

Electric Guitar Performance Techniques: Meaning and Identity in Written Discourse

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Abstract

This thesis presents an in-depth analysis of selected electric guitar performance techniques and technologies, including the power chord, the wah-wah pedal and finger tapping. Employing discourse analysis, the purpose of the thesis is to identify and understand themes within a wide range of written source material pertaining to the electric guitar. I analyse primarily Anglo-American originating, English-language sources that discuss these techniques and technologies, including archival and online materials, popular and trade publications, academic writing and my own participant interviews. From my analysis, I identify a number of themes that are present within written discourse pertaining to electric guitar performance techniques and technologies, and which also cut across them. The first three main chapters consider three particular aspects of electric guitar discourse. In Chapter 2, I explore the existence of clear invention and discovery narratives for each of the three performance techniques considered in the thesis, concluding with a general list of features that appear to promote the narratives' continuity and prominence. In Chapter 3, I look at the contemporary meaning of virtuosity and the electric guitar, suggesting that ascriptions of virtuosity are closely linked with the assumptions that underpin aesthetic preference. In Chapter 4, I examine the meanings and attitudes that are apparent in discourse relating to new electric guitar technology, demonstrating that there is a clear yet inconsistent binary between acceptance and rejection of technological change. In Chapters 5 and 6, I theorise more generally about the electric guitar, situating a range of relevant written discourse within theories of late 20th and 21st Century Neoliberalism. I suggest that many of the values and attitudes I identify within electric guitar discourse reflect those of neoliberalism, particularly with respect to the shared value attached to authenticity, individuality, innovation and a willingness to engage with the marketplace.

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Chapter 1 – Determining The Field of Study

1.1 Introduction

As an electric guitar player, teacher and aficionado, I have always taken the instrument's importance for granted. However, in undertaking a PhD that focused on the electric guitar, I wanted to explore the importance of the instrument to others, and within the field of popular music as a whole. In May 2013, I attended two arena concerts that helped me crystallize my thinking in this respect. The first was by Beyoncé on the Mrs Carter Show World Tour (2013-2014); the second was by Rihanna on the Diamonds World Tour (2013). Both performers are extremely successful modern R&B singers (Beyoncé has sold an estimated 75 million records as a solo artist since 2002, while Rihanna has sold 191 million records since 2005)¹ who incorporate samples, electronic instruments and acoustic instruments. Each employed a live band on their respective tours, including acoustic drums (augmented with samples). What surprised me on both occasions was the prominence and license afforded to each singer's electric guitarist, Bibi McGill (Beyoncé) and Nuno Bettencourt (Rihanna), both of whom are well-respected and extremely proficient musicians.

Although both singers' recorded music features the electric guitar, it is most often included within an overall texture rather than as a prominent lead instrument. Thus, I feel it would be reasonable to assert that neither artist is as aesthetically dependent on the electric guitar as, for example, Van Halen or Led Zeppelin. At various points during the show, McGill and Bettencourt were granted license to play extended and highly virtuosic solos, during which the respective singers surrendered the spotlight, which presumably had the added benefit of allowing them to change costumes and take a rest. In both cases, the guitarists were highly visible on the stage by virtue of position and lighting, while other members of the band were less so. As an audience member, I was left with the impression that each guitarist was being afforded a greater degree of exposure than other members of the backing bands, which I understood as symbolic, referring to a performance tradition derived from rock music in which the highlighting of the lead guitarist was integral.

¹ See http://en.wikipedia.org/wiki/List_of_best-selling_music_artists. Accessed 15 July 2015

I would argue that there are clear parallels between these two examples and that of the 1960s and 1970s guitar hero paradigm, in which primarily rock lead guitarists emerged as figures of great importance, both in musical terms and as revered individuals. Bands such as Deep Purple, Led Zeppelin and Van Halen, with their respective lead guitarists Ritchie Blackmore, Jimmy Page and Eddie Van Halen are excellent examples of this model. I would also argue that the guitarists present at these two concerts played a prominent role, not primarily because of the instrument's musical importance to Rihanna and Beyoncé, but because of its symbolic and visual significance. The experience gained in attending these two concerts, combined with knowledge of the abovementioned 1960s and 1970s artists, suggests to me the continued relevance of the electric guitar. Furthermore, the instrument's constantly changing significance and role within popular music indicates a need for continued academic study, in order to maintain the relevance of earlier academic work on the subject.

Evidence of the electric guitar's continued importance is easily found if the focus is widened beyond the narrow band of music that constitutes the charts in the UK and US. More specifically, I am thinking of the hard rock, punk and heavy metal scenes that have emerged as a commercially viable alternative to the pop charts over the last 40 years. These styles rely heavily on use of the electric guitar, as do many others, including blues, country and jazz, not to mention the lucrative covers band industry, and the millions of amateur guitarists and hobbyists playing individually and collectively for pleasure. Thus, it is my belief that continued study of the electric guitar is wholly justified. It is an instrument that forms the basis of a great number of careers, not just musicians but also engineers, journalists and many others, and has an impact on the lives of music fans globally.

This thesis aims to further our understanding of the electric guitar, contributing to a growing body of academic research that focuses on the instrument, and supplementing previous findings with an up-to-date and in-depth analysis of the electric guitar in contemporary popular music. More specifically, I am interested in a number of particular performance techniques and electric guitar technologies, and how these construct and contribute to the contemporary meaning of the instrument within the context of both popular music specifically and music more generally, and to the identities of electric guitarists and other involved parties. To this end, I employ

a discursive method throughout the thesis, drawing from a huge range of readily accessible, text-based material relating to the electric guitar, supplementing this on occasion with reference to musical texts.

From the outset, and following on from the work of Steve Waksman (1999) and Kevin Dawe (2010), I wanted the emphasis to be primarily on the electric guitar, as opposed to electric guitarists or other people involved with the instrument. However, I also wanted to avoid limiting the thesis to a study of the electric guitar as a physical object. As such, I decided that my research should focus on electric guitar performance techniques, and technologies that have led to the development of new techniques and timbres for the instrument. Specifically, this includes the power chord, finger tapping and the wah-wah pedal, as well as various contemporary guitar-oriented technologies, all of which, for the sake of ease, I collectively refer to herein as electric guitar ‘phenomena’. Whilst there were a number of other possibilities, as I discuss later in the chapter, these performance techniques and tools have been selected for a number of reasons. Firstly, each represents a prominent and wide reaching aspect of electric guitar performance practice, and occurs in various disparate genres. Secondly, each has a particularly unique sonic identity when utilised as a compositional device, meaning that it is easily recognizable when heard within a piece of music. Finally, each has a strong, established body of discourse relating to it, meaning that there is a readily available source of current and archival data. The benefits of my focus on these phenomena are twofold. Firstly, the phenomena provide important limits to the scope of my research, which examines a constantly changing and growing body of written discourse, and secondly, they act as a means of organizing and guiding my work, allowing me to identify cross cutting themes that are applicable beyond the techniques from which they are derived.

These discursive themes have formed the basis of my analysis, and also the development of more general theorising throughout. Each chapter of the thesis has its own research question, which is explained in more detail further into this introduction. More broadly speaking however, the chapters contribute to my construction of a broader theory of the instrument. Towards the end of the thesis, I compare the themes I have identified within written electric guitar discourse with those of contemporary neoliberalism, a term that is explored in detail in Chapter 5. For example, the identification of authenticity as a prevalent theme within much of

the discourse presented in this thesis reflects the importance of authenticity within neoliberalism. Furthermore, authenticity is defined in both electric guitar discourse and neoliberal discourse in relation to particular aspects of identity, including individuality, innovativeness and a willingness to engage with the marketplace. However, before presenting any analysis, it is necessary for me to frame my research within the field of existing academic work, and to more closely define and explain my methodology, sources and overall approach.

1.2 Exploring the Field of Study

As stated, the central focus of this thesis is on a number of particular electric guitar phenomena, and how the written discourse surrounding these reflects and contributes to the broader meaning of the instrument, as well as aspects of the identities of guitarists and other involved parties. The purpose of this section is to situate my research within relevant theory and the current academic understanding of the instrument. The boundaries of my enquiry encompass a wide range of academic fields, including Popular Music Studies, Musicology and Music Analysis, Ethnomusicology, and Organology, and more broadly still, History, Sociology, Economics, Information Studies, Anthropology, Electronics and Engineering. In addition to this review, literature pertinent to the individual chapters is presented at the beginning of each.

Academic study of the guitar remains a relatively small field. There are few book-length publications devoted specifically to the instrument as a cultural or technological artefact, although a larger and ever increasing number of journal articles exist (for example Carfoot, 2006; Carr, 2009; Goss, 2000; Hood, 1983; Schwartz, 1993). However, broadening the search to include work that deals with the guitar indirectly yields much richer results. There are various studies of specific genres to which the guitar is of vital importance, of musicians who were notable guitarists, or of music in which the guitar was prominent (see Abbey, 2006; Bovey, 2006; Gower Price, 2003; Kitts, 2006; Timonen, 2008). In addition to the academic sphere, and as I shall demonstrate through this thesis, there is a wealth of information available in trade and journalistic publications. In the coming pages, I draw from this body of work to contextualize my own study, examining the current state of knowledge and developing the parameters for my research.

Musical Meaning and Identity

A central question within this thesis relates to the meaning of a number of particular electric guitar phenomena. Subsumed within this are various individual questions about the types of meaning each phenomenon has, whom the phenomena are meaningful to, and how they are meaningful within a broader context. Patently, there is a significant element of meaning to the individual for each phenomenon, which is made obvious by the diverse range of opinions and sentiments expressed in the relevant written discourse. However, the phenomena in question are also meaningful in a more collective sense to larger cultural groups. It is these more generalised meanings that I am interested in. Lawrence Kramer (2002) describes music as having simultaneously autonomous and contingent meaning. Talking about musical works, he suggests that there is a reflexive relationship between the “isolated, self-sufficient meaning” (Kramer, 2002, p. 1) derived from the European art music tradition, and the meaning inscribed in a musical work as it exists with a specific cultural context. This idea can be transferred to my study of electric guitar phenomena, and indicates that the meaning of each phenomenon is simultaneously reliant on context, but also develops a degree of autonomy.

Thus, it is necessary to consider the electric guitar as simultaneously a product of the contexts in which is situated, but also an autonomous cultural and technological artefact (see Bates, 2012). Such an approach was taken by Steve Waksman, whose *Instruments of Desire: The Electric Guitar and the Shaping of Musical Experience* (1999) considers not just the people involved in particular narratives, but also the shaping of a contemporary understanding of the electric guitar itself. He moves away from a traditional organological understanding of a musical instrument, rooted in its physical construction and mechanical operation, and begins to examine the electric guitar’s role in musical culture, both in the way that it is defined and constrained by context, and the way it defines and gives the same context meaning. An important point made by Waksman is that the instrument has taken an important role in enacting social change. For example, Waksman suggests Jimi Hendrix used the electric guitar to extend beyond the confines of the ‘black aesthetic movement’ of the time (1999; 177), and that Hendrix had a belief that the instrument stood as a literal and symbolic means by which he could transgress musical and racial boundaries (180). However, Waksman also suggests the electric guitar has also reinforced and contributed to the

disempowerment of particular groups. For example, while the rock group Led Zeppelin often presented themselves as sexually liberated and liberating, the reality was that this narrative served a male fantasy of sexual power over women, and thus reinforced existing power structures. The role of the electric guitar in contributing to the identities of these groups is an important aspect of its history, and in many cases it appears that instrument continues to act in this way. Consideration must therefore be given in this thesis to the empowering and disempowering potential of the electric guitar.

Bennett & Dawe (2001) dramatically widened the field of study with their edited collection entitled *Guitar Cultures*. This text examines the guitar phenomenon in a wide range of contexts and locations. The contributors extend the field of study to include guitar cultures that have previously received little attention from academics, including the guitar in India (Clayton, 2001) and Brazil (Reily, 2001), guitar manufacturing in Spain (Dawe & Dawe, 2001), and the guitar in UK Indie culture (Bennett, 2001). More recently, Kevin Dawe builds on the work of Bennett & Dawe (2001) in *The New Guitarscape in Critical Theory, Culture Practice and Musical Performance* (2010). In taking a comparative approach to the guitar, he further extends the terms of reference set out by authors such as Waksman, and develops a theory of the guitar that operates within the context of global cultures and societies. He explores the concept of ‘guitarscapes’, a holistic understanding of the guitar as it exists and is integrated within local cultures. The plural and localised nature of the instrument’s meanings is a central concept that underpins Dawe’s writing, which includes an examination of the materiality and virtuality, sexuality and the cultural exchange that has occurred as a result of globalisation.

Furthermore, Dawe provides a useful summary of the nature of the guitar’s autonomy, suggesting that the instrument has power and agency but is also constrained and given meaning by its cultural context. It is made meaningful through performance by specific artists, but also within a range of artistic and cultural domains normally seen to exist outside of performance. He states,

Clearly, musical instruments are empowered in a variety of ways, not only by the distinctiveness and effects of their sound but also by the ways in which they are written about, talked about, painted and photographed. Moreover, the gestures

and movements that accompany their performance, choreography and iconography extend and reinforce their presence and impact (Dawe, 2010, p. 167).

Kevin Dawe (2013) extends the concept of the ‘guitar in the field’ in a collection of articles that takes a similar approach to that of *Guitar Cultures*. He suggests that while the popular media regularly offer a neo-colonialist and mono-cultural version of ‘planet guitar’, in reality the instrument exists in a wider web of global cultures, materials and technology, fulfilling a number of roles that are not limited to its physical function. This is explored on by a number of contributors who consider a range of subjects, including performance practice in Istanbul (Dawe & Eroğlu, 2013) and Okinawa (Johnson, 2013), guitar manufacturing and materiality in Mexico (Kies, 2013), and studio practices in Jamaica (Hitchins, 2013). These and the above works are of great importance to the study of the electric guitar, contributing to a theoretical framework that contextualises this thesis, and as such I shall continue to refer to them throughout this review. However, I would also argue that the broadening of focus the above work represents means that in more recent times there has been a less thorough examination of the guitar in a contemporary Anglo-American context.

More broadly, the works of Dawe (ed.) and Waksman also contribute to the field of Organology. The study of musical instruments has a long history, and includes more objective, taxonomic classifications of instruments as well as an examination of the function of instruments within particular cultural contexts. To this end, there are a great number of studies that consider the socially defined meaning of various musical instruments. These studies occur within both musicology and ethnomusicology, making use of various research methods.

Of particular relevance to this thesis are studies that examine both the instrument in question and its broader context. For example, Elfrieda Hiebert (2013) discusses the evolution of piano pedalling between the 18-20th centuries. Such evolution has obvious aesthetic consequences, but Hiebert also examines the publication of a number of scientific theses about the use of the piano pedal, which were derived from the emerging field of acoustics. This use of scientific theory did not sit particularly comfortably with many within the European art music scene in the 19th century, and reflects the prevailing understanding of music and art as distinct from science

(Hiebert, 2013). The identification of discursive assumptions and ideologies is an important part of this thesis, and as such works like Hiebert's are useful both as a comparison to the electric guitar and in directing my own methodology.

Similarly to Hiebert, Maiko Kawabata (2004) examines the violin virtuoso between 1789-1830. The suggestion is that a conception of the 18th - 19th century virtuoso violinist grounded entirely in masculine sexual power is incomplete, and that a full explanation must include reference to the themes of military power and heroism. Kawabata develops an understanding of the virtuoso rooted in power relations, and demonstrates clearly the link between a musical phenomenon and wider social forces. The approach of other Organology studies (Lawson, 1983; Presutti, 2008; Schroder, 1979; Tajahashi, 1992) have been similarly informative in directing the approach of this thesis.

Returning to the electric guitar, the meanings I uncover and explore within this thesis often relate to the identity traits of certain individuals or groups of people. For example, in a piece of writing about finger tapping, it may be implicit that any potential user ought to have a great degree of technical ability in order to be successful. If the writer then introduces Eddie Van Halen as a notable user of finger tapping, the guitarist is therefore identified as technically accomplished. However, Hargreaves, Miell & MacDonald (2002) suggest that identity is plural, and simultaneously individual and collective. Therefore, "each [identity] is created in interaction with other people... [and] are also always evolving and shifting" (p. 10). This suggests that not only are the identities I analyse within this thesis limited by the context of the discourse from which they are derived, but they are also subject to constant change and development. In a broader sense, such identities are also constrained and defined by social structure, the interplay between the individual and the collective, and in the case of music, culturally informed aesthetic preferences and judgements (Hesmondhalgh, 2013).

With these broad definitions of musical meaning and identity in hand, it is now necessary to contextualise my study by examining the history of the electric guitar, discussing how this operates with respect to the above conceptions of meaning and identity, and what the significance of this is for my own research.

Electric Guitar Histories

Arguably the most prominent electric guitar narrative exists within the genres of Anglo-American blues and rock music. Broadly speaking, the narrative follows the development of the electric guitar in American blues, country and jazz during the 1940s and 1950s, its use by early rock 'n' roll stars such as Chuck Berry and Buddy Holly, and its eventual transition into the symbolic instrument of American and British hard rock, heavy metal and punk (Waksman, 1999).

The 1960s saw the emergence of the 'guitar hero', who was a characteristically masculine, powerfully emotional and virtuosic figure (Millard, 2004, pp. 143-162). As a result, various aspects of the guitar hero phenomenon were subjected to scrutiny by academics. Ben Goertzel (1991), for example, was concerned with the rock guitar solo and its transformation from a "powerful form of individual expression" into "stylized pro forma frill" (p. 91). He references a process of canonization whereby the evolution of art rock in the 1960s turned the guitar solo from a short, constrained form into a "powerful vehicle for subtle melodic and emotional expression" (p. 91). However, he suggests that with art rock's subsequent decline, so too went the power of the guitar solo. Goertzel cites Baudrillard's theory of 'simulation', and suggests that the decline of 'serious art' musicians, and their replacement by 'commercial pop' artists, who nonetheless make stylistic references to such serious art, indicates that music has reached a stage whereby it "bears no reality to any reality whatsoever: it is its own pure simulation" (p. 100). Goertzel's conclusions reference a process of canonization, and support the continued existence of a canon of 'masterful' guitarists. I would argue that such conservatism is a regular feature of written discourse surrounding the electric guitar, both within academic work and in more general writing.

However, the above rock and blues based narrative constitutes only a small segment of guitar history, an imbalance that has been observed by a number of scholars. Dawe (2010) in particular has highlighted an overwhelming focus on a somewhat restricted narrative of Anglo-American popular music, which he refers to as a "canon of masterworks and guitar heroics that makes for a well-known, celebrity based history"

(p.29). As discussed in the previous section, Bennett & Dawe (2001) make a case for multiple guitar cultures, bringing together work by a range of authors that considers the instrument with a wide range of contexts. A central premise of this work is that the guitar is a global phenomenon; its importance and meaning can only be ascertained by considering it as,

A globally mobile instrument whose form, tonal textures and associated playing techniques are the product of its appropriation and use in a variety of locally specific musical contexts (p. 1).

