potential for participation encapsulated by the breakbeat's groove factors — acting as virtual nodes — enables future generations of musicians to collaborate with the drummers whose original groove has been sampled, thereby participating in a grooving process that spans both time and space: this process is transpatiotemporal musicking.

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[325] Danielsen, *Presence and Pleasure*, 47

Directions for future research

There are many other areas in which the ideas about groove, breakbeats and sampling that I have developed here could be applied. I have already begun a project that explores the empathy between the producer and the instrumentalists in Jamaican dub, for example. As well as this project, which looks further back in time than much of the music discussed in my thesis, I am also interested in applying the thinking around breakbeats in the context of the more contemporary setting of the footwork genre, as I discuss below.

Footwork is a scene that incorporates symbiotically related music and dance styles: whether the music evolved in response to the dance style or vice versa is unclear, but they are ideally suited to one another and are rooted in the culture of Chicago. The music is characterized less by the use of breakbeats than is the case in hip hop, with producers tending to sample sources such as vocal fragments and other instrumental textures instead, whilst programming the percussive elements of a track using electronic drum sounds. This technique can be heard in much of the work of producer DJ Rashad, one of the main architects and exponents of the genre. His track 'Make It Happen', for example, is built around a series of samples from Roy Ayers Ubiquity's 'We Live In Brooklyn Baby'.[326] Although these samples do contain drumming, this can barely be heard amidst the additional layers of heavy

[326] DJ Rashad, *Make It Happen,* Ghettophiles, 2011; and Roy Ayers, *We Live In Brooklyn Baby,* Polydor, 1972. This same Roy Ayers Ubiquity song has been sampled previously for use in hip hop productions, such as, for example, 'Borough Check' (1994) by Digable Planets. As with Rashad's reinterpretation, it is the strings and vocals that are primarily heard in the Digable Planets track, whilst the other elements are largely obscured by additional layers of programmed drums. Ironically enough (given the name of his band), the work of Roy Ayers is a fairly ubiquitous sample source within the footwork community; the disproportionately high number of Ayers samples used in the genre gives the impression that his music has had a profound impact on this group of producers. Other tracks by producers in the Teklife collective also sample the music of Ayers, including DJ Earl's 'Third Eye VIP' and DJ Manny's 'Sunshine', for example. Digable Planets, *Borough Check,* Pendulum Records, 1994.

electronic drum programming that Rashad adds. The dominant textures within the samples themselves are the orchestral strings and vocals, and these are mixed in such a way as to sit comfortably alongside Rashad's programmed drums. When Rashad carries out some of the sample manipulation techniques that are typical of footwork production, it is these two elements (strings and vocals) that are heard to stutter and repeat.

DJ Rashad does begin to make interesting use of breakbeats in his more recent productions however, incorporating the 'Funky Drummer' break into 'Let It Go', for example.[327] Although the sample manipulation techniques evident in this track are not hugely complex, the way Rashad uses the breakbeat relates to several of the ideas that I have developed. In keeping with the trend of increased speed in successive genres, Rashad speeds up the tempo of the breakbeat so that it plays back much faster than in its original funk setting, thus becoming better suited to the expectations of a footwork audience. The most obvious reinterpretation of 'Funky Drummer' he uses is a straightforward loop of the breakbeat, beginning at 0:48: this calls to mind the blatant foregrounding of famous breakbeats which tends to be the practice in, for example, Baltimore club music, rather than the subtle camouflaging of samples found in hip hop or extreme sample manipulation within jungle.

Additionally, however, from the very beginning of 'Let It Go', Rashad chops the breakbeat up and retriggers some of its components, so that we hear the original order of the kick drum, hi-hat cymbal and snare drum reconfigured alongside some additional electronic drum sounds into 'patterns that would be difficult or impossible to play live', thereby demonstrating Schloss's third point concerning the advantages of sampling.[328] The 'Funky Drummer' kick drum and hi-hat cymbal are not especially sonically distinctive when heard in this setting, but the characteristic sound of Clyde Stubblefield's snare drum gestures are used by Rashad, prior to the arrival of the full looped breakbeat, in such a way

[327] DJ Rashad, *Let It Go,* Hyperdub, 2013.