As such, any understanding of the instrument must include a consideration of numerous types of people, including guitarists, manufacturers, teachers, visual artists and of course, audiences.

In addition, two other concepts underpin this way of thinking about the guitar. Firstly, the use of musical style for categorization, not just as a marketing technique for the music industry, but also for providing a 'crucial situating role for musicians and their audiences' (Bennett & Dawe, 2001, p. 4). This concept suggests that the language used in the construction of local musical narratives gives a musical community the means to identify themselves and present this identity to others. These identities are represented in the construction of stylistic descriptors and defining labels, reflecting the localized identity politics of both those individuals involved in the production of guitar music and those who come to listen. This process, the editors suggest, allows the guitar to act as a cultural signifier in a range of local and trans-local contexts. This is particularly significant for this project because it suggests it is possible to develop an understanding of the electric guitar based on the discourse that surrounds it. Building on this discursive understanding, in combination with the above notions of meaning and identity, I now discuss various pieces of academic research that examine specific themes relating to the electric guitar.

Prominent Themes Within Electric Guitar Literature

Although there are numerous themes within the body of academic work relating to the electric guitar, there are a number that are particularly relevant to this thesis. I present four such themes here, chosen because they are consistently pertinent throughout the

thesis, with each referenced frequently with respect to the written discourse analysed within each of the main chapters.

The guitar is an integrated part of music, culture and society, and as such it is also inextricably linked to issues of commerce and industrial globalization (Dawe, 2010). The first of my four themes suggests that the relationship between culture and industry is reciprocal, in that industry produces culture and culture produces industry (Negus, 1999, p. 14). Any analysis of the electric guitar as a cultural object must therefore also recognise its commodity status, and the socio-economic context in which it is produced. Bennett and Dawe (2001) embrace this approach in their analysis of the global position of the guitar. They suggest that the developing flow of capitalism has played a role in facilitating the guitar's cultural mobility, stating that,

Guitars are part of the 'field of cultural production. There are fields of 'restricted' and 'large-scale' production, 'which affect the creation, dissemination and circulation of 'goods'. These systems are tied to systems of hegemony and cultural dominance and to contestation, negotiation and working out of power relations (Bennett & Dawe, 2001, p. 6).

This suggests two things. Firstly, it suggests that both the electric guitar and the written discourse that surrounds it are inextricably linked to relevant economic systems, and are therefore subject to economic pressures and global development, meaning that any comprehensive study of the instrument must take into account these issues. Secondly, it suggests that a better understanding of the economic context of the electric guitar will allow for a more thorough consideration of other contextual issues.

The second prominent theme within the academic literature, and one which is highly relevant to the rest of this thesis, is the application of Jacques Attali's (1985) theory of the politics of 'noise'. Steve Waksman (1999) in particular suggests that many prominent narratives of musical subversion reflect the use of musical noise to undermine conventional power relationships and redefine acceptable musical aesthetics. Waksman argues that historically the electric guitar has occupied a space between music and noise, between norm and transgression with respect to the various social and political issues that have affected popular music.

Waksman (1999) applies this theory to electric guitar technology and the production of amplifier distortion. As the distorted aesthetic rose to prominence, it was adopted by a number of English blues guitarists, as well as the American Jimi Hendrix, who spent a great deal of time in the United Kingdom. These guitarists used the aesthetic to construct a new type of virtuosity for the electric guitar, which included the use of feedback as an expressive tool. Thus the boundary between music and noise was deliberately traversed and altered by players looking to create an innovative and overtly virtuosic aesthetic. Over time, the transgressive effect of this distorted aesthetic began to diminish, as it was gradually accepted and co-opted into more ordinary electric guitar practice (Waksman, 1999). In the present day, amplifier distortion can be observed in numerous disparate styles, and has become both the primary signifier for a number of genres, and device used to pastiche other musical styles. This understanding of distortion rooted in political theory is extremely useful in contextualizing the written discourse surrounding the power chord, in which amplifier distortion is an inherent component.

The third of the four themes relates to the electric guitar and its relationship with a number of musical institutions, such as the European art music tradition, and formalised Anglo-American institutions of music education such as conservatoires and University music departments. The purpose of Robert Walser's (1993) book, *Running with the Devil: Power, Gender and Madness in Heavy Metal Music* is to deconstruct the preconceptions demonstrated and value judgments made by writers and commentators about heavy metal music, and includes a chapter dedicated to the electric guitar. In 'Eruptions: Heavy Metal Appropriations of Classical Virtuosity', Walser (1993) examines the 1960s phenomenon of hard rock and heavy metal guitarists experimenting with musical materials originating from the work of 18th and 19th century composers. He suggests that the initial motivation for such experimentation was an attempt to access "classical music's prestige and semiotic significance", and its "aura of transcendent profundity and relations with powerful social groups" (p.59). Walser presented four case studies of guitarists, each of which was noted for their debt to classical pedagogical methods, including thousands of hours of isolated practice, development of advanced theoretical skills, and a "studious devotion to the canon" of classical music (p. 59). In the 1970s the electric guitar

acquired similar capability to some of the most highly regarded instruments of the 17th and 18th century, such as the violin and organ, and demonstrated capabilities that could be placed under the rational control that is prized by the classical music institution. Walser suggests that there was a “shift towards a new kind of professionalism [for electric guitarists], placing an emphasis on the importance of theory, analysis, pedagogy and technical rigour” (1993, p. 89). This occurred concurrently with the emergence of institutional and academic support for the learning of the electric guitar, such as the Guitar Institute of Technology (Walser, 1993, pp. 91-92).

The last of the four themes I wish to highlight relates to the identities of guitarists and other relevant groups. Although this is an effectively infinite subject, there are a number of particular aspects that appear prominent within academic literature and are therefore worthy of attention here. Most notable in particular are the themes of gender and sexuality. The two form the subject of an entire chapter, ‘Gender and Sexuality in the New Guitarscape’, of Dawe’s (2010) most recent book. His interaction with contemporary gender theory allows for a new perspective with respect to the guitar. Previous works have focused on the ‘phallo-centricity’ of guitar cultures, presenting countless examples of the disempowerment and under-representation of non-male, non-heterosexual groups. The work of authors such as Coelho (2003) and Millard (2004) is clearly important, and a deconstruction of the implicit power structures related to the electric guitar needs to take place before change can be enacted. However, there comes a time when re-iteration of this point by academics, not just with respect to the electric guitar but also popular music more generally, leads to the implication that there is no alternative. If the only thing ever discussed by academics is the under-representation of female and gay guitar players, then there will be no time to achieve re-balance by addressing these issues. Dawe it seems, is in agreement with this, and rather than lamenting the narrow lens through which gender and sexuality have often been viewed in the construction of guitar history, he examines the contribution of a number of influential, yet often overlooked female and gay guitar players, such as Maybelle Carter, Jennifer Batten and Kaki King.

The purpose of presenting the discussion above was to situate a contemporary understanding of meaning, identity, and the electric guitar within the context of the relevant existing research. The principal focus has been on a recently emergent and now firmly established collection of research that focuses on the instrument itself. Within this body of work, researchers such as Steve Waksman (1999) and Kevin Dawe (2010) have introduced themes such as race, gender, power relationships and political economies, all of which are of fundamental importance to this thesis, and also reflect the development of more general popular music theory.

Despite the development of a small and increasingly well-defined body of research, I would argue that there remains much that we do not know about the world of the electric guitar. There has certainly been an increase in breadth over recent times, most notably through the work of Bennett and Dawe (2001) and Dawe (2013), which reflect the global and diverse role of the instrument within a wide array of musical cultures. However, in returning to the more specific field of Anglo-American popular music, our contemporary understanding of the instrument is by no means comprehensive. There have been many stylistic, technological and cultural changes in popular music over the last 20 years, and I aim to reflect these in my research. Furthermore, I am interested in the cultural contribution and opinions of the 'ordinary' guitarist or reader of written electric guitar discourse. The discursive method I employ throughout the thesis reflects this interest, and allows for a flattening of the hierarchal value of respective sources, whilst proportionally considering the occurrence and discursive importance of the various themes they contain. In the coming pages, I present an outline of the structure of this thesis, as well as defining key terms and the method that underpins my analysis.

1.3 Project Definitions

This thesis focuses on a number of particular electric guitar 'phenomena'. Specifically, this includes 'finger tapping', 'the power chord', 'the wah-wah pedal', and various contemporary electric guitar technologies. I chose to focus on phenomena because it allowed attention to rest on the instrument itself, whilst simultaneously providing a series of concrete reference points within the written discourse I examine, which were useful in identifying material relevant to my broader questions about meaning and identity.

At the outset of the project I identified three phenomena, in the form of performance techniques, which I felt were particularly important. 'Performance techniques' is a term that I define as a specific and identifiable physical action or articulation, in combination with a relevant technology, which results in a particular or unique sound or timbre. Finger tapping, the power chord and the wah-wah pedal were chosen because they were clearly defined and abundantly present within the written discourse I examined. In the same way as electric guitar culture, the definitions of the phenomena I explore in this thesis are contextually dependent and subject to constant change. However, for the purposes of my research, I define each one according to the written discourse I have examined. What follows is an outline of each of these definitions.

The Power Chord

Berger and Fales describe the 'power chord' as "composed of a root, a fifth, and the octave in the lowest octave of a guitar's range" (Berger & Fales, 2004). This combination of notes is remarkable for its lack of a 3rd, either major or minor, and gives the power chord certain characteristics. As a detached unit, it is harmonically ambiguous; it is neither major, minor, diminished or augmented. The absence of a third also simplifies the physical action required to sound the power chord on a guitar. It means that when the electric guitar is in standard or 'drop' tuning, the fingering of a power chord is straightforward and easily moveable, regardless of key or position.

Stylistically speaking, use of the power chord is most readily evident in rock music, to which timbral distortion is an integral characteristic. Berger & Fales describe distortion as the occurrence of "aperiodic sound waves (those that do not repeat in a regular fashion)" (Berger & Fales, 2004), which is experienced as unpitched noise. In sonic terms, a highly distorted sound (one with a lot of unpitched noise) will produce more audible harmonic overtones. The likelihood of the overtones of each note of a chord clashing increase with the number of notes contained within a chord (McDonald, 2000). Therefore, a power chord containing only two distinct notes, which are already harmonically sympathetic to one another, retains much more clarity than a triad when combined with distortion.

The Wah-Wah Pedal

The wah-wah pedal is an electronic device designed to alter the resulting timbre of an electric guitar. It is usually inserted between the instrument and the front end of an amplifier, although it is also used in the effects loop, which is situated between the pre and power stages of an amplifier. To operate, the guitarist rocks backwards and forwards on the pedal, altering the timbre in a way that reflects the speed of motion. On a frequency/amplitude graph, this alteration would be represented as a resonant peak boost that moves rapidly up and down the mid range of the frequency spectrum. This is achieved with what is effectively a variable capacitor that filters different frequencies depending on the position of a potentiometer, which is mechanically attached to the foot pedal (for a more detailed explanation of wah-wah technology, see Keen, 1999).

The resultant sound is similar to that produced within the human vocal cavity, albeit without the verbalisation produced by altering the shape of the lips, and it is this feature that catalysed comparisons between the pedal and the human voice, and its name the ‘wah-wah pedal’ (Harbeck, 2013). At the time of writing, various manufacturers make versions of the wah-wah pedal, which differ in their construction, electronic design, timbral voicing and physical aesthetic, as well as their commercial and incidental links with particular styles or artists.

Finger Tapping

Finger tapping is a performance technique most commonly used by electric guitarists, although it is also used by acoustic guitarists, ukulele and string players, amongst others. The technique is derived from ‘hammer ons’ and ‘pull offs’, whereby a guitarist can sound a note by striking the string above the fret board, rather than plucking the string in a traditional manner, and then ‘pulling off’ from the fret, which causes the next fretted note (or open string) below the original to sound (Torres, 2013). The finger tapping concept can be extended to include both hands, meaning that a guitarist has eight fingers available for sounding notes (Ashtiani, 2012).

Use of the technique often results in highly virtuosic-sounding music, as the physical limitations imposed by using a plectrum are removed; or harmonically complex chords or melodic passages, as by using both hands, the guitarist can stretch much

further and finger chord shapes that are otherwise impossible to play. For electric guitarists, use of the technique is often facilitated by a lowered string height or action, as well as a guitar with a wide, flat fret board (Jordan, 1984). Furthermore, a guitarist might make use of compression or levelling to smooth out the dynamics of notes produced by finger tapping, which are characteristically uneven.² This may be achieved by using a compressor pedal, either in front of the amplifier or as part of a recording chain, or indirectly through use of a highly distorted amplifier, which inherently compresses the signal from the guitar (The Guitar Lesson, 2015).

In addition to these three, I also identified various other phenomena that fit within the category of performance techniques. These include sweep picking, hybrid picking and travis picking, pinch harmonics, legato playing and use of a tremolo bar. I decided not to include these in this thesis, primarily because I was unable to uncover a significant amount of clearly relevant material.³ However, there was a further category of electric guitar phenomena that I was unable to ignore – the wide range of contemporary technologies based on audio ‘digital signal processing’ (DSP). The advent of DSP has had wide-ranging and paradigm-shifting effects on popular music, and it was important that any contemporary study of the electric guitar reflected this. Furthermore, for reasons of scope, this thesis does not consider any of these phenomena within the context of acoustic guitar performance or discourse. This is an avenue of further study with rich potential, and one that could be undertaken at a later date.

Given that my aim is to develop a greater understanding of the meaning of the electric guitar, and the identities of guitarists and other involved groups, I am not concerned with constructing a history of each phenomenon or exploring their sonic development, but rather with examining how the development of relevant written discourse has resulted in the prominence of particular themes. As such, this thesis makes extensive use of discourse analysis, which I will explain in more detail in the coming section,

² Other finger tapping techniques include dampening the strings at the nut, either using a hairband/elastic band, or a dedicated device such as the Gruvgear ‘fretwrap’ (see www.gruvgear.com/fretwraps for further details).

³ There are a great number of electric guitar phenomena that may have been suitable for consideration in this thesis. For example, phenomena not discussed include acoustics, microphone technique and placement, the use and modification of analogue effects pedals, and the augmentation of the instrument with additional strings.

along with a more detailed outline of the limits and scope of the research I have conducted.

1.4 Methodology

Discourse Analysis

At its broadest level, the area of focus for this thesis is the electric guitar and the cultures within which it is situated. Such a term encompasses the values and organisation of people to whom the electric guitar has some particular significance, as well as the contexts in which the instrument exists, and the behaviour patterns and practices of these people (Beard & Gloag, 2005). Furthermore, electric guitar cultures represent the meanings of relevant objects and texts that exist with respect to the electric guitar, including the instrument itself. Importantly however, the cultures of the electric guitar culture are constantly changing, transient and exist in multiple versions depending on context and perspective. This lack of fixedness means that ultimately the research and analysis I present in this thesis represents just one part of electric guitar culture, which is both defined and limited by the range of discourse that I examine.

Electric guitar cultures manifest and express themselves in numerous and diverse ways. For example, electric guitar performance is undertaken through live concerts, audio recordings and videos, each of which has meaning within the specific geographic and cultural context in which it is undertaken. Such performances also reflect the visual elements of electric guitar cultures, including the clothing worn by performers and the appearance of the equipment used. Furthermore, the construction and design of instruments, the use of the body in performance, and products such as recordings, notated music and other material artefacts, are all part of the instrument's cultures. The electric guitar also exists within broader musical culture, and many of the discourses I examine and the conclusions I draw reflect similar occurrences in the cultures that surround other instruments. For example, a number of myths exist in broader musical culture that reflect the inherent assumptions and ascriptions of meaning of the related cultural participants. These myths operate in a similar way to those of written electric guitar discourse, and include, for example, the Mozart effect or the myth that Elvis is still alive. I endeavour to remain aware of the broader

context of musical culture, using it to inform my own work whilst also remaining aware of the limits of my analysis and conclusions.

In this thesis, my focus is on language and the interaction of cultural participants, specifically written discourse, as a means by which guitarists and other related groups of people are enculturated into guitar culture. There were several reasons for my choice to focus on written discourse. Firstly, it gave me access to a wide range of pre-existing sources, including those held within physical archives such as those of the British Library, and those stored on the Internet. Secondly, the use of pre-existing source material gave me access to various guitarists and commentators who would have been otherwise inaccessible, either owing to their celebrity status, geographic location, or because they are dead. Access to these types of guitarists was important, because, as I go on to argue, their high levels of popularity and exposure have a powerful effect on the cultures surrounding the electric guitar.

In order to analyse this written material, I make use of discourse analysis throughout the thesis, which is a form of qualitative analysis based on an understanding of meaning as socially constructed and constantly changing. In more specific terms, discourse analysis, or the study of particular discourses, is concerned with the language events that underpin a particular social process (Wellington & Szczerbinski, 2007). These may be written, spoken, or, in the case of music, aurally and visually documented. The underlying premise is that such language events do not just provide a porthole through which social processes can be observed, and to which an effective researcher must make assessments of reliability and validity, but they also act as constructors of meaning, adding to the social process as well as translating it (Gee, 2005). Thus, it is possible to examine these language events to determine meaning within particular social contexts, such as those of the electric guitar. This includes analysing not just the language used and its grammatical construction, but also the implicit themes and sub texts contained within discourse examples (Gee, 2005). Similar methods of examining written discourse have been employed with respect to the guitar by Ryan and Peterson (2001) and Waksman (2001), and in popular music more generally by, for example, Maus (1993).

I present numerous examples of written discourse pertaining to the electric guitar throughout the thesis, as well as my own accompanying analysis, which itself is an

additional form of discourse. These examples are taken from a range of sources, of which a breakdown of indicative examples is outlined in Fig. 1. These sources reproduce and contribute to the meaning of the electric guitar, and construct and reflect the identities of guitarists and other relevant groups. For this reason, I consider these examples to be primary sources of discourse. I also reflect the plural nature of electric guitar culture in my presentation, by including examples from a range of authors, including music journalists, guitarists and music fans. However, I have not examined uncategorized archival material including, for example, correspondence and artefacts contained within the estates of dead guitarists.

Type of Source	Publication
Guitar specific magazines	<i>Guitar Player</i> (1967 – present) <i>Guitar World</i> (1980 – present)
Music Magazines and Newspapers	<i>NME</i> (1952 – present) <i>Rollingstone</i> (1967 – present)
Music News Websites	<i>Harmony Central</i> (1995 – present) <i>Rocksbackpages</i> (2000 – present)
Newspapers and Magazines	<i>Esquire</i> (1991 – present) <i>Independent</i> (1986 – present)
Fan Websites	<i>Van Halen News Desk</i> (2000 – present)
Personal Websites and Blogs	<i>Derek’s Music Blog</i> (2011 – present) <i>ProjectK2R4.com</i> (2012 – 2015)
Commercial Websites	<i>Stick Enterprises</i> (company active 1974 – present) <i>Washburn Guitars</i> (company active 1883 – present)
Online Forums	<i>Gearslutz</i> (2002 – present)
Films	<i>The Pedal That Rocks The World</i> (2011) <i>It Might Get Loud</i> (2009)

Fig 1. *Indicative list of sources of written discourse used in thesis.*

As with any interpretative method, my analysis will reflect my own subjectivities, which I attempt to be explicit about below, and which I have sought to minimise throughout, and will also contain and omit information that may not have been the choice of other researchers in the same position. The fundamental assumptions that my discursive method rests upon, however, mean that my analysis is also part of the process of meaning construction, and as such is neither final nor fixed, but rather open to continued and alternate examination by both myself and other researchers in the future.

Selection and Representation

As Kevin Dawe has noted, the guitar has a rich and diverse history, and is an important part of many local cultures, whilst simultaneously retaining a significant global presence (Dawe, 2010). As such, fair and accurate representation of the world's guitar cultures and communities presents significant challenges. Arguably the most prominent electric guitar narrative is that of blues derived rock music, which has cast a small number of, generally speaking, white, male, American and British musicians who appropriated blues musical idioms and developed a highly successful form of guitar-based rock music. This blues-rock narrative is problematic, not least due to the marginalization of social groups who do not fit within its narrow criteria, but also because it obscures an enormous community of popular musicians who have never achieved comparable success to the megastars it prioritises. Additionally, the narrative tends to place a cultural imperative on Anglo-American popular music, ignoring the diverse use and development of blues-based rock music by other musical cultures, whilst also downplaying their contribution to the broader electric guitar canon. Overall, there is a disproportionately large amount of written discourse relating to a small number of musicians and musical styles.

In the case of this project, I have endeavoured to be mindful of many of these and other discursive inequalities, interrogating texts in which they are present, whilst seeking to understand why particular examples of discourse are constructed in the way that they are. For example, if a particular discourse places importance on one group/individual/narrative over another, then it is essential that we understand why. My analysis is organised according to the themes contained within this discourse, and reflects many inherent biases and emphases that exist with respect to the electric guitar. However, rather than just reproducing these biases and emphases, the discourse forms the subject matter for my analyses. Further work would allow me to expand the range of written discourse examined, allowing me to more actively promote elements of electric guitar cultures that have been historically underrepresented. For example, it is likely that if I had chosen discourse examples from a different geographic location or written in a different language, the results would have been different. The scope of a PhD thesis means that compromises of

'breadth' and 'depth' had to be made, so identifying the most prevalent themes within the discourse in a comprehensive way required a carefully considered process.

In accordance with a grounded approach outlined by Strauss and Corbin (1998), I began by accumulating a large number of discourse examples, and eventually reached a point where I felt fully 'immersed' in the discourse literature. As predicted by Crabtree (2006), I reached a point of 'saturation'. That is to say, no matter how many more discourse examples I studied, no new relevant themes, examples of musicians or music emerged. This was the point at which I felt I had gathered enough data. This process was augmented by the completion of a number of qualitative interviews with current electric guitarists. The motivation for conducting interviews was that it allowed me to reflexively query the narratives offered by participants, gathering a different type of data to that provided by archived discourse examples. I conducted six interviews, with an average duration of approximately one hour. The participants came from diverse backgrounds, and included men and women, professional session musicians, professional composers/performers and professional music teachers. The purpose of the interviews was to guide the direction of my research, highlighting preliminary themes to structure my exploration of written electric guitar discourse.

However, the insight of the interview participants was also useful in allowing me to determine the scope and range of sources I should include in my analysis, and therefore the overall scope of the project. The vast majority of my discourse examples are from English language sources, and are, generally speaking, from an Anglo-American perspective. The date origin of my sources ranges between 1900 and 2015, although the majority are from recent times. This reflects not just the proliferation of writing about popular music in both an academic context and otherwise, but also an increase in the production/incidence of new material caused by the proliferation of the Internet. This has arguably resulted not just in an improvement to the accessibility of both academic and other writings on the Internet, but also a cultural change that has led to people writing about and discussing music online.

Following the collection of discourse examples, I coded them by reading through and noting important themes. I then collated these, and began to generate lists with respect to each phenomenon. When I reached the point where no new themes were

emerging, I began to organize the lists into the chapters that make up the main body of the thesis. Each of the following three questions forms the basis of a chapter within the thesis, and also contributes to addressing the fourth and overall research objective.

1) A common feature of the written discourse I examine is the existence of a number of narratives of invention or discovery, what I have termed 'moments of serendipity'. With respect to the phenomena I have already identified, these narratives are often hotly contested, but also fiercely defended, by both the 'inventor(s)' in question, and by fans and critics. In Chapter 2, I consider how these narratives are constructed and embedded in electric guitar history, and how they change over time. Additionally, I discuss what the content and presentation of these narratives tells us about written electric guitar discourse more generally, and how meaning is constructed with respect to the electric guitar.

2) As Robert Walser demonstrated, there are a number of close links between the electric guitar and musical discourse within the Romantic era, particularly with respect to virtuosity. However, Walser's research is now a quarter of a century old, and the enormous development of musical aesthetics during this time, as well as changes in popular discourses, indicates that this relationship may have changed somewhat. Additionally, little research has focused on the written discourse surrounding virtuosity and the electric guitar, and the role that aesthetics play in discursive ascriptions of acceptability. Chapter 3 is focussed on revisiting virtuosity with respect to the electric guitar, as well as examining the role of aesthetics.

3) In addition to the power chord, the wah-wah pedal and finger tapping, there are a number of new electric guitar technologies that appear to have encouraged a strong reaction. These include digital amplifier and instrument simulators and the Peavey Autotune Guitar.⁴ Given the digital nature of these technologies, much of the discourse follows a similar trajectory of the broader analogue/digital dichotomy within popular music. As such, there are elements of both strong liberalism and conservatism. In Chapter 4, I examine the discourse surrounding these technologies,

⁴ At the time of writing the market for self-tuning instruments also included mechanical variants such as the Gibson Robot Guitar, the TronicalTune, and in a slightly different capacity, the EverTune Bridge.

and consider how they relate to judgments about the respective value of various guitarists and their music.

4) Finally, each of these three chapters contributes to the development of a more general and overarching theory of the electric guitar and its culture. Electric guitar culture appears to have developed into one where individuality, innovation and authenticity are valued above other personality traits. During the course of my research, it became clear that such developments reflect changes in wider society that occurred with the emergence of neoliberalism. In Chapter 5, I examine the relationship between the written discourse I examine and neoliberal discourse, and attempt to identify how electric guitar narratives are constructed to reflect and reinforce many of the values and identity traits that are considered particularly meaningful and are particularly highly prized by electric guitarists and related groups.

With respect to my overall research aim, these four areas form the specific locus of my research. However, it is important to note that the research areas outlined above represent only four from a wide range of possibilities. In the end, a number of factors guided my choice, including the availability of appropriate research methods, the time and resources available to me, and my existing knowledge as both a guitarist and a researcher. There remains much academic work to be done with respect to the electric guitar, and while I hope that this research project will make a significant contribution to the field, it seems clear to me that the project's strength lies in its in-depth focus, rather than in being a comprehensive overview of the field.

My Role as a Researcher

At the time of writing I had played the electric guitar for a little over nine years. During that time, I played in numerous bands, and in a range of different styles, including punk, metal, jazz, blues and pop. Currently I am a self-employed guitar tutor, teaching a diverse range of students. Thus, my personal background lies in proximity to my area of study, and it would be naïve of me to think that this closeness has not affected my research. However, that is not to say that this makes my research in some way less accurate or valid. I take encouragement from the field of ethnomusicology, which has long since realised the futility of attempting to retain the position of detached, objective observer, in favour of more open, participative

methods. The rationale behind this is that an attempt to provide an objective, yet rich and descriptive account of any particular phenomenon is always going to be thwarted by the subjectivities and interpretation of the individual researcher. Given that this problem is essentially unassailable, ethnomusicologists instead began to embrace it, realising that their expert and often insider knowledge of a particular cultural phenomenon would add value to the research. There are also possible ethical issues with an academic passively observing and recording a cultural event, and taking this data away to write up a project for which she or he will receive credit – a scenario that creates an implicit power imbalance. If a researcher participates and is accepted by a community, then this imbalance is corrected to a certain degree.

As a researcher, I feel that my experiential knowledge of the guitar as performer and teacher has assisted me in completing the project, and most importantly, has added value to its contents. It was particularly helpful, for example, in conducting the participant interviews. I was able to converse with guitarists in a more natural way, which I am certain made them more relaxed and open, and it also meant that I had a higher level of understanding of the responses they gave than I perhaps would have had I not been a guitarist. I was thus able to ask the relevant follow up questions without having to complete a second interview.

Importantly, I believe that my background as a guitarist also affected the direction and decisions I made during the course of the project. For example, my initial decision to study the power chord was almost certainly a result of my experience with punk and heavy rock music. The relative merits and drawbacks of these choices will have to be decided by the reader, who may have chosen other areas and musicians to focus on. The nature of a discourse based approach means that in addition to being a study of guitar discourses, this thesis will also become a part of the discourse.

This concludes the introductory section to this thesis. In the coming chapter, I examine a number of narratives of invention and discovery that relate to the three performance techniques outlined above, the power chord, finger tapping and the wah-wah pedal.

Chapter 2 – Narratives of Invention and Discovery

2.1 Contextualising Electric Guitar Invention and Discovery Narratives

A prominent theme to emerge from my analysis was the existence of a number of invention and discovery narratives that occur within written electric guitar discourse. For the purposes of this chapter, I consider a ‘narrative’ to be the construction of a story that reflects particular meanings and values. However, they also serve as a representation of events or experiences. In the case of the narratives presented in this chapter, they take the form of chronologies.

The narratives portray the invention or discovery of the three electric guitar phenomena I defined in the introduction to this thesis, the power chord, the wah-wah pedal, and finger tapping. A common consequence of the narratives is to actively position a particular individual as the ‘inventor’ or ‘discoverer’, whilst minimising the importance of any other factors or subsidiary collaborators. Furthermore, within the discourse surrounding two of the phenomena, the wah-wah pedal and finger tapping, there are a number of competing invention and discovery narratives.

The purpose of this chapter is not to ‘debunk’ these stories or attempt to identify a single ‘truth’. Instead, I am concerned with uncovering the implicit meanings and function of each of the narratives in respect of the electric guitar. Throughout the main section, I present a number of techniques and technologies that are considered valuable and meaningful to electric guitarists and other relevant groups, particularly with respect to innovation. In addition, I observe that many of the narratives are notable for both their prominence in contemporary discourse and for their longevity. I suggest this is the result of a number of factors, including the exclusivity of the original version, the social status of the original author, and the nature of its reciprocation. Narratives that are difficult to disprove, that contain a great deal of personal or subjective information, or that are originated or re-told by a particularly authoritative source all appear to develop significant credibility, yielding little to either change over time or critical investigation. I conclude by theorising more generally the process by which a particular narrative comes to exist, and how its social currency develops through time. I then attempt to identify how a narrative of invention or discovery comes to represent the ‘truth’ within the written discourse I have examined.

Before I present this analysis however, it is necessary to contextualise it within a number of areas of study. In the coming pages I develop a theoretical framework based on research that focuses respectively on the invention or discovery of cultural artefacts, including studies of serendipity, myth making and cultural invention, and those of musical creativity.

Understanding Invention and Discovery

A common theme within discussions of the three techniques and technologies studied in this chapter is the existence of a narrative that identifies a clear point of invention or discovery. An example of this is the case of Link Wray, who is consistently portrayed within the written discourse as the inventor of the power chord, the discovery of which can allegedly be isolated to a single moment in 1957.

The terms ‘invention’ and ‘discovery’ are most often used to describe some type of creative act, which may have occurred within any artistic or scientific field. However, the two terms differ in their fundamental meaning. Invention connotes agency – the act of devising, contriving or fabricating something. Discovery, meanwhile, connotes passivity – the act of finding or coming to understand something that already existed. The terms are therefore somewhat incompatible; it would be difficult to ‘invent’ something that existed a priori. Furthermore, I would suggest neither invention nor discovery is likely to completely satisfy and reconcile the complexities of a ‘real life’ scenario. The process of discovery, as described above, detracts from human agency, framing human development as an inevitable and fixed process, taking place within an unfixed time frame. Such a notion effectively denies the ability of people to choose and act. However, the above notion of invention, whereby an actor creates something from nothing by a process removed from context, is similarly problematic. As Derrida notes,

Invention in this sense is in fact impossible, since to truly invent one would have to reinvent invention from a different episteme, an episteme that does not as yet exist. And this reinvention, because it is a reinvention, would ultimately have to be predicated on the original episteme, thus rendering it no more status than a repetition of re-figuration (Derrida, 1989).

Desai (1993), whilst acknowledging the problems highlighted by Derrida, suggests that there remains much to be learned from studying invention and discovery as discourses. He suggests that invention is at once a process of 'faking' and of 'making'. It is faking in the sense that, as the above issues with traditional definitions of invention suggest, stories of invention are the result of a fictionalization process. It is making in the sense that these stories allow people to, in Desai's words, "gain a certain degree of understanding, perhaps also control over their own lives and over society" (p. 122). For Desai, invention and discovery are discursive processes. Once a narrative is established, the discourse surrounding it begins to "take on a life of its own" (p. 130), going through numerous revisions and articulations that contribute to its re-substantiation.

The narratives I will be discussing are diverse in their treatment of invention and discovery. There are, however, some features that appear to cut across all of them. The most universal of these features include the stating of a clear and precise point in time at which the invention or discovery occurred, the identification of actors and participants, and the existence of a clear rationale. Another prevalent theme is the suggestion that inventions and discoveries are the result of a moment of 'serendipity', or an unexpected, happy accident.

Serendipity: Theorising 'Happy Accidents'

Royston Roberts (1989) defines serendipity as "accidental discoveries of things not sought for" (p. x). He contrasts this with "pseudo-serendipitous" events, which occur when "accidental ways to achieve an end sought for" are discovered (p. x). Much of the research surrounding serendipity attempts to codify and explain the processes that lead to scientific discoveries. Robert Merton has suggested that the methodologies and institutional structures of scientific research make it particularly suitable for unexpected and accidental discoveries. He cites the assertion that, "they [scientists] are found to explain how the absence of rigid control over the work that scientists do facilitates the discovery of important things by accident" (Merton & Barber, 2004, p. 144). That is to say, the autonomy allowed to scientists by academic institutions allows for flexibility in their work, thus they remain receptive to the occurrence of serendipitous events. These two properties - flexible methodologies, and the readiness of the researcher to identify serendipitous events when they occur, provides

a definitional framework for much of the literature devoted to identifying and cataloguing serendipitous discovery in the 20th century. Roberts (1989), for example, uses these them as a means for deciding whether or not to allow a number of scientific discovery stories ‘serendipity’ status or not. It is not until more recently that scholars have begun to question the fundamental principles of this notion of serendipity. There are at least three issues with the traditional, science-oriented understanding of serendipity.

1) *It assumes the passivity of the ‘discoverer’.* Many of the examples of serendipity presented by Roberts (1989) and Merton & Barber (2004) make certain assumptions about the role of both the ‘discoverer’ and that which is waiting to be ‘discovered’. In the words of Deegan & Fine,

The annals of scientific discovery do not merely imply that serendipity is an unusual happening, but that the scientist is 'prepared' to make sense of a truer picture of the world, creating a more precise model (2014, p. 2).

The implication of this is that a ‘real world’ exists separate to our interaction with it, and the role of the discoverer is reduced to that of passive observer, whose skill lies in interpreting clues and theorising pre-existing phenomena. In a contrast to this positivist understanding of serendipity, Deegan & Fine suggest that,

Serendipitous insight provides the opportunity for constructing a plausible story. We do not deny the reality of an external world, but only suggest that numerous possible explanations exist and that chance events can be made serendipitous if the event provides the opportunity for story building (2014, p. 5).

Thus it becomes useful to reconsider serendipity as a process of narrative construction, rather than an accurate representation of ‘truth’.

2) *It ignores the context of the ‘discovery’.* In addition to presenting the researcher as observer and interpreter of significant events, narratives of serendipity also tend to promote a model of innovation that emphasizes individual achievement. Such a conception marginalises the importance of social and historical context in ‘discovery’. In the academic sphere, this includes playing down the importance of previous research, other researchers and support staff, and the presence of existing research facilities and organisations that are built on previous achievement. This marginalisation

process is contradictory, because if an individual is to successfully interpret an event as meaningful, then she or he must have sufficient prior training to successfully identify it as something significant. In the scientific domain, this means being exposed to the relevant literature, suggesting that it is impossible to completely negate the role of context. This process of individualisation has obvious motivations for the one who is credited with the discovery, but this does not explain the reason why such narratives are constructed or reciprocated by other parties, a phenomenon that, as I will demonstrate, also appears in written discourse relating to the electric guitar.

3) *It prioritises discrete historical moments.* The science-oriented concept of serendipity assumes that history can be reduced to discrete temporal instances of disproportionate importance. This is related to the previous issue, in that it precludes past and future contexts, but operates on a more abstract philosophical plane. If we are to reconceptualise serendipity as being the result of an active process of narrative construction, as suggested by Deegan & Fine (2014), then we must also re-evaluate the historically disconnected status of many of its examples. Take for example, the discovery of penicillin. Roberts (1989) focuses almost exclusively on the instant at which Alexander Fleming was supposed to have achieved serendipity, in some kind of transcendent, ‘eureka’ moment. However, even if we take for granted that Fleming’s epiphany did in fact occur in a single instant, it must still be considered with respect to previous developments in biological research and historical reports of the use of mould and fungus to treat infection, as well as Fleming’s subsequent work in developing his theories, and work with other researchers to create a mass-produced antibiotic.

Keeping in mind these problems, it seems sensible to cautiously approach tales of serendipitous invention, discovery and the electric guitar. Rather than accept such narratives without question, it is necessary to consider a number of things, such as the role and agency of the guitarist and the community they are a part of, the social and institutional context of the discovery, and finally, the historical development of the narrative, both in terms of the individual and wider cultural setting.

Cultural Invention and Myth Making

Given the fluidity of invention and discovery narratives, it is possible to understand them as a form of myth or cultural invention. Anthropological research describes a

process called ‘cultural invention’, whereby a particular, non-physical element is integrated into culture. Furthermore, the narrative surrounding this element is integrated and becomes a part of cultural history. Many scholars have focused on the construction of myths and narratives of invention and discovery, and how these active processes shed light on the meaning and value of different cultural elements in different cultures and locations. John Day (1975), for example, analyses political myths in South Rhodesia, and suggests that both the indigenous colonialist parties actively promoted information that over-stated their respective positions of power. The effect of this was to simultaneously undermine the opposition, increase morale within their respective parties, and also to improve public image to neutrals. Such thinking is equally applicable to musical communities, including those of the electric guitar, which are inherently political. Within the written discourse I have examined for example, there is a general belief that the more proficient a musician you are, the more likely you are to be successful. This notion is contradicted by the long list of musicians and guitarists who appear to have achieved success instantly, and without the necessary struggle. The plight of electric guitarists is reconciled by the belief that the success of others is momentary, and that these ‘overnight’ stars will have faded before long. Hard working, sacrificial guitarists, meanwhile, will have more consistent, long-term and lasting success.