[328] Schloss, *Making Beats*, 150

as to inspire instant recognition amongst listeners who are familiar with the original (and its historical use as a sampled breakbeat); in this way, the track hints in advance at what is to come when the loop enters later, but communicates this prophetic hint on a level which is only evident to the initiated few.

Jungle has clearly had an influence on footwork too, and producer Jim Coles (who works under the alias 'Om Unit') remembers discovering their compatibility, noting at the time that 'both genres were basically the same thing – frenetic syncopation at 160 bpm or thereabouts'.[329] Whilst the approach to breakbeat manipulation in each genre seems superficially similar, I am interested in exploring not only the similarities, but also the differences, in the ways that producers approach and interact with groove factors.

[329] See http://www.rhythm-incursions.com/2011/10/07/om-unit-the-phillip-d-kick-experiment-footwork-jungle-vol-3/ (accessed January 29, 2015).

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Appendix: List of audio examples on CD

Chapter 4 – Bring that beat back

4.1. T La Rock, 'Three Minutes Of Beat Box', 2:18, Greg Nice beatboxing

Chapter 5 – Rebecoming analogue

5.1. Crooklyn Dodgers 'Crooklyn (Acappella)', 0:55, flow with clear pulse

5.2. Bobby Byrd 'I Know You Got Soul', 0:06, picked guitar

5.3. Hijack, 'The Badman Is Robbin'', 1:43, DJ cutting a legato sound

5.4. Eric B & Rakim, 'I Know You Got Soul', 1:34, Rakim's flow aligns with the ghost notes in the composite breakbeat

Chapter 6 – Breakbeat science

6.1. D.R.S. featuring Kenny Ken, 'Everyman', 0:33, pattern using the 'Amen jungle bar'

6.2. Spragga Benz/Lady Saw, 'Backshot', 0:04, dancehall 3-3-2 rhythm

6.3. Undercover Agent, 'Dub Plate Circles', 0:10, jungle 3-3-2 rhythm.

6.4. Amazon II, 'Booyaaa! (Open Your Mind)', 5:14, melodic snare drum notes

6.5. Rude & Deadly, 'Mash Dem Down', 2:02, low punctuating snare

6.6. Shy FX, 'Simple 'Tings', 1:36, fast snare roll with melodic shape

6.7. DJ Krome & Mr Time, 'Ganja Man (DJ Hype Remix)', 1:26, sound effect resulting from extreme pitch-shifting linked with tempo increase

6.8. Dread Bass, 'Dead Dread', 1:18, timestretched vocal sample

6.9. Rude & Deadly, 'Mash Dem Down', 4:04, timestretched breakbeat

6.10. DJ Krome & Mr Time, 'Ganja Man (DJ Hype Remix)', 0:46, snare and kick drum fast rolls

6.11. Rude & Deadly, 'Mash Dem Down', 1:25, forced articulation via sample decay manipulation

6.12. Dread Bass, 'Dead Dread', 3:27, fast roll technique without variation

6.13. Dread Bass, 'Dead Dread', 4:24, fast roll technique with crescendo

6.14. Dopestyle, 'You Must Think First', 0:56, tambourine-induced stasis

6.15. Dopestyle, ‘You Must Think First’, 1:21, melodic snare drum patterns

6.16. Northern Connexion, ‘The Bounce’, 5:06, the ’Amen’ crash cymbal extended by looping, with added pitch-shifting

6.17. D-Bridge, ‘Cornered’, main drum pattern, bar 5

6.18. D-Bridge, ‘Cornered’, main drum pattern, bar 19

6.19. D-Bridge, ‘Cornered’, main drum pattern, bar 23

6.20. D-Bridge, ‘Cornered’, main drum pattern, bar 31