Hanson (1989), who studies the Maori tradition, provides an invaluable framework for the discussion of cultural invention. His method involves falsifying a number of traditional Maori stories, using historical sources to show that they were mostly constructed by western anthropologists. He then goes on to show how these have since been re-appropriated and re-affirmed by Maori scholars and students of Maori history. Hanson uses this example to develop a theory of cultural invention that emphasizes construction. He states,

Anthropologists and historians have become acutely aware in recent years that 'culture' and 'tradition' are anything but stable realities handed down intact from generation to generation. Tradition is now understood quite literally to be an invention designed to serve contemporary purposes (1989, p.890).

Hanson’s point reflects that of Handler, in that culture and society are effectively composites of inventions (2002, p. 31), by suggesting that anthropologists should not

concern themselves with determining whether or not a cultural invention is authentic, but rather, “to understand the process by which they acquire authenticity” (Hanson, 1989, p. 898). More recently, Chernyshova (2004) has suggested that myth is closely linked to knowledge, in that myth arises when there is not enough information to provide a full picture of the world. People will supplement this information with analogies to that which they do understand, and thus the myth making process is enacted. She suggests that,

Above all, exact knowledge, after it ceases to be the property only of specialists, loses its right to be called exact; it has become approximate knowledge, belief, since its holder is able neither to prove it, nor to provide rationale for it (Chernyshova, 2004, p. 352).

Advancing this proposal, I would contend that even within the realm of specialists, knowledge is never exact. It is always based on a number of assumptions, however small and seemingly insignificant. An observation of historical progress in the sciences, for example, shows us that our knowledge is fluid: ever changing, and evolving. What we believed to be fact one hundred years ago, we now know to be incomplete. Thus, even specialists are involved in the myth making process, as, in addition to resolving their own epistemological deficiencies, they must authenticate their work in the eyes of the wider community. Overall however, Chernyshova’s (2004) point is highly relevant to this chapter, as are those of Hanson (1989). As I will demonstrate, many of the discourses examined in this chapter develop over time, and as such it is necessary to conceptualise them as a product of narrative construction. Furthermore, the richness and complexity of the narratives I consider has arguably lead to the development of myths that serve to reconcile knowledge deficiencies.

Understanding Musical Creativity

Given the reflexive and constructed nature of the narratives discussed in this chapter, it is possible to examine them with respect to research surrounding invention, discovery and serendipity, and that of cultural invention and myth making. However, before I do this, it is also necessary to assess what treatment these concepts have received in musical scholarship. Invention and discovery in music are more often

recognised under the umbrella of ‘creativity’, a concept that has been subjected to a great deal of academic scrutiny.

Throughout the history of music scholarship, a great deal of attention has been given to understanding the primary product of the creative process, the musical work. Cook suggests that nineteenth century scholarship, exemplified by Heinrich Schenker, cemented the concept of the musical work as the product of its creator, and more specifically, as an “expression of creative mastery” (Cook, 2006, p. 14). The analytical imperative was thus to prepare the listener for experiencing music as such. Subsequent developments in musicology only served to reinforce these notions, prioritising form and structure over aesthetics (Cook, 2006). Furthermore, both music and music scholarship were primarily the domain of a western patriarchy, and thus even a contemporary understanding of composition is rooted in ethnocentric, masculine notions of creativity, authorship and power (Citron, 1993). From a more sociological perspective, Frith (2011) argues that social institutions bind our understanding of creativity, and that the creative process is inherently hierarchical and serves to give people a particular social status (p. 62).

Other writers have focussed their attention on the process of composition. For example, working within the field of music psychology, John Sloboda (1985) observes there is significant uncertainty and ephemerality in composition, but like Deegan and Fine (2014), he rejects the idea of instantaneity, and that of the ‘great’ composers acting as conduits for a pre-existing work. He suggests that the problem with conceptualising composition, and likely the reason why it is so often attributed to a serendipitous flash, is because,

The thought processes preceding 'inspiration' are often diffuse, unplanned and undirected, and may be interspersed with other cognitive tasks, which form the prime focus of attention (Sloboda, 1985, p. 122).

This quote provides a helpful mechanism for understanding musical composition. However, within the context of this thesis, its exclusive application would be problematic, as there would be a risk of remaining ignorant to the unique social and historical contexts of acts of invention and discovery, and the impact of cultural difference. Similar criticisms of music psychology are levelled by sociologist David Hesmondhalgh, who suggests that the focus of music psychology on the individual

has the potential to minimise the impact of social dynamics, and that the field has historically under developed an account of the aesthetic elements of musical experience (Hesmondhalgh, 2013, pp. 40-41). The interplay between the individual and the social, and the impact of both social structure and individual cognitive processes are things that I will need to be wary of throughout the course of this chapter in particular, but also the thesis as a whole.

Moving forward, there are clear similarities between the literature I have examined so far and the narratives of invention and discovery in electric guitar history that are the focus of this chapter. Take, for example, Steve Waksman's documentation of a number of instances of musical invention that have been attributed to serendipity (Waksman, 1999). In the 1950s, there were reports of several concurrent 'accidents' that led to the adoption of amplifier distortion by guitarists as a legitimate timbre. One example is that of the guitarist for the Rocket 88's, whose amplifier fell off the roof of the band's car whilst on the way to a show. This dislodged one of the vacuum tubes, which created a distorted effect when it was turned on. Supposedly, the band liked the sound, so kept the amp the way it was, and incorporated it into their aesthetic. This narrative is satisfying, because it provides a plausible explanation for what, at the time, was an extremely unusual occurrence. However, there are a great number of other factors that may have affected the discovery process. Particularly relevant is the band's development of an aesthetic proclivity for timbral distortion, and the musical context required for the development of such a preference. Furthermore, there are a number of equally plausible, yet directly competing narratives.

Fan Myths

Musical myths have also been examined within the emerging field of fan studies. A significant reason for this association is that many musical myths are created and reproduced by fans. Peter Beate (2014) suggests that in the case of music, it may be time to move away from capital and class-based analysis of culture, and towards those that consider, "fan communities as entities with their own internal structures and logics, entities that cannot easily be framed by traditional theoretical dichotomies" (p. 40). He builds on Joseph Campbell's model of myth, which sees it as a concept that functions as a guide for life. Beate applies this theory to fan cultures, by suggesting,

His [Campbell's] ideas can be applied to extend fan immersion as a conceptual framework, helping us to understand each fan's journey as part of both universal and individual experience... a mythology that incorporates the individual's personal experience can include the renewal and personalization of wider traditions. As a result, creative mythology combines both the universality of myth and the personal interpretations of life experience (pp. 48-50).

Tony Whyton (2014) presents a more empirical study of the myths surrounding jazz musician John Coltrane. Specifically, he considers the emergence of two narrative themes, Coltrane as the unmediated artist, even in situations where mediation did occur, and Coltrane as a medium, or “a spiritual being who is enlightened through transcendent experiences” (p. 105). The motivation of such representations is that it allows Coltrane to be detached from popular culture, and contemporary notions of celebrity. Since Coltrane's death, this image has been steadily reified, both by his fans and other musicians (who may be one and the same). Whyton concludes by suggesting that,

By buying into and perpetuating the romanticized narratives associated with Coltrane, these musicians inadvertently normalise myth making and transform certain attitudes into everyday occurrences (2014, p. 112).

The reification process described here is of central concern in this chapter. With the exception of Waksman however, this concept and the others I have described, including serendipity, cultural invention and myth making, have received little attention with respect to the electric guitar. I hope that in this chapter I am able to at least begin to rectify this, as proper treatment will facilitate a greater understanding of meaning, power, identity with respect to the instrument. As mentioned, I consider three electric guitar phenomena in this chapter, the power chord, the wah-wah pedal, and finger tapping.

Finally, a methodological issue that had to be overcome in writing this chapter was that of the presentation and representation of each narrative. I thought it important, both functionally and rhetorically, that the reader has a brief contextual understanding of the narrative before engaging with my analysis. To do this, however, it would be necessary to ‘step inside’ the discourse, and shape it for my own means, which could have consequences for my objectivity as a researcher. The most effective solution

was to ‘construct’ my own narrative, writing from my own accumulated knowledge whilst impressing upon the reader that it is intended as a contextual aid rather than a representation of discursive truth. To this end, there are a few short paragraphs at the beginning of each section of this chapter, shaded in grey, within which I outline a brief account of each narrative. These accounts are derived from my own synthesis of contemporary and historical media sources.

2.2 The Power Chord: Link Wray and ‘Rumble’

Rumble: A Flash from Jesus God

The following narrative outlines the invention of the power chord, as informed by the written electric guitar discourse I examined. I lay out the events in which 1950s guitarist Link Wray supposedly composed the first track to solely consist of power chords. The track would later contribute significantly to his reputation as the technique’s inventor.

In 1957, Link Wray and his Ray Men were backing popular vocal group The Diamonds at a high school dance in Fredericksburg, Virginia. The band was asked to play a stroll beat, a 6/8-dance form, as accompaniment to the Diamonds hit single, ‘The Stroll’. As the only member of the Ray Men who was not familiar with the stroll rhythm, Link decided to improvise. In a self-described flash of inspiration, Wray played a series of chords to which the audience was particularly receptive. The band played the track, which they hesitantly titled ‘Oddball’, four times that evening.

The main theme of ‘Rumble’, as heard on the recording, is constructed using two power chords, the second of which changes every bar to fit with an 11-½ bar blues pattern (The same as 12 bar blues, but with the last two beats omitted). The power chords fulfil a dual role, simultaneously constituting the melody line and filling out the timbral density of the track. In addition to the power chords, Wray interjects short, single-line motifs based around the E minor pentatonic scale. Throughout the song, a tremolo effect is added to the guitar part to a progressively greater degree. By the final 11-½ bar iteration, the tone is extremely saturated with this effect, resulting in a chaotic and unstable sound.

Having completed recording, the track was sent to Archie Bleyer of Cadence Records. Bleyer was unconvinced by the heavily distorted sound, but his daughter was much more enthusiastic, persuading him to release the track. She gave it the name 'Rumble', reportedly because it reminded her of the street fighting in West Side Story. Rumble reached number 16 in the US charts, selling over 1 million copies in 14 weeks. The track was banned on several radio networks, because the word 'rumble' originally referred to gang fighting, and there was concern the track would promote youth violence.

The story of 'Rumble' contained a number of themes that make it highly interesting in terms of serendipity, myth making and cultural invention. I will deal with these each in the coming pages, considering Wray's spirituality, the importance of distortion and timbre to 'Rumble', and the reception of the track.

Link Wray's Divine Inspiration and the Composition of 'Rumble'

Wray has mentioned the importance of his spirituality in a number of interviews. It is a theme that cuts across his musical life, and, as I will demonstrate, operates as a means for him to make sense of his world. Wray was of Shawnee descent, and possessed deep spirituality, which he attributed to his mother (Tobler, 1971). In an extended interview with Steve Roeser, Wray states,

I'm pretty spiritual...I'm not religious but I'm very spiritual. And, as far as I'm concerned, god gave me rock 'n' roll; he gave me my music (Roeser, 1997).

This quote hints at a significant conceptualisation for Wray, which can also be observed in the following quote from Robert Rodriguez describing the track's inception, namely the influence of God in the creation of 'Rumble'.

Wray, in a flash of inspiration he later described as a 'zap from Jesus God', began striking a series of chords that mesmerised the assembled masses. The group would end the evening having performed what it dubbed 'Oddball' four times (Rodriguez, 2006).

He repeatedly downplays any personal agency in the composition of the track, attributing it exclusively to 'divine' inspiration. Take, for example, Wray's explanation of composition of 'Rumble' in the same interview with Steve Roeser.

Milt Grant got up on stage and said play a stroll, and I said I don't know a stroll, my brother Doug said 'I know a beat to a stroll', and he started to play the rumble beat, and God zapped 'Rumble' right in my head, and I started playing 'Rumble' (Roeser, 1997).

Here we can see that, in addition to the spiritual references, Wray considered the event to have been effectively immediate. In this portrayal, he suggests that in an instant, he knew what to play, and with, "I started playing Rumble", he implies that he did not even have to rehearse the song, however briefly, before playing it for the audience. I would argue that this statement is in agreement with Sloboda's (1985) discussion of artists' conceptions of their own creativity, and the difficulty that artists face in singularly conceptualising such a diffuse and complex process.

There are several interesting features of Wray's narrative and spiritual references, the most obvious being the lack of recognition for environmental influences. For example, in an interview with John Bentham, Wray notes a number of influences, including musicians he enjoys listening to, and those he has played with, including Tex Ritter, Sunset Carson and Hank Williams. He also mentions rock 'n' roll players such as Curtis Gordon, and even Elvis Presley. These players and their contemporaries are commonly understood as responsible for the development of rock 'n' roll, and its prominently guitar based, contemporaneously antagonist aesthetic. Thus it becomes clear the Link Wray, and by association 'Rumble', did not truly exist in isolation, they were both a product of the musical and cultural contexts that they inhabited. Additionally, Rumble was structured as an 11-½ bar blues, which is easily traceable to the 12 bar form that is so essential in a huge range of global popular music. The 12 bar form existed well prior to the conception of Rumble in 1957, further indicating the importance of historical musical contexts in its composition.

However, the discourse has developed in such a way that there is very little that contradicts Wray. It seems likely that an array of processes is operating in combination, which allow for the reinforcement of Wray's narrative. For example, there is little documented evidence that contradicts Wray, which may be because of a lack of media access, but could also stem from a lack of motivation on the behalf of anybody who disagrees with his narrative. Moreover, it seems likely that Wray's

portrayal is the result of both historic and contemporaneous industry marketing strategies, and the reinforcement of Wray as a rebellious, controversial figure.

What the absence of contradiction does indicate, however, is the extent to which the version of events discussed above has become embedded within written electric guitar discourse. To understand its meaning with respect to the electric guitar, it is therefore necessary to understand Wray's motivations for constructing his narrative in the way he did, and the effects of its translation into broader discourse. Firstly, I would suggest that Wray uses this narrative to make sense of the cognitive process of musical composition, which can often seem closed to introspection. That is to say, there are often moments when, as musicians, things happen that we are unable to explain. For example, and this seems to be the case with 'Rumble', a particular figure is played that seems to instantly 'fit', yet its origin remains elusive even to the composer. In all likelihood, such events are the result of sub-conscious processes related to both personal history and social context, a full understanding and explanation of which is often beyond the remit of musicians. However, as Chernyshova (2004) suggests, it is important for musicians to present themselves as understanding of their creations in order to authenticate themselves in the wider community. In the case of Rumble, Wray undertakes this process of rationalization by attributing his creativity to a transcendent spiritual being.

Additionally, this process allows Wray to combine his understanding of spirituality with his success as a musician. Wray believed that it was within 'god's' power to give and take away things from him. Take, for example, the following quote.

I said, "Oliver [his son], I was sick and the Devil tried to kill me in the death-house and tried to destroy me and the doctors took out my lung, and then God took me out of that death house and gave me 'Rumble'". I said, "don't you think god loves rock 'n' roll?" He said, "oh yeh, god loves rock 'n' roll, he gave you 'Rumble'" (Roeser, 1997).

By attributing the creation of 'Rumble' to a gift from god, Wray is able to reconcile his faith and belief in divine intervention with his skill as a musician, in a way that makes sense to him.

Distortion: Link Wray and Guitar Tone

Another theme contained within this narrative, and one that occurs regularly in within the written discourse I have examined, is the importance of timbre, or 'tone', and more specifically, distortion. A player's tone is often represented as the result of personal experimentation, and is considered to be an opportunity to exhibit one's individuality (Waksman, 1999). This process can be observed with respect to 'Rumble'. For example, in an interview, in response to the question, 'Did you invent fuzz-tone?', Wray replied,

I think I did, with the holes in speakers, right, because nobody thought of it. I was just trying to get a distortion, when I made Rumble up at Fredericksburg, Virginia in '57, I told you, you know. When Rumble... that night when I made Rumble, right, my brother Ray took the vocal mike and put it to my amplifier, and these little mikes were shaking all over, rattling all over because I had my guitar, my amp turned all the way up, to ten, you know? And when I went to the studio recording, it was too clean and I couldn't get that there distortion. And so I said I'll take the heads off the speakers, and I'll punch holes in the speakers and got the distortion. So I guess I did sorta like... invent the fuzz-tone, accidentally. Well, it was deliberately. I didn't know they were going to make the boxes, right. I sure didn't know, later on, they were gonna make the boxes, sorta thing (Roeser, 1997).

The most straightforward implication of this quote is the importance of distortion to 'Rumble'. It was so important to Wray; in fact, that he went to the lengths of modifying his equipment to reproduce on a recording, the tone created live by the volume induced microphone and amplifier distortion. Given their prominence, this act and the resulting recorded guitar timbre mean that 'Rumble' operates as an early example of the connection between power chords and distortion. As I will demonstrate below, the importance of 'Rumble' in this respect was then reinforced in a number of media sources.

Furthermore, this quote alludes once again to the themes of invention and serendipity that surround the 'Rumble' narrative. Take, for example, the phrase, 'so I guess I did sorta like... invent the fuzz-tone, accidentally. Well, it was deliberately' (Roeser, 1997). Here Wray reinforces the notion that 'Rumble', and the distorted timbre that is

inextricably linked with it, came as a result of an accident, or a moment of serendipity. However, he follows this assertion with a caveat, that following the initial accident, he then developed a means for controlling the distortion by way of modifying his amplifier. Such an act is a demonstration of the process by which a 'noise' begins to gain acceptance as a legitimate 'musical' technique, a process theorised by Attali (1985), and demonstrated in a number of other cases with respect to the electric guitar by Steve Waksman (1999).

Once again, there are a number of interesting issues created by Wray's self-attribution as the inventor of fuzz-tone. Timbral distortion existed well before 1957, both in American popular music and other, globally dispersed, styles (Berger & Fales, 2004, p. 183). However, it is difficult to judge whether Wray was aware of these prior inventions, and moreover, given the success and wide circulation of 'Rumble', it is possible that a large audience considered him the originator. Given the prominence of this strand within the 'Rumble' narrative, it is certainly worth unpacking the audience reception of the track in greater detail.

The Reception of 'Rumble'

Below are some examples of discourse that deal with Link Wray, the invention of the power chord, and his use of fuzz tone:

Back in the 50s...Wray was blowing up amps in a crazed pursuit of fuzz and sustain. In doing so, he conceived what became known as the power chord (Kitts & Tolinski, 2002).

Wray has been called both 'the grandfather of the power chord' and 'the father of heavy metal' (Helander, 1998).

Link Wray set a new standard for distortion in the new guitar lexicon, and invented power chords (Waksman, 2003a, p. 113).

The first two are from publications intended for guitarists and rock music enthusiasts, the magazine *Guitar World* and the book *The Rockin' '50s: The People Who Made the Music* respectively, while the third is from a chapter in *The Cambridge Companion to the Guitar*. Together, these three represent a small sample of contemporary discourse relating to 'Rumble'. The first two use more exaggerated language than the third,

such as ‘crazed pursuit of fuzz’, and ‘godfather of the power chord’, as well as explicitly masculine language such as ‘godfather’ and ‘father’. The effect of this is that it functions to reinforce the masculinity of Wray. However, despite the differences between these and the third, they all attribute the guitarist with the invention of the power chord, and, indirectly, the popularisation of distortion.

The above writing is understood as authentic in the sense that it appears in publications that have an amount of authority within the written discourse I have examined. Kitts & Tolinski (2002), for example, write on behalf of *Guitar World*, which has an enormous readership in the US, and has been published since 1980. Waksman (2003a), meanwhile, is published in a peer-reviewed academic text. Thus the notion that Wray invented the power chord, a claim that is empirically unsustainable, is reinforced. Texts like these are referenced and recycled, on fan forums and online encyclopaedias such as Wikipedia, to the point where they effectively become the truth. In addition, these notions have been reinforced by quotations from other prominent musicians, authoritative for other reasons, implicating Wray as influential to the own individual style. Take the example of Pete Townsend, guitarist for The Who, and a noted user of distorted power chords, who is reported to have said, “if it hadn’t been for Link Wray and ‘Rumble,’ I would never have picked up a guitar” (Rolling-Stone, 2011), or Jimmy Page of Led Zeppelin, who credits him as an important influence in the guitar documentary *It Might Get Loud* (Guggenheim, 2009). It not only becomes impossible to identify what is ‘true’ or ‘accurate’ in the story of Link Wray and ‘Rumble’, but more importantly, ‘truth’ and ‘accuracy’ in a positivist sense are irrelevant to the narrative. The narrative described above has been reinforced and reproduced to the point where it has become an accepted part of the discourse. In the coming pages, I examine both the wah-wah pedal and finger tapping, analysing the respective invention narratives with respect to the same theoretical framework. As I shall make clear, although there are many surface differences between the narratives, the fundamental issues are strikingly similar, and reveal crosscutting underlying processes of the construction of invention and discovery narratives throughout written electric guitar discourse.

2.3 The Wah-Wah Pedal: From Cost Cutter to Cultural Icon

Inventing the Wah-Wah Pedal

The prototype wah-wah pedal was developed in 1966. The Thomas Organ Company, owned by Vox, was in the process of bringing the popular ‘Vox Super Beatle’ amplifier to market in America, following the global success of the Beatles. The amplifier was notable for its ‘mid-range boost’ switch, but the company were keen to modify this relatively expensive component. Engineer Brad Plunkett was therefore tasked with developing a potentiometer based circuit that would reduce the production cost of the amplifier. After spending some time working on the circuit, Plunkett asked a fellow engineer to play the guitar whilst he manipulated the potentiometer, as a means for testing it.

Supposedly, Plunkett was immediately aware of the potential of the prototype wah-wah. However, the obvious problem was that a guitarist would be unable to use a hand-operated device whilst performing. The engineers decided to fit the circuit inside one of the company’s organ foot pedals. Initially, the president of the Thomas Organ thought the device would be most suitable for the Vox Ampliphonic horn orchestra, who all played through Vox amplifiers. However, guitarist Del Casher, who was employed by Vox to do equipment demonstrations and play in the Ampliphonic orchestra, but also a successful composer and performer in his own right, requested that he be allowed to make a record with the pedal, as he was adamant it was more suitable for a guitar.

It is likely that Casher was the first guitarist to ever record with the wah-wah pedal, releasing a demo record for Vox in February 1967. Casher was successful in his campaign, and Vox began to market the wah-wah towards both guitarists and horn players. They released two products simultaneously, the ‘Vox Wah-Wah’ and the ‘Clyde McCoy Cry Baby’. The latter carried the name of trumpet player Clyde McCoy, who was famous for his use of a Harmon mute to create a wah-wah sound with his trumpet. However, the products used identical components and circuitry. Vox applied for a patent for their “foot controlled continuously variable preference circuit for musical instruments” (Gordon, 2013), but it was three years before this was granted. In this time, many copies and counterfeit versions of the two models emerged. By the time the patent was granted, it was extremely difficult to enforce.

After the release of Casher's wah-wah demo recording, it is difficult to determine an order of use for the wah-wah among electric guitarists. Some notable users, however, include Eric Clapton on the track 'Tales of Brave Ulysses', Jimi Hendrix on 'Voodoo Chile', and others including Frank Zappa, Earl Hooker, Jimmy Page and Jeff Beck (Boloian & Tosi, 2011). One commentator observed that the older guitarists at the time were somewhat sceptical of the wah-wah pedal, whereas many of the younger players, such as those mentioned above, were much more accepting of its potential (Boloian & Tosi, 2011). Thus, from the outset there was an association between this new technology and youth, in a similar way to 'Rumble', whose distorted power chords were thought to have the potential to promote youth violence.

Wah-Wah Gatekeeping

In a similar way to 'Rumble', media accounts of the wah-wah, which are outlined throughout this section, identify it with a discrete point of invention. Roberts' (1989) definition of serendipity requires the 'accidental' discovery of something not sought for, and I would suggest that the wah-wah narrative certainly meets these criteria. Within written wah-wah discourse, there is a suggestion that the pedal was immediately accepted by the crowd of engineers who surrounded Plunkett's workspace to see what he had invented. They were sure that he had created something of value, but in Plunkett's words, "they didn't know quite how big it was going to be" (Boloian & Tosi, 2011). Another similarity with 'Rumble' is the existence of a powerful gatekeeper, who had the potential to 'make' or 'break' the success of the cultural product in question. In the case of 'Rumble' this was A&R man Archie Bleyer, whilst for the wah-wah pedal it was the head of Thomas Organ, Joe Beneran. In both cases, accounts comprise a discourse whereby an 'enlightened' person must persuade the gatekeeper to allow the product through. This is portrayed as a pivotal moment, the implication being that these were only points at which failure could have occurred. The obvious problem with such thinking is that guaranteed success only exists in hindsight. In the case of the wah-wah, knowledge gained from experience is conflated with certainty and determination in the original instance. The effect is that the proponent of the wah-wah, Brad Plunkett, is portrayed as a visionary; authentic and in control. Such a process contributes to the rationalisation, and more importantly, explanation of a process that is the result of a complex interaction between a wide range of factors and people.

(Re) Inventing the Wah-Wah Pedal

There are a number of issues with the identification of a discrete point of invention for the wah-wah pedal. The narrative I have identified as dominant suggests that it was invented in 1966, and minimises the importance of any prior influences. It is reasonable to assume that the specific combination of technical components that constituted the 1966 wah-wah prototype was novel. Such assumptions, however, shed light on the nature of ‘invention’ and ‘originality’ within the written discourse, because the assumption that something is original is not proof of its originality. Plunkett, his colleagues, and the dominant electric guitar historical narrative have all legitimised the claim that the wah-wah prototype was the first of its kind, and yet there is no indication to suggest that research was initially conducted to determine the accuracy of this claim. Eventually, the design was granted a patent from the US Patent Office, but this only applied to North America. Thus, while a similar, or hypothetically identical design could have existed somewhere in the rest of world prior to Plunkett’s prototype, it was implicitly understood as being irrelevant to any claim of originality.

To suggest that the wah-wah sound, irrespective of how it was produced, was completely original is a much less reasonable, and, I would suggest, an empirically false claim. There are three notable prior examples of musicians producing a wah-wah sound by different means. Chet Atkins and Big Jim Sullivan were both popular guitar players, who would use the volume and tone controls on their guitars, rotating them quickly to create a wah-wah effect. The third example, and there could be many more, is Clyde McCoy, a trumpet player who would create a wah-wah effect by using a Harmon mute on his trumpet, such as on the track ‘Sugar Blues’ (1931).

A complete claim to either sonic or technical originality for the wah-wah pedal is thus problematic. That it has been made, accepted, and repeated within the written discourse tells us that the original narrative had credibility: its actors had expertise as both musicians and engineers, and therefore were accepted as authentic and believable. Moreover, the invention narrative of the wah-wah is framed within the structures of the Thomas Organ Company and Vox, both of whom were powerful corporate entities with lawyers, large advertising budgets and no small amount of cultural power. The narrative of ‘invention’ would, in much the same way as

'Rumble', have been difficult to contradict. However, as I shall demonstrate in the following section, that is not to say there was complete agreement among all parties.

Casher vs. Plunkett

An interesting feature of this narrative is the occurrence of an implicit element of competition between two of the parties involved in the initial development of the wah-wah pedal, namely Brad Plunkett and Del Casher. Each has a different role in the narrative. Plunkett's expertise was in electronics, and while he was supposedly able to make the connection to the guitar initially, as evidenced by his choice of the guitar when testing the circuit, this is essentially the limit of his input. Casher, meanwhile, was responsible for introducing a guitar style that utilised the new product, effectively paving the way for contemporary wah-wah technique.

This division seems to be quite clear. However, the 'competitive' element of the relationship relates to identifying which part of the inventive process is more important. Take, for example, the following two quotes from the 2011 documentary, *Cry Baby: The Pedal that Rocked the World*.

I'm so pleased to be the pioneer of seeing the vision, and hearing the vision. That's why I made the record. And it still sounds good to me today, and I'll let you be the judge, but I think it's pretty good – Del Casher (Boloian & Tosi, 2011).

So I went next door and I asked a friend of mine, John Glennan if he would plug his guitar into the pile of wires and resistors and capacitors that I had on the bench. He strummed a couple of chords and I turned the knob on the potentiometer and it went 'whack whack whack', and we looked at each other, and I won't tell you exactly the words that we said, but we said wow, this is really great – Brad Plunkett (Boloian & Tosi, 2011).

This occurs not just in first person discourse examples, but also on a wider level, as other participants in the discourse provide support to either party. For example,

And what Plunkett did was come up with a circuit that would, basically it was just a sweepable EQ, and it just took one pot to do it, and it was brilliant – Art Thompson (Boloian & Tosi, 2011).

As I have stated, this argument is implicit. There is no real evidence to suggest that either Casher or Plunkett were directly competing with one another. However, I would suggest that the examples shown above reflect a much wider social and cultural tension surrounding the power and agency of technology. They present the wah-wah as both an agential technological object, and as a composite construction of the various uses guitarists put it to. Indeed, the documentary that these quotes are taken from is entitled *Cry Baby: The Pedal That Rocked the World* (Boloian & Tosi, 2011). Such examples of implicit technological determinism are common in the written discourse I present in this thesis. In the case of the wah-wah pedal, these tensions are never really reconciled. Rather, this multi-faceted portrayal of the wah-wah as both a tool and an actor in its own right underpins much of the more contemporary wah-wah discourse. I shall return to this subject throughout the thesis, with respect to both the wah-wah and other forms of guitar technology.

Wacka-Wacka: 'Theme from Shaft'

The following section explores a separate narrative relating to the composition of 'Theme from Shaft' by Isaac Hayes, and Charles Pitts' use of the wah-wah pedal on the track. The narrative contains many of the same themes as that of Del Casher and Brad Plunkett, and thus allows for a straightforward comparison. However, the cultural context of both 'Theme from Shaft' and Pitts' use of the wah-wah is very different. The track served as the title music for *Shaft* (1971), the first film of the Blaxploitation genre, and was therefore inherently linked with the pursuit of black rights in America during a time of great civil unrest. Furthermore, the aesthetic use of the wah-wah by Pitts was very different to that of the Casher inspired rock tradition.

Hayes had been commissioned to write the music for Blaxploitation film *Shaft*, and was in the studio with Pitts and the other members of his band. Hayes was trying to write for the scene where Shaft walks out of the subway, which was to be used for the opening credits. The band was warming up at the beginning of the session. Drummer Willie Hall was playing a 16th note hi-hat pattern whilst Hayes was playing the piano. Pitts began to check the pedals on his pedal board one-by one. When he reached the wah, he began to play a static chord with a repetitive strumming pattern, whilst rocking the pedal up and down. Hayes heard this, and asked him to continue, whilst he worked out some chords on the piano. When Hayes changed chord, Pitts moved

with him. Hayes, however, asked him to remain on the same, static chord throughout. This arrangement formed the foundation for 'Theme from Shaft', which went on to be both the musical theme for a hugely successful film, and a celebrated track in its own right. Moreover, Pitts was responsible for the development of a 'wacka-wacka' style of wah-wah pedal playing, which would be influential in funk, soul and disco styles in the 1970s and 1980s.

The most glaring similarity between this narrative and that of the more general wah-wah pedal invention is the occurrence of 'serendipity'. The implication is that the composition of 'Theme from Shaft' came as the result of an accident, whereby Pitts played something inadvertently, and Hayes identified it as being significant.

The question then, is who is responsible for the 'invention' of the electric guitar part in the Shaft theme. Is it Pitts, who was responsible for the initial physical and musical action, without whom perhaps the figure would ever have been played, or is it Hayes, who had the 'vision' to take the figure and make it an integral part of the Shaft theme, thus allowing the popularisation of that particular variation of wah-wah technique? Once again, the discourse is unclear, and the respective importance of each party is emphasised or minimised depending on whose voice is considered. Furthermore, and unlike the first wah-wah narrative considered, there are inconsistencies between the different accounts that contradict with one another. For example, Hayes states in an interview that,

Before I even presented it to Skip [Pitts], the guitar player, I had the wah-wah in mind. I always had a fascination with the wah-wah. I tried early on to put it on a tune that David Porter and I produced, so I liked the way it sounded, and of course, I'd heard Hendrix use it. When Skip played, I got on my knees and worked the wah-wah pedal with my hands then he got the feel and took over from there (DeMain, 2003).

Pitts' version, meanwhile, is more consistent with the narrative presented on the previous page. He suggests,

Isaac was at the piano, trying to create something. Me, I tuned my guitar up, ok, and then I was checking my pedals out. So when it got the fuzz I played, you know, whatever I played, got to the echo and played some stuff. Then I got to

the wah-wah, and I played (*sings rhythm*). He said, ‘what are you doing?’, and I said, ‘I’m just tuning up!’ And he said, ‘keep playing that, keep playing that riff’. So, we worked on it, and when he changed, I changed and went to his key, to play the same rhythm, and he said ‘no, stay on your G, whatever I do. Don’t think about me’ (Boloian & Tosi, 2011).

There is a certain amount of self-interest from each voice in these examples. Each musician is concerned with impressing his own authorship into the narrative. There are numerous possible motivations for such attempts, including the pursuit of musical credibility and authenticity, as well as popular, critical and financial recognition. There is little agreement in the discourse, and while Hayes is most often associated with ‘Theme from Shaft’, as he is the documented composer, Pitts was often credited as the inventor of the ‘wacka-wacka’ wah-wah style found on the track, notably in the newspaper obituaries published after his death in 2012 (see Perrone, 2012).

There are a number of thematic parallels between the initial invention of the wah-wah and the narrative surrounding ‘Theme from Shaft’. Most obvious is the identification of a discrete point of origin, and an element of ambiguity surrounding the ownership of the act of invention. Furthermore, there are a number of similarities between these themes and those of ‘Rumble’. In the coming section, I will consider a number of separate and competing ‘finger-tapping’ narratives, analysing the themes contained within these, before, in the final section, comparing all the narratives covered in this chapter in more detail. The ‘Theme from Shaft’ also represents a useful lens through which to view the wah-wah pedal, not least because of its connections to issues of race in 1970s America. As such, I shall return to it in Chapter 3.

2.4 Finger Tapping: Narrative Inconsistencies and Invention Claims

The final electric guitar phenomenon I consider in this chapter is ‘finger tapping’. In the case of the power chord and the wah-wah pedal, there were clear, dominant narratives within the discourse that lent themselves well to analysis. However, in the case of finger tapping, there is much less clarity. There are at least four different claims to the invention of finger tapping, plus reference to a number of others, all from different historical periods. The lack of unity within the finger tapping discourse is significant, and is therefore something I also consider. Given this range

of competing accounts I consider each invention narrative in turn, and in chronological order.

Roy Smeck: Wizard of the strings

Roy Smeck (1900-1994) was an American vaudeville musician. From a young age, he began learning a variety of string instruments, including banjo, lap steel guitar, guitar, and the ukulele. Smeck was noted for his theatrical, virtuosic performance style: he would often incorporate unusual instrumental technique into the pieces he played. This earned him the nickname ‘Wizard of the Strings’. Smeck was extremely successful on the 1920s and 1930s, touring the vaudeville circuit and earning a respectable living. In addition, he gave lessons over the radio, and was an endorsee of Gibson and Harmony guitars and ukuleles.

I discovered Roy Smeck whilst searching for video examples of finger tapping on YouTube. The video in question was called *Roy Smeck*, and carried the description ‘Eddie Van Halen Training Video’⁵. It depicts Smeck playing in a scene from the 1932 film, *That Goes Double*. He plays an arrangement of Anton Rubenstein’s ‘Melody in F’ (1852) for solo ukulele. The initial performance is certainly impressive, incorporating both complicated chordal strumming patterns and contrapuntal melodic playing. At 1:26 he lifts the ukulele upright, in the same way as a cello or double bass, and begins to tap the frets with his plucking hand whilst fretting different chord shapes with the other. The result is a technique that is clearly prototypical of contemporary electric guitar finger tapping, both in terms of the physical mechanics, but also of the showmanship and virtuosity exhibited.

In comparison to the electric guitar, contemporary ukulele discourse is somewhat more niche. However, there are a number of parallels between the two. This is most obvious in the claims to originality. The following is from Vincent Cortese, a personal friend and student of Smeck, and documenter of his life,

Regarding the tapping technique, I only saw Roy uke [sic] it on ‘Melody In F’ and his ‘Music Box Waltz’. He showed me how to do it after much cajoling and I

⁵ To watch the video entitled ‘Eddie Van Halen Training Video’, go to: <http://www.youtube.com/watch?v=RcQYt7xvA8M>.

have never seen anyone do it earlier than the 1932 film *That Goes Double* (Cortese, Personal Communication, May 21 2013).

This is framed within Smeck's propensity for technical and musical innovation. For example, he is suggested to have made a multi-track recording several years before Les Paul, who is commonly credited with inventing the technique (Cortese, 2004), by filming himself multiple times playing different instruments, and then playing them back simultaneously across a single screen. Also, take the following quote from *The Ukulele Handbook*,

The brilliantined [sic] Roy Smeck was a virtuoso ukulele and banjo player with a penchant for music-hall-style tricks. He was a showman who incorporated a range of bizarre antics into his act, including spinning the ukulele, using it as a percussion instrument, playing it upside down, blowing into it and throwing it in the air...You can see a few of his extraordinary performances on YouTube. He may come over today as a slightly silly novelty act, but his technical wizardry is undeniable (Pretor-Pitney & Hodgkinson, 2013, p. 32).

It is perhaps not extraordinary that Smeck's example presents the earliest, well-documented example of finger tapping, at least in the written discourse I have examined. In his early career, he was at the forefront of the emergence of video and audio recording in popular music. However, the identification of Smeck's use of finger tapping as original is not entirely without its problems. I am not trying to suggest that Cortese is necessarily incorrect, but in a similar way to the discourse relating to the wah-wah pedal, he bases the claim to originality on the assumption that there are no influential pre-existing phenomena to undermine it, both within the Ukulele discourse and from a broader, global perspective.⁶

The Chapman Stick: Emmett Chapman's Discovery of the Free Hands Method.

Emmett Chapman was a jazz guitarist during the early 1960s who found innovation particularly appealing, both in a musical and an engineering sense. He made numerous modifications to his instruments, adding extra frets and strings, and

⁶ For example, finger tapping can be identified in the performance practice of the Turkish bağlama or saz, a long-necked lute whose 'selpe' technique involves tapping with both hands on the fingerboard and dates back to the 13th Century (Morris, 2014). To view a demonstration of the 'selpe' technique, go to: <http://www.youtube.com/watch?v=SAy8gz-qcZk>. For more about the saz, see Stokes (1992) and Bates (2012).

experimented with different tunings. He has suggested that the aim of this was to allow for greater musical freedom, especially while improvising. In 1969, he made a 'discovery' that went a long way towards furthering that goal. Whilst practicing, he was inspired to reach over, and tap the fret board with his picking hand. Immediately, he realised the potential of this new technique, especially with respect to harmonic freedom. He spent much of the next 10 years developing his technique, whilst also modifying his guitars further until they took on an almost unrecognisable form. These modified instruments later turned into the 'Chapman Stick'.

This narrative is encapsulated well by the following quote,

It was 35 years ago, August 26, 1969 that Emmett Chapman first aligned both hands in fingering positions parallel to each other on his guitar neck, reached each hand around from opposite sides and tapped. An innocuous beginning. Merely a musician woodshedding by himself. Lost in the moment. Struck by a flash of creative energy. The moment could have been lost. Emmett could have said, "Hey that was cool," and gone back to picking and strumming, but he didn't (Reilly, 2004).

This quote comes from an article by Jim Reilly entitled, *Parallel Hands: Celebrating 25 Years of the Free Hands Two-Handed Tapping Method*. It can be found at Stick.com, a website owned and moderated by Stick Enterprises, a company that is owned by Chapman Stick designer and two-handed tapping innovator, Emmett Chapman. This quote forms the first paragraph of the article, and the meaning contained within creates a particular lens through which the reader interprets the remainder of the article. Reilly impresses a number of things upon the reader, suggesting that Chapman was alone, in 'a musician woodshedding by himself', and that his invention was the result of unconscious thought rather than deliberate action, in "Lost in the moment. Struck by a flash of creative energy". Finally, Reilly suggests that Chapman was agential in his identification of the potential of his discovery, in "Emmett could have said, "Hey that was cool", and gone back to picking and strumming, but he didn't".

Reilly goes on to describe the moment in more detail.

It really happened just that fast. In an instant and without knowing why, Emmett brought his right hand up from its normal position picking the strings and began to tap. In the next instant he shifted the nine-string guitar, which he built himself and continually modified, from horizontal to almost vertical. Perhaps if he hadn't done that, if he hadn't brought his guitar upright, more in line with the player, he wouldn't have realised the full potential of his surprise discovery (Reilly, 2004).

These words serve to generally reinforce the meanings identified above, but what is most interesting here is the importance placed on instantaneity. Phrases such as “it really happened just that fast” and “in the next instant” leave nothing implicit in Reilly’s allusions to serendipity. Moreover, the framing of Chapman as isolated and prodigious only serves to reinforce the common modernist invention narrative of the brilliant yet solitary male genius.

It would be simple enough to dismiss Reilly’s article as overzealous, concluding that he blurs the line between factual writing and fandom. However, if we turn to other discourse elements, including those written by Emmett Chapman himself, it becomes clear that Reilly’s is not an isolated example.

Take for example, the following quote:

Then, one evening in August, 1969, while practicing guitar in my Laurel Canyon Hills studio, a sudden impulse struck me from “out of the blue,” and I started to play the full two-handed technique. Realising the implications this would have for my music sent me leaping around the house in sheer delight (Chapman, 1987).

Here Chapman presents a similar narrative to that of Reilly, extending it by suggesting that his identification of the potential of this new discovery was instantaneous and “sent him leaping around the house in sheer delight”. This invention narrative is common in the written discourse presented in this thesis, containing many of the same themes as those surrounding the power chord and the wah-wah pedal. This narrative, however, appears to be particularly unified. The version presented by Reilly agrees almost entirely with Chapman’s, and a broader

look at the Chapman Stick discourse indicates that this unity occurs generally. It therefore becomes pertinent to ask why is the Emmett Chapman's invention narrative so uncontested? To answer this question, it is necessary to look at the wider context surrounding Emmett Chapman, his 'discovery', and the development of the Chapman Stick, an instrument specifically designed to exploit it.

The Chapman Stick is essentially a wider, longer guitar fret board without the body. The instrument can have between 8 and 14 strings, tuned anywhere from below the lowest string of a bass guitar up to, and above the highest string of an electric guitar. Rather than plucking the strings, the player stands with the instrument aligned vertically, and taps between the frets using both hands. This allows for complex chord voicings, and large intervallic leaps that would otherwise be physically impossible if playing an ordinary electric guitar if only one hand was used to fret the strings. Chapman calls the technique used to play the Chapman Stick the 'Free Hands Method'.

The construction and design of the modern Chapman Stick are the result of approximately 45 years of development on the part of Emmett Chapman and Stick Enterprises. Chapman initially began modifying conventional electric guitars, adding strings and experimenting with tuning in order to facilitate his playing as a jazz musician. Chapman has stated that, "As a musician, my goal has been to create a new musical language" (Chapman, 1987).

After the emergence of two-handed tapping, Chapman began to develop an instrument specifically to utilise the technique. The Chapman Stick is much wider than the neck of an ordinary guitar, to allow for the extra strings. There is also a distinct lack of a traditional guitar 'body'; the pickups are instead mounted on a section of the neck near one end that is lowered and without frets. In addition, the playing position is very different to that of a traditional electric guitar or bass. The instrument has a strap, attached at each end, which is worn over the shoulder of the left hand. The instrument is then aligned in an upright way, allowing each hand equal access to the fret board.⁷

⁷ To watch a demonstration of the free hands method, go to:
<http://www.youtube.com/watch?v=pgUDDxFgL7I>.

Emmett Chapman himself describes the Chapman Stick as,

A new musical instrument in the family of electric guitars and bass guitars. It's capable of full orchestral execution of a song, an improvisation or a basic musical idea. Melodies can be played expressively, using many finger effects. The bass line is driving and resonant and the chords are polyphonic and endlessly variable. The Stick can also produce sounds that are polyrhythmic, with counterpoint popping out of every section (Liebman, 2010).

This quote illustrates a number of attributes that Chapman considers to be valuable to the instrument, including the ability to play expressively, using 'finger effects', the ability to play both bass lines and 'endlessly variable' chords, and the ability to create counterpoint. All of this allows the Chapman Stick player to operate as an individual, whilst retaining the option to create 'orchestral' arrangements in much the same way as a pianist. Thus, the Chapman Stick player is not reliant on other musicians. This serves to reinforce the individualist narrative constructed by Emmett Chapman and other contributors to the Chapman Stick discourse.

Stick Enterprises, which is owned by Emmet Chapman and his wife Yuta, is the sole company responsible for the manufacturing of the Chapman Stick and Chapman's other commercial interests. In comparison to some of the flagship electric guitar manufacturers, such as Gibson and Fender, Stick Enterprises is a small company. Despite this, they have a monopoly on production of the Chapman Stick, as Emmett Chapman owns a patent to that effect (Stick-Enterprises, 2014). This has allowed Chapman Stick players to maintain a small community feel, with performance and design experts such as Chapman easily accessible to all.

Chapman has retained a large degree of control over his intellectual property, as well as the discourse that surrounds it, through use of fairly aggressive business tactics. For example, in 1995 Chapman filed suit against Warr Guitars, a competitor of Stick Enterprises who produce a similar, tapping-based instrument, claiming that the company were defiling Stick Enterprises through aggressive and unfair marketing techniques, and through trademark misappropriation (Stick-Enterprises, 2014b). It is, however, difficult to find specific details regarding the case; since it has been settled all information pertaining to the details has been removed from the Internet, and it

appears that online communities are not keen to discuss it, fearing that it may rekindle past grievances.

The small size of the Chapman Stick community, combined with the willingness of Emmett Chapman and Stick Enterprises to promote it, suggests to me a possible reason for the observable unity in the Chapman Stick invention narrative. It is in Emmett Chapman's interests, both financially and emotionally, for this narrative to remain dominant, and as such he actively seeks to retain control over it, publishing articles that reiterate his story, whilst providing a controlled forum for other articles and discussion at *www.stick.com*. Meanwhile, he is prepared to undertake legal action in the event that somebody seeks to contradict or undermine him.

Eddie Van Halen: Finger Tapping Enters the Arena

Looking closer to the present day, the discourse of invention surrounding finger tapping becomes less certain. Perhaps this is due to the proliferation of journalistic electric guitar publications, or because the myth making process has not had sufficient time to fully canonise the narratives. By far the most widely publicised finger tapping history, however, exists with respect to Edward Van Halen, lead guitarist for the 1970s and 80s rock band Van Halen.

'Eddie' was famous for his virtuosic technique, which included finger tapping, whammy bar effects, and advanced use of natural and artificial harmonics. The guitarist has suggested that his finger tapping technique was an extension of the fast legato playing of Jimmy Page. In terms of its application, much of Van Halen's compositional style is derived from his early classical training.

A great deal of Eddie Van Halen's acclaim is derived from his reputation as an innovator. Take, for example, this example of the ascription of innovation.

Van Halen forever changed the way the guitar and the game were played. Eddie Van Halen was the first innovator since Jimi Hendrix (or anyone in his pantheon) to redefine the parameters of his instrument. Eddie pretty much single-handedly invented the art of shredding with the blistering speed, two-handed tapping, and whammy-bar raising perfected on his home-made 'Frankenstrat', probably the most influential piece of literal wood-shedding in hard-rock history (Frost, 2007).

Whilst it is certainly wrapped up in journalistic hyperbole, such writing about Eddie Van Halen is not unusual. However, unlike previous invention narratives, this is presented with certain caveats. Take for example, the phrase ‘pretty much single-handedly’ and ‘probably the most influential’. Here the writer admits the limitations of her knowledge regarding originality, a position that was not found in previous narratives. This example also introduces another common theme found in Van Halen writing: the reference to Jimi Hendrix and the creation of a narrative whereby Eddie Van Halen takes on Hendrix’s mantle as prima-virtuoso and electric guitar innovator.

The difficulty in identifying a clear point of origin for finger tapping is explicitly articulated in the following quote and commentary from *Guitar World* magazine.

Guitar World: There’s a controversy brewing as to you or Eddie began playing hammer-ons [finger tapping] first.

Billy Sheehan: As far as I know, we actually began playing them around the same time. But we both came up with it on our own. And it’s by no means a new thing. I mean, in the 1700s, Paganini was playing hammer-ons on the violin. So to say who was first and who’s best doesn’t really matter (Lalaina, 2011).

Billy Sheehan is a contemporary of Eddie Van Halen’s, both as a musician of the 1980s, but also as an electric bass virtuoso and counterpart to Van Halen’s guitar playing. Moreover, he is an oft-lauded user of finger tapping on the bass, and is often identified as having first used the technique on the instrument. One would imagine that this would further complicate the invention narrative surrounding finger tapping. However, as evidenced in the above quote, a narrative device has been constructed to overcome this problem, and reframe the circumstances in which invention and innovation are attributed. That is, when Sheehan suggests that, “we both came up with it on our own”, he is prioritising the development of a technique in isolation over being the ‘original’ innovator. This position is reinforced by similar discourse examples:

“Together with his [Billy Sheehan’s] ability to play fiery two handed fretting moves - a technique Van Halen brought to national attention with his band’s debut album in 1978” (Lalaina, 2011).

“This guitar double DVD lesson shows you how you can develop the fleet-fingered brilliance of Eddie [Van Halen], the man who inspired a generation of two handed fret-tappers!” (Lick Library, 2010).

“Example 1 is the basic technique [finger tapping] as popularised by Edward Van Halen” (Marano, 2012).⁸

In these, Van Halen is represented as the ‘populariser’ of finger tapping, as opposed to the more problematic role of ‘inventor’. This allows the publications in question, all of which are either print or web-based guitar or music magazines, to construct a narrative around Edward Van Halen that portrays him as the most important figure in finger tapping. The net effect of this is essentially the same as if he were being cast as the inventor, however, as it undermines the role of any prior actors. This process is completed by the construction of a narrative of finger tapping whereby Eddie Van Halen represents the starting point, as evidenced by Sheehan’s above statement, “He deserves credit for shining a whole new light on the electric guitar” (Lalaina, 2011).

With respect to Sheehan’s statement above, one further point of interest is his decision to make reference to “Paganini[’s]... playing hammer-ons on the violin” (Lalaina, 2011). I have not been able to find any evidence that corroborates this statement, and indeed, it seems unlikely that Paganini would have needed to play hammer-ons given the facility of the violin to play such rapid legato notes using a slurred bow action. However, despite this probable inaccuracy, Sheehan’s statement still contains important discursive information. His choice of reference, Paganini, is telling, because it allows Sheehan to borrow from the violinist’s virtuosic prestige, and perceived musical legitimacy (see Walser, 1993, pp. 67-68). It also aligns both him and Eddie Van Halen with ‘high-art’ notions of classical music. This process has undoubtedly been effective, because I have found a number of online encyclopaedia entries, including Wikipedia, which have reproduced these claims.⁹ Thus we can observe a process by which finger-tapping’s claims to the prestige and authority of classical music have been cemented within written discourse, and have effectively come to be understood as fact.

⁸ For a further demonstration and discussion of finger tapping with Eddie Van Halen, see <https://www.youtube.com/watch?v=lrubgLS472U>.

⁹ For an example of such an article, go to: <http://en.wikipedia.org/wiki/tapping> (Accessed 22 May 2015).

Eddie Van Halen's Spirituality

It is worth paying attention to the Eddie Van Halen's portrayal as an all-round 'innovator', and the way in which he conceptualises his own originality. Similar to Link Wray, he often makes references to God and his own spirituality. For example, take the following quote.

Playing the guitar was my sanctuary... It still is. If there's something I can't deal with, I can just spend hours playing. It's a God-given gift; I certainly don't know where the ideas come from. They're obviously given to you, and you have to keep your fingers moving and your mind quiet. I try my best to not think about thinking, so I can just let it flow. Because when I start thinking, forget it (Garbarini, 1999).

There are a number of similarities between this statement and those of Link Wray in the earlier section. Most obviously is the presence of God in the narratives, to whom each musician has attributed their own creativity. In Van Halen's case, this quote suggests that such attribution is the result of both his faith, but also his inability to adequately theorise the mechanics of his own creativity. For example, while he admits, "I don't know where the ideas come from" (Garbarini, 1999), suggesting that he has at least pondered his own creativity, he also states that these things are "obviously given to you" (Garbarini, 1999), indicating that this is the conclusion he has reached automatically.

He develops this line of thought, suggesting that the most conducive action for a musician to take, in order to encourage creativity, is to remain passive, keeping "your fingers moving and your mind quiet", in order to let the information flow through you. Van Halen has made reference to this process in other places, suggesting for example that,

I thank God on my knees every night to be connected to He, She [sic], or whatever it is. I think that whatever God is, it's within everyone, in every molecule (Garbarini, 1998),

and

I just need the practice to become a good vehicle so I can get to the point where it's second nature, so I don't start to think too much and screw it up (Garbarini, 1998).

We can observe the presence of a spiritualist ideology in the above quotes. Furthermore, when Van Halen suggests, "when I start thinking, forget it", he makes reference to traditional blues naturalism, spontaneity and improvisation. Again, he makes reference to this elsewhere, such as when he suggested, "We really don't spend that much time executing songs [when recording], 'cause I really like freshness and spontaneity" (Zimmer, 1988).

Thus the narrative comes full circle, from allusions to classical music and creative rationalism, to spiritual and blues-based notions of creation. This contradiction is commonplace in the written discourse I have examined, and is something that I return to in Chapter 3.

Stanley Jordan: Finger Tapping and Jazz Discourses

Stanley Jordan was reportedly discovered busking on the streets of New York, and had spent much of his childhood and early adulthood preparing for life as a professional musician. He began learning the piano in early childhood, before switching to the guitar as a teenager. He received a BA in digital music composition from Princeton University in 1981 (Emory, 2013), before beginning a career as a performer. Despite being a rough contemporary of Edward Van Halen, Stanley Jordan has never enjoyed quite the same popularity or mainstream success. However, within a more niche genre, he has been similarly revered for his use of two-handed finger tapping. The narrative Jordan presents is primarily based on rational development and exploration, but much of the written discourse is more concerned with more notions of invention and discovery.

Take for example, this introduction to Stanley Jordan on the website, *Encyclopaedia for Jazz Musicians*,

Stanley Jordan is best known for inventing a pianistic, two-handed touch technique on the guitar. The enabled him to play bass lines, melody and

harmony simultaneously, which set him in a class by himself on the instrument. He applied his technique first to jazz and then to a wide range of other styles (Frost, 2007).

The similarities between Jordan's 'touch technique' and the 'free hands method' developed by Emmett Chapman are quite clear, allowing both to play in a 'pianistic' manner, incorporating contrapuntal bass and melody lines, and creating complex harmonies. The touch technique creates a particular array of opportunities for jazz guitarists such as Jordan. The guitarist has constructed his own narrative of invention, whereby the touch technique evolved as a natural extension of his previous piano training. Take, for example, this exchange between Jordan and columnist Ted Panken.

Panken: Can you talk about how you conceptualised the 'touch technique'? Were you trying to extrapolate your piano style onto the guitar?

Jordan: That was basically it. Having come from piano, I wanted to play more of a pianistic approach on the guitar. I was originally trying to create an electronic fingerboard instrument that would hook up to a synthesizer, but it would be a matrix of pushbuttons. That way you could play any combination of buttons, and you wouldn't be limited to one note per string... While I was learning about construction, I tried to see how closely I could approximate this concept on the guitar. You couldn't do more than one note per string, but you could still do independent hands. After about a week or two, I realised that doing this on guitar could be a complete technique in its own right, and it would have enormous possibilities. So I put down the electronic fingerboard idea, and I focused on developing it on guitar (Lalaina, 2011).

As with Van Halen, Jordan portrays his development of the touch technique much less in terms of serendipity, and more in terms of progressive and rational innovation. Although it is much more extended, he still refers to a period of 'enlightenment', when he says "after a week or two, I realised that doing this on the guitar could be a complete technique in its own right" (Lalaina, 2011). This statement has an important function, because it allows Jordan to ground his narrative at a specific period in time. In the same way as Link Wray and Brad Plunkett, this allows the guitarist to rationalise and make sense of his own creative process.

A further similarity between Jordan's narrative and that of Van Halen is the admission that their use of finger tapping is not without precedent. Take, for example, this extract from an article written by Jordan entitled *Getting Started with the Touch Technique*.

The 'touch', or two-handed tapping, technique can provide limitless possibilities for exploration on the guitar. The earliest documented guitarist using this approach was Jimmy Webster in the 1950s. It has now begun to enjoy considerable use among guitarists (Marano, 2012).

In a similar way to Billy Sheehan and Eddie Van Halen, Jordan makes concessions to historical examples of finger tapping, which marks a difference between these and the other narratives I have considered. In the above quote, Jordan makes reference to Jimmy Webster as one of the earliest proponents of tapping, with the caveat that he is merely the 'earliest documented' user.

As with Van Halen, other writers have overcome this rhetorical barrier by highlighting the difference between Jordan's approach to tapping and those who did it before him. Take for example, this excerpt from the online encyclopaedia Answers.com article about Jordan.

Stanley Jordan grabbed the music world by the ears when he arrived in New York in 1984. Musicians and critics alike were blown away by the guitarist's radical approach to the instrument, which left listeners shaking their heads in disbelief. Jordan's technique of using both hands to tap the fingerboard like a pianist allows him to play chords, melodies, and bass lines simultaneously. Players like Jimmy Webster and Eddie Van Halen had previously used the tapping technique to embellish their solos. But never before had anyone been as innovative with the concept as Jordan, who, according to guitarist Al Di Meola in *Guitar Magazine*, "has taken tapping into another dimension. He has to be twenty years ahead of his time" (Marano, 2012).

In addition to referencing the 'pianistic' nature of Jordan's touch technique, this statement also begins to construct a timeline for the development of tapping that bears resemblance to those of technological objects. The writer here alludes to the beginnings of a historical autonomy for finger tapping, whereby the technique

becomes disconnected from the guitarists who use it. The implication is that finger tapping exists in its own right and has its own history, which will continue, albeit in a different way, without the contributions of individual guitarists. Such a concept is reinforced by the brief quote from Al Di Meola, who is a respected and innovative fusion guitarist in his own right, when he states he “has taken tapping into another dimension. He has to be twenty years ahead of his time” (Lick Library, 2010). This statement is directly comparable to the discourse surrounding technological objects such as microprocessors, in which the media often makes predictions about advancement, prioritising the influence and effect of the object, whilst downplaying the role of researchers and engineers.

Additionally, the above excerpt separately alludes to the individual ‘genius’ of Stanley Jordan and his contributions to the development of finger tapping, albeit within the same prose. In their suggestion that “never before had anyone been as innovative with the concept as Jordan” (Lick Library, 2010), the writer begins to subvert the contributions of other guitarists, framing Jordan as the *most* important. By including Di Meola’s statement that he “has taken tapping into another dimension” (Lick Library, 2010), the writer attempts to reach a point of conclusion by suggesting that Jordan is the *only* finger-tapping guitarist of importance. The overall effect is much the same as if the writer had attempted to portray Jordan as the sole ‘inventor’.

2.5 Conclusion

For the first two phenomena explored in this chapter, the power chord and the wah-wah pedal, a clear invention narrative emerges from analysis of written discourse, and as such choosing representative examples was fairly straightforward. However, in the case of finger tapping, there was less consensus, and as such I presented a number of competing invention and discovery narratives, which I feel represent the plurality of the discourse I have examined. Despite the surface differences between the narratives I have examined in this section, including the time periods and varying contexts the invention occurred in, there are also similarities. In this concluding section, I examine a number of themes implicit within these narratives, and which appear to be particularly meaningful with respect to the electric guitar. In addition, I suggest a number of features of these narratives that ensure their prominence and longevity.

Technological and Creative Innovation

Within the discourse examples presented in this chapter, there appears to be a link between technological and creative innovation. In many cases, technological innovation takes the form of engineering, but it also includes the development of new skills for exploiting an existing technology, such as the development of finger tapping. The implication that emerges from the discourse is that technological innovation pre-empts creative innovation, and that a process of technological innovation reinforces the authenticity of the resulting creative product.

For example, Eddie Van Halen is often presented as an innovator in a broad sense, with less attention paid to the technical and technological aspects of his practice. In particular, the guitarist's choice of amplifier, instrument and effects are put to scrutiny, while a narrative that emphasizes Van Halen's pursuit of technology that allows him to fully exploit his creative potential is emphasized. Furthermore, Van Halen's development of advanced performance techniques is also understood as contributing to an authentically creative musical end.

In a similar way, the discourse surrounding Stanley Jordan often understands the development of his 'touch technique' in terms of contributing to his personal creative process. However, given that much of the discourse surrounding him is located within that of jazz, Jordan's technical innovations are understood much more in terms of 'high-art' creative intentions. Thus, the written discourse I have examined affirming Jordan as an authentic creator tends to highlight his artistic credibility, or his being 'true to himself', while that which refutes Jordan tends to suggest his technical capabilities detract from the musicality of the pieces he performs. In both cases, finger tapping is wrapped up in each guitarist's ability to authentically express his creative individuality through music.

Making Sense of the Creative Process

A second theme within this chapter is the function of the invention and discovery narratives in making sense of the qualitative cognitive event referred to as the creative process. In order to overcome the complex and often opaque aspects of this process, the narratives within this chapter have tended to simplify it, focussing and

emphasising aspects that are easy to explain or quantify, whilst minimising those that defy verbalisation.

For example, in the narrative surrounding the invention of the power chord, Link Wray discusses his spirituality and the role of God in the composition of 'Rumble'. His suggestion that 'Rumble' was the result of a 'flash of inspiration' serves a dual function. Firstly, it allows Wray to make sense of his own compositional process without having to engage with other contributing factors, such as his own musical background and performance style, and the influence of other musicians and that of wider, non-musical style. Secondly, this particular narrative allows Wray to reconcile his faith, which proposes an interventionist deity and therefore reduces human agency, and his creative autonomy. By suggesting that 'Rumble' came about as a flash from 'Jesus God', Wray is able to explain the creative process, which is often understood as a highly autonomous act, in terms of this reduced agency.

Spirituality is an important aspect of a number of the narratives examined in this chapter, and also occurs regularly in the discourse surrounding Eddie Van Halen. As another highly religious musician, Van Halen characterises himself as a creative conduit in the same vein as Wray. In suggesting that he is merely a passive part of the process whereby music passes from God to audience, he also reconciles the conflict in terms of agency between traditional understandings of interventionist religion and music composition.

Individuality and Creative Vision

The examples in this chapter are characterised by an individualistic portrayal of the innovator or discoverer. This reflects the more general emphasis placed on the individual within contemporary society, and also the existing structure of the music industry, which accommodates and monetises the musical achievements of individual agents. In addition, this person is often represented as a 'visionary', or somebody who is able to identify an opportunity for innovation where nobody else could.

For example, in the popular wah-wah invention narrative engineer Del Casher is portrayed as the sole agent capable of appreciating the potential of the prototype device. Furthermore, Casher is understood within this narrative as the single person capable of making best use of this potential, and as someone who is willing to resist

company bosses to realise his vision. Fittingly, the discourse surrounding the wah-wah contains an element of implicit competition for individual narrative primacy between Del Casher and Brad Plunkett, despite the lack of mutual exclusivity between their two roles. This further affirms the construct of invention as an individual act.

The notion of invention as an individual and original act occurs throughout the narratives presented in this chapter, and reinforces the notion and importance of individuality within written electric guitar discourse. For example, claims of individuality and originality are made by the majority of the guitarists discussed in this section, including Emmett Chapman, Roy Smeck and Stanley Jordan, despite, in many cases, the presence of contradictory evidence.

Common Narrative Properties

As I have indicated, there are a number of properties that make the narratives discussed in this chapter particularly prominent and long lasting. In this section I identify some common features that I suggest are responsible for narrative longevity, and discuss why these are particularly important to electric guitarists and others. Furthermore, I examine the concept of discursive ‘capital’ with respect to the examples in this chapter, suggesting a number of reasons why these narratives appear to have gained widespread credibility, despite the implausibility that is often present.

An obvious feature of the narratives discussed in this section is a lack of serious competition from other narratives within the written discourse I examined. That is not to say that there are no competing narratives, but that they have not achieved comparable status or credibility. Part of the reason for this is that popular, dominant narratives appear to overwrite those with less support. However, I also believe that many of the narratives in this chapter have inherent properties that make them difficult to contradict. In cases of Link Wray and Eddie Van Halen, for example, both guitarists make reference to the existence of a higher power. Despite the best efforts of a number of groups, it's impossible to disprove the intervention of any deity in human affairs, as they supposedly occupy a dimension of the universe inaccessible to human scrutiny. Similarly, in the case of Emmett Chapman, it is very difficult to contradict his narrative of a ‘eureka’ moment whilst woodshedding in his youth. He was the only witness to the event, and also occupies a position of relative power

within the Chapman Stick community, both of which make it difficult for anybody to challenge him.

With respect to finger tapping and the wah-wah pedal, the invention narratives discussed in this chapter remain prevalent and maintain their status as original despite the existence of evidence to the contrary. For both cases, I presented evidence demonstrating that similar phenomena existed before the supposed invention event. However, in all cases these alternate narratives failed to achieve comparable status to the respective dominant narratives. For example, the Ukulele technique of Roy Smeck is clearly prototypical of finger tapping, but receives very little attention or recognition in the written electric guitar discourse that I have examined. Similarly, there are a number of precedents to the wah-wah pedal, which receive very little attention within the wah-wah discourse. In this case, the motivation for minimising any predecessors to or influences on the pedal appear to be economic, because they would undermine the marketability of the product, which utilises its cultural status as entirely unique. This reflects the more widespread emphasis placed upon, and value attributed to novelty and innovation within contemporary Anglo-American culture.

The minimisation of external influences is perhaps even more surprising given that, in many cases, they are not particularly difficult to find. In the case of finger tapping, there are a number of examples where the prevailing discourse is contested or undermined in some way. However, this rarely leads to any overall change in popular opinion, or developments in 'common knowledge'. I would suggest that, where this is the case, it is because the accepted narrative reflects and reinforces things that contributors to written electric guitar discourse find particularly authentic or meaningful, whilst also reflecting its particular prejudices. In the case of the examples presented in this chapter, these include the fact that all the inventors or agents are male, and most are white. Furthermore, the narratives adhere to a contemporary, rationalised notion of invention, which reflects a wider, accepted societal notion of creativity as rationally and inherently situated within a contemporary economic structure.

However, and as is to perhaps be expected, some of the narratives covered within this chapter appear to have developed more prominence, longevity and credibility than others. In other words, their cultural value is understood as being particularly high,

which allows for a continued presence within the written discourse I have examined. I would suggest, therefore, that the features that encourage longevity include the following:

- The authority and social capital of the initial and subsequent narrators.
- Narratives that contain a great deal of personal or subjective information.
- Narratives that are difficult to disprove or undermine.
- Narratives consistent with the Anglo-American cultural paradigm that they arise and operate within, including the competitive nature of many popular music cultures.

Through a combination of these features, along with a number of others, the narratives examined in this chapter have developed particular credibility and longevity within written discourse. This demonstrates a number of qualities and facets that are understood as particularly valuable by electric guitarists and other relevant groups, including the innovative potential and individuality of guitarists and others. In the next chapter, I look at the performative ends to which these musical devices are put, focusing on the meanings and values associated with virtuosity.

Chapter 3 – Revisiting Virtuosity: Creativity, Credibility and the Electric Guitar

3.1 Virtuosity and the Electric Guitar

The term ‘virtuoso’ emerged as a serious subject of consideration in music towards the end of the eighteenth century, and refers to an individual who possesses outstanding technical skill in a particular artistic field. Although ‘virtuoso’ has its origins in the sixteenth and seventeenth centuries, the term did not begin its association with music until the eighteenth century, and it was during the Classical and Romantic periods that a debate surrounding virtuosity began to develop (Jander, 2014). Fast-forward several hundred years to the present day, and we find evidence of the same debate, and indeed many of the same issues within the written discourse I have examined. Virtuosity has historically been an important aspect of electric guitar performance, and as such is vital to any holistic understanding of the instrument and its culture. This chapter examines the meaning of virtuosity with respect to the electric guitar, and how the term interacts with aesthetics and ideologies about artistic value. The first part of the chapter will present a theoretical outline based on both existing electric guitar writing and literature that deals with virtuosity in the Classical and Romantic periods. I then employ this outline to analyse the discourse surrounding three electric guitar phenomena: finger tapping, the power chord and the wah-wah pedal, which all have an on-going discursive relationship with virtuosity.

Virtuosity in the Romantic period

The virtuoso enjoyed limited critical status during the late-eighteenth and early-nineteenth centuries. Gillen Wood suggests that,

The performance of virtuoso musicians was compulsively attacked through the Georgian period as the 'mere show' of technical accomplishment without deeper meaning, the exhibition of an automated body detached from the heart and sensibility (Wood, 2010).

He is writing here specifically about music in Britain, but these notions are by no means confined to such a small geographical area. Simon Keefe, for example, states in a discussion of the late-eighteenth century Concerto – specifically, those of Mozart - that,

In the second half of the eighteenth century a number of prominent theorists found fault with the concerto, linking its reliance upon virtuosic effects with an apparent absence of character (a fatal flaw in the eyes of some) (Keefe, 2001).

There was, however, an inconsistency between such critical analysis and the popular reaction to virtuosi during this time, with performers such as Boccherini, Paganini, Chopin and Franz Liszt all widely celebrated. Such discrepancy between critical and popular reaction is common, but it is likely that contemporaneous critical conceptions of Romantic virtuosity have been more influential to the development of contemporary musical scholarship, and any bias it may hold against the virtuoso. Moreover, Romantic notions of virtuosity serve to highlight the critical context within which music of the time was produced.

In addition to this critical ambivalence towards displays of virtuosity, there were a number of advances in technology during the nineteenth century that had an effect on prevailing musical aesthetics. For example, Wood suggests that,

In the early nineteenth century, the improved technologies of piano manufacture in particular seemed to amplify the sonic power of the virtuosic medium beyond natural limits (Wood, 2010).

It is true that there were significant developments in manufacturing around this time, including the development and patenting of the iron-framed piano around 1825. However, the ascription of responsibility for the emergence of the virtuoso to a technological development, as in this example, somewhat obscures the full picture. The above quote does provide a neat example of the perils of technological determinism, a trap into which many writings of both historical and contemporary culture have fallen. Most important, the position it illustrates undermines the power and agency of individual musicians and influential social and governmental groups during the Classical and Romantic periods. Additionally, it obscures the prior existence of 'of-their-time' virtuosi, such as Bach, who excelled at and transformed music in a similar sense, using the materials available to them.

Whilst remaining wary of these criticisms, it is important to note that there are several particularities that make the Romantic period a special case when considering virtuosity. The late-eighteenth and nineteenth century saw the development of a

number of philosophical movements that were highly influential in the arts and sciences. Most important to music during this period was the centrality of the ‘work’, and the development, by aestheticians and critics, of the idea of creative inspiration (Cook, 2006). Composers were seen as a conduit through which music could be passed, written down and arranged for concert, a concept based on the idealized notion of the compositional genius of composers of the Classical period. The Romantic era was also responsible for drawing more concrete divisions between the ‘ordinary’ and the ‘genius’. In the mind of aestheticians, only the latter was able to produce transcendent works capable of exceeding ordinary aesthetic limits (Bernstein, 1998).

Critics and commentators saw the virtuoso as a threat to this philosophy. This is because the appeal of the virtuoso lies in the delivery and interpretation of a piece of music, rather than in translating and maintaining any inherent value that it may have. The virtuoso performer of the nineteenth-century would embellish and appropriate, which upset the hierarchical relationship between the composer, idealized as an isolated genius, and the audience. This belief is further illuminated when considered with respect to works written specifically for the virtuoso performer, such as the Concerto, which enjoyed far less critical appreciation than other contemporary forms like the symphony (Keefe, 2001). Critics therefore received the virtuoso poorly during the nineteenth century, dismissing their performances as a “mere show of technical accomplishment without deeper meaning, the exhibition of an automated body detached from the heart and sensibility” (Wood, 2010).

In addition to aesthetics, classical virtuosity in the nineteenth-century must also be understood with respect to a number of important social and economic changes that occurred, most notably, during the industrial revolution. The period saw the rise of industrial capitalism, and a division between the working and professional classes. This was reinforced by the latter through the construction of an ‘independent high culture’ for the professional class, and an ‘increasingly specialized, market-driven society’ that the working class were assumed to occupy (Wood, 2010). However, in the view of the nineteenth-century professional class, the image of the virtuoso threatened to undermine this division. It represented a form of non-productive labour and the potentially dangerous amusement of the aristocratic, non-working class, and the virtuoso, and virtuosity in music, was “demonized in new terms as the incarnation

of soulless technical efficiency” (Wood, 2010). Thus, the virtuoso was portrayed as someone responsible for the devaluation of the emotional transcendence of music, and the undermining of the authority of the composer.

During the late nineteenth and early twentieth century, as class divisions began to erode, the established hierarchical relationship between composer and performer also broke down. In the twentieth century, this new relationship was reinforced with the emergence of television and radio, which allowed a new emphasis to be placed on the identity of the performer. Thus, as aural and visual reproduction grew in importance to the music industry, the composer/performer hierarchy reversed itself. As folk and ‘high-art’ rock music emerged in the 1960s and 1970s, a new importance was placed on the credibility of the performer, particularly those who wrote ‘authentic’ music derived from their own experience. This led to the final stage of development, whereby the composition and performance processes were integrated with both roles taken by the musician.

The primary field within which the original performer/composer idiom remains prevalent is Anglo-American classical music. As such, many original notions of the virtuoso remain an important part of classical performance practice. However, notions of individuality and the virtuosity of performers are also considered, actively or otherwise, by other genres. For example, in a discussion of Bob Dylan’s notorious electric guitar performance at the Newport Folk festival, Lee Marshall discusses performance ideology in the American Folk Music Revival of the 1940s to 1960s. Marshall suggests that the Folk Movement idealised the song as the authentic expression of its collective experience, meaning there was little room for individuality and subjectivity of the kind demonstrated by virtuoso performers in the classical model (Marshall, 2006).

Further exploring classical music in a more contemporary setting is Jane O’Dea’s book, *Virtue or Virtuosity: Explorations in the Ethics of Musical Performance* (O’Dea, 2000), which could best be described as a treatise on the philosophy of contemporary classical music performance, and the potential perils and pitfalls of engaging with a virtuosic performance style. O’Dea states her application of an Aristotelian model of performance ethics, which prioritizes the judgment of the individual performer and the, “virtuous character traits sagacious musical judgment

entails” (O’Dea, 2000). Throughout the text, she makes reference to personality traits she sees as being important to a classical performer, such as ‘authenticity’ and ‘integrity’. She boldly suggests that, “true performance interpreters will not sacrifice their core commitments” (O’Dea, 2000), whilst lambasting anyone she sees as being overly virtuosic. Such a statement clearly ties in with notions of Romantic musical credibility, and the notion of the tortured, but dedicated genius composer, as do her criticisms of performers who,

Are tempted by the enticements of commercial success to renege on our commitments to the music and to perform a piece in a manner that pleases a capricious, spectacle-loving public (O’Dea, 2000).

The overall thesis of her text, I would suggest, is representative of a particular kind of performance philosophy in the classical music academy, which has prized a quite narrow form of ‘appropriate’ musical interpretation from its performers. In the 20th century there was a shift in power relations between roles within popular music, as demonstrated by the gradual integration of composer and performer. However, I would suggest that an understanding of virtuosity similar to that of the classical and romantic periods is also prevalent within the written electric guitar discourse I have examined.

Virtuosity and the Contemporary Electric Guitar

In his study of heavy metal, Robert Walser reserves an entire chapter for a discussion of classical virtuosity, and its appropriation by guitarists (Walser, 1993). He discusses not just the use of particular compositional techniques and musical materials, but also the evolution of a type of guitar-based virtuosity that echoes that of the eighteenth and nineteenth centuries. He suggests that this convergence allowed rock guitarists to tap classical music’s prestige, semiotic significance, and its “aura of transcendent profundity and relations with powerful social groups” (Walser, 1993, p.59). He observes that classical music still functions as the most esteemed culture of the twentieth century (p. 60) and that its appropriation by guitarists, particularly those who form the heavy metal genre, represented the coming together of the most and least-prestigious forms of music (p. 58).

Early conceptions of electric guitar virtuosity were derived from blues performance idioms, which were characterized by the prevalence of improvisation, and an aesthetic and rhetorical preference for performances that displayed unreserved emotional expression, as well as timbral distortion and feedback (Waksman, 1999). However, the emergence of Eddie Van Halen and his contemporaries signalled a reconceptualization of electric guitar virtuosity, as these guitarists achieved new heights of technical proficiency. Walser theorizes that, “the individual virtuosity displayed by Van Halen is a conceptual model of musical excellence derived from classical music making” (Walser, 1993, p. 75). He goes on to suggest that it also represented a reconfiguration in the relationship between virtuosity, performance and power. He states that Eddie Van Halen demonstrated the development of a ‘rational control’ over techniques developed by earlier blues and rock guitarists, particularly Jimi Hendrix (Walser, 1993, pp. 76-77).

In the 1980s, this mode of ‘classically’ inspired guitar playing reached new extremes. Players such as Yngwie Malmsteen, Steve Vai and Joe Satriani emerged as ‘hyper’ virtuosos, promoting a brand of ‘guitar for guitarists’ (Walser, 1993, p. 101) metal. This coincided with the institutionalization of guitar playing, including the development of specific notation systems that formalized the transcription and learning of guitar music, and the foundation of guitar colleges and university courses. Similarly, electric guitarists have developed highly virtuosic performance styles in other areas of performance. For example, acoustic guitarist Michael Hedges developed an intricate and percussive performance style that incorporated finger tapping in the 1980s and 1990s. Furthermore, there exists a well-developed tradition of virtuoso jazz guitarists, such as Django Reinhardt, Charlie Christian, Joe Pass and Pat Metheny, and of country guitarists such as Chet Atkins and Merle Travis, Albert Lee, Brad Paisley and Johnny Hiland.

Thus, Robert Walser’s work is primarily limited by its focus on heavy metal. I would argue that in the 20 years since the publication of *Running With The Devil*, there has been a diversification of the classical influence on electric guitar music. A clear example is the stylization of the harmonic minor and Phrygian modes, which are such an integral part of the metal guitar solos, or the frequent use of harmonizing thirds in many heavy metal riffs, or the continued prominence of ‘shredding’, the name given to the hyper virtuosic style of playing popularized by Walser’s subjects. These

demonstrate that classically derived virtuosity has, at the point of writing, become thoroughly integrated in electric guitar music.

Through the work of academics such as Waksman and Walser, virtuosity is now a term that can be readily applied to both popular music and written electric guitar discourse. Although the term does not appear that frequently verbatim within primary discourse examples, considerations of technique and its effect on artistic ‘value’ are common. As such, it is necessary to look beyond discursive instances where ‘virtuosity’ is mentioned explicitly, and use a wider set of criteria to identify relevant discourses. With this in mind, I have used a broad definition of virtuosity, with respect to the techniques and technologies outlined in Chapters 1 and 2, which includes both reference to advanced technique within the discourse I have examined, and reference to technique, which, while not necessarily particularly advanced or difficult from the perspective of a musician, is nonetheless considered impressive by audiences.

In this chapter, I investigate the way that the theme of virtuosity operates within written discourse. Using finger tapping, the power chord and the wah-wah pedal, I consider the contemporary importance of virtuosity for guitarists, and how it is used to justify and evaluate their playing and their music. I consider the similarity and influence of Romantic musical ideologies, but also those of blues and jazz musicians. Overall, I reflect on how contestations of acceptable virtuosity with respect to the electric guitar reflect those of the Romantic era. However, rather than attempting to reconcile notions of virtuosity with respect to a static array of performance ‘ethics’, such as those proposed by O’Dea (2000), I also consider acceptability of virtuosity as determined by a continuously evolving and often contradictory discourse.

3.2 Virtuosity and Finger Tapping

Robert Walser and Steve Waksman, as well as journalists such as Jas Obrecht (1980), have each pointed out the seminal importance of Van Halen’s ‘Eruption’ (*Van Halen I*, February 1978) to the electric guitar. Whilst this was not the first use of finger tapping, a point of contention I discuss in Chapter 2, it certainly served as an important milestone in the emergence of the ‘shred’ guitar phenomenon. Moreover, it arguably brought finger tapping to the attention of a much larger audience than any guitarist had previously managed.

Both ‘Eruption’ and Eddie Van Halen are highly regarded within the written discourse I have examined, particularly in examples from the first few years following the track’s release. Accolades such as the following were common around this time.

On his debut album Eddie wrestled devastating feedback, kamikaze vibrato moans, sustained harmonics, white-hot leads, and liquid screams out of a cranked-to-the-max homemade guitar that combined a Fender Strat-style body with the electronics of a Gibson Les Paul. Even on this first effort, underneath the raw intensity of Eddie’s solos – many of which were spontaneous first takes – lies a strong melodic and rhythmic sensitivity (Obrecht, 1980).

Obrecht’s writing here is characterized by hyperbole, which, given its function as the opening paragraph of a longer article, we can assume was intentional. Despite this however, the writing creates a powerful image of Eddie Van Halen as virtuoso. Implicit in the rhetorical design of the first sentence are allusions to Van Halen’s control over technology (“wrestled devastating feedback”) and unrestrained sexual power (“kamikaze vibrato moans”), and a metaphorical energy so abundant, that the music becomes “white-hot” before melting into “liquid-screams”. Such imagery is reminiscent of a nineteenth century notion of the virtuoso, as a masculine hero, whose control of their instrument and technical prowess extends far beyond that of a normal musician. This is augmented by Obrecht’s depiction of Eddie Van Halen as a “spontaneous” and intensely “raw” creative genius. These depictions also conform to a nineteenth century understanding of virtuosity, and correspond to Eddie Van Halen’s claims elsewhere (Garbarini, 1998) that he is a conduit for divine inspiration. However, I imagine it is likely that they are also derived from notions of blues creativity and authenticity. Improvisation was understood and prized as being central to the blues, especially by many of the white rock ‘n’ roll guitarists of the 1960s and 1970s. The above writing thus functions to align Eddie Van Halen with these authentic notions, and those of the Mozartian paradigm of transcendent creative genius.

In addition to his virtuosity, Eddie Van Halen was also praised for his musicality. The following example, from a separate interview by Obrecht, indicates that even during the early years of shred, there was a conscious awareness of the importance of ‘appropriateness’ in electric guitar playing.

It's kind of humbling to hear a guitar whiz like Eddie Van Halen talking about the guitars he used to put together piece by piece before he became one of the most endorsed artists in the biz. But what's especially refreshing is to hear the obvious love and ego-free enthusiasm he has for his instrument back then and retains even today. Then and now, Van Halen could make a guitar passage burst and crackle like a sky full of fireworks, but even when he's chosen to play hundreds of notes-per-minute, he's never resorted to the kind of sonic masturbation that many of his shredding peers have thrived on (Obrecht, 1978).

Initially, Van Halen is set up as humble and down-to-earth, despite the trappings of fame that come with being "one of the most endorsed artists in the biz". This is a common portrayal in music discourse, the function of which is to impress upon the reader the credibility of the artist, by suggesting that he or she is able to subvert the inauthentic imposition of an assumed art/commerce binary. In the above example, this is reinforced by referencing Van Halen's continued "ego-free enthusiasm", and love for his instrument. Subsequently, we can observe an example of an attempt to reconcile the incompatibility of virtuosity and musicality in the phrase, "even when he's chosen to play hundreds of notes-per-minute, he's never resorted to the kind of sonic masturbation that many of his shredding peers have thrived on". Such an incompatibility is almost certainly derived from the reaction of the nineteenth century professional classes' reaction to virtuosity, which was dismissed as unmusical and excessively technical. However, the above example also presents an understanding of virtuosity and guitar playing associated with sexuality. If a virtuoso is considered to have a certain sexual power, then an excessive show of technique is seen to be self-indulgent and thus understood as "sonic masturbation". While this concept is not explicitly reserved for men, it is a criticism that is rarely levelled at female guitarists. There are number of reasons for this, including the overrepresentation of male guitarists in the media, but also the historic gender bias surrounding masturbation, which has meant that male masturbation has become acceptable both as an act and as a talking point, whilst social acceptance of female masturbation is less universal (see Schwartz & Rutter, 1998, pp. 42-45).

The construction of a dichotomy between technique and musicality is one of the central concerns of an understanding of virtuosity within the written discourse I

examined. As could be expected, there is rarely a universal consensus regarding a particular guitarist when it comes to reconciling this division. Take, for example, the following quote,

After all Edward (Van Halen) looks like a dimmer, non-elegant approximation of Jimmy Page, [David Lee] Roth is Plant incarnate right down to the same number of hairs on the chest, and Messrs [Mike] Anthony and [Alex] Van Halen can be the ugly nebbishes they so obviously are, so visually it's the plum ploy. Musically it's as easy as falling off a log. Guitarist Ed can bash out power chords till [sic.] the cows come home, as well as playing solos that are all fingers at a million miles a minute, blaring out but saying absolutely nothing (Kent, 1979).

This quote comes from a much longer, and consistently negative review of Van Halen's first UK tour in 1979. There is an implicit element of British nationalism in the writing. By comparing the members of the band to respective members of Led Zeppelin, who it appears the author considers to an exemplar of guitar-based rock, the author is able to dismiss each of them individually. This critique is reinforced, and given its nationalist undertone through the use of colloquially English phrasing, such as, "visually it's a plum ploy" and, "musically it's as easy as falling of a log". Also contained within the quote is a negative sentiment regarding Eddie Van Halen's virtuosity. Kent's phrase, "as well as playing solos that are all fingers at a million miles a minute, blaring out but saying absolutely nothing," aligns musicality with communicative ability, suggesting that despite the guitarist's technical ability, his playing is inherently unmusical. This is highly reminiscent of romantic notions of empty virtuosity.

This quote, however, does not exist in a vacuum – it is inherently time-restricted, and bound to a contemporary aesthetic discourse. For example, the above argument made today would have much less potency, given the changes in prevailing aesthetic trends since the height of Led Zeppelin's popularity.

Before exploring the results of these changes with respect to finger tapping, it is necessary to discuss the contribution of another guitarist, Jennifer Batten, who was the product of a guitar-based academic institution, the Los Angeles Guitar Institute of

Technology, the founding of which Van Halen was so influential in catalysing. Greg Prato writes,

The ‘guitar shredder’ genre of the late ‘80s was comprised almost entirely of males, but one exception was the fleet-fingered Jennifer Batten. Born in Upstate New York, Batten got her first electric guitar at the age of eight (inspired by her older sister who already owned an instrument, as well as the Beatles and the Monkees), before her family relocated to San Diego, California, a year later. In 1979, Batten began attending G.I.T. (Guitar Institute of Technology), where she befriended such fellow up-and-comers as Steve Lynch. It was through Lynch’s fascination with the then-burgeoning ‘two handed tapping’ technique that Batten took her friend’s lead and perfected the playing style – eventually writing a book on it years later (Prato, 2013).

This writing provides a useful insight into the values and themes found in the discourse surrounding Jennifer Batten. The most prominent theme is a consistent identification of her as a woman. The above example could be read as an observation of the overwhelming underrepresentation of female guitarists, particularly during the 1980s. However, given its discursive nature, the writing also serves to reinforce this imbalance. Batten is positioned as the female deviation from the male norm, and moreover as the “one exception”, which only strengthens this notion and her strangeness. Identification and commentary regarding Batten’s gender is a prevalent theme in the discourse. However, examples vary in their treatment of it. Take, for example, the following three quotes.

The tour was more than just a professional windfall for Batten. It made clear to everyone who’d thought a woman couldn’t shred that, yes, indeed, Jennifer Batten can tear up a guitar as well as any man (Lopez, 2008).

Jennifer Batten... It may not ring any bells at first, but you’d probably recognize her if you saw her. She’s not really a household name but she’s an icon nonetheless. Throughout the eighties and nineties she played in sold out stadiums all around the world. Her image was beamed into sitting rooms to audiences totalling several billion. Young girls everywhere wanted to be Jennifer Batten. If you ever went to a Michael Jackson concert, watched his performances on TV or brought a ticket for Moonwalker then you’ll know

Jennifer Batten. She's Jackson's tall, slender, arresting guitarist, perhaps best known for her enormous mane of bright white hair (Sawfnews, 2010).

Jennifer Batten is arguably the only female rock based virtuoso to have achieved worldwide prominence. From the heady days of the 1980s, when she toured with the then undisputed biggest superstar in music Michael Jackson, through to her many tours with Jeff Beck, she has transcended the usual stigma against female rock players and carved herself a unique niche (Edwards, 2009).

The first of these quotes is similar in its consideration of gender to that of Prato (2013). However, the writing goes further than simply to suggest that Batten was successful in a male-dominated world. In writing, "it made clear to everyone who'd thought a woman couldn't shred", the author makes it very clear that shredding, and by way of extension 1980s electric guitar virtuosity, is male-dominated. Moreover, the author implies that during this time, the general consensus amongst guitarists and related groups was that only men could achieve virtuoso status, and that women were 'incapable' of such an enterprise. Thus, in writing that, "Jennifer Batten can tear it up as well as any man", her achievements framed as being 'worthy' of men – she is allowed virtuoso status, but is never credited with undermining electric guitar patriarchy.

The second quote exhibits another common facet of commentary regarding successful women, namely their influence on young women and girls. The key issue here is that Batten is portrayed as a women guitarist whose influence is primarily over other women guitarists. Thus a clear division is maintained between female and male musicians, who it is presumed already have their own male role models, or who do not need role models at all. Having characterised Batten in terms of her notoriety and success, the author then writes, "She's Jackson's tall, slender, arresting guitarist, perhaps best known for her enormous mane of bright white hair". This betrays a common conception of female guitarists, the assumed primary importance of their physical appearance.

The last of these three quotes considers Batten's femininity and electric guitar gender politics in a much more self-aware style. The author makes the assertion that Batten is the only female, rock-based virtuoso to achieve worldwide prominence. His suggestion that she has transcended stigma against female rock players echoes

Batten's own criticisms of the profession, while there is a hint of irony in his writing that she has "carved herself a unique niche", given that it is likely intended to refer to her musical individuality, but could equally apply to her success as a specifically female guitarist. However, Jennifer Batten's influence and significance as a guitarist is certainly not just limited to her gender, and it is important that my writing reflects that. Returning to the quote by Prato (2013) provides an opportunity to consider a number of other themes.

As I have already suggested, Jennifer Batten was the product of an emerging form of institutionalized electric guitar pedagogy. The Guitar Institute of Technology, now called the Musicians Institute, is the product of an attempt to create an academic centre that would rival the European conservatoire model of classical instrumental tuition. The institute offers Bachelor of Music degrees for courses in popular music instrumental performance, sound engineering and production, and music management, although it should be noted that these are not officially accredited by any regional educational body. Despite this lack of formal affiliation, however, the list of alumni is formidable, including guitarists such as John Frusciante, Paul Gilbert and Synyster Gates. The entry requirements for the performance courses include a reasonable level of competency, and students are expected to develop their technical skills, including finger tapping, to a formidably high level. While, as suggested by Prato (2013), Batten's use of finger tapping was particularly highly developed, the ability and renown of many of her peers suggests that her virtuosic ability is relatively less exceptional. However, the discourse indicates that appreciation of Batten is derived from her creative and musical use of finger tapping, rather than simply for any mechanical ability. She is noted, for example, for her tapping version of John Coltrane's 'Giant Steps, which,

Appeared in one of American magazine *Guitar Player Monthly's* compilation CDs. John Stix wrote that it was considered by her peers to be the "scariest and most requested cut on the disc" (Drewek, 2010).

With Batten's appropriation of Coltrane in mind, and given the renown the genre affords to its virtuosi performers, it is also necessary here to examine electric guitar playing in jazz. Batten's use of 'Giant Steps' marks a crossover between rock and jazz, one that is also shared by finger tapping.

The Jazz Influence

One of the earliest proponents of finger tapping within jazz was Emmett Chapman, inventor of the Chapman Stick and the free hands tapping method discussed in Chapter 2. In addition to gaining praise for his engineering credentials, Chapman is also seen as a successful and highly accomplished performer in his own right. Pervading the discourse surrounding the Chapman Stick is the characterization of its inventor, Emmett Chapman as an experienced professional jazz musician. However, the criteria by which virtuosity in jazz is measured are slightly different than those in rock culture. While technical facility and creative ‘appropriateness’ are similarly prized, these are understood more in terms of an ability to improvise, and to push the boundaries of acceptable harmonic and melodic modalities, skills for which Chapman is both praised and used to construct a musical identity for himself. For example, in an interview with Matt Warnock (2010), he states,

I was trying to play jazz chord progressions and free-flowing melody all at the same time and I had developed a complicated guitar technique that would allow a degree of free melodic expression along with chordal accompaniment. Then I started listening to Jimi Hendrix and realised that my melody with chordal backing was sadly lacking in expressive freedom and abandon (Emmett Chapman was interviewed in 2010).

Chapman’s conception of musical creativity, as presented here, is wrapped up in jazz notions of expressivity. Moreover, Chapman also implicitly reinforces the primacy of the piano in jazz, in his pursuit of an instrument that can simultaneously provide “free melodic expression along with chordal accompaniment”. The Chapman Stick, therefore, was both intended and has been subsequently marketed as a tool by which Chapman’s musical objectives can be fulfilled.

An emergent theme in both the guitar and Chapman Stick discourse is that of the virtuoso as somebody who refuses to settle with available tools if they are not sufficient to achieve his or her goals. Such a theme is evident in the following quote.

From 1959 to 1969 my instrument, the guitar, evolved with my music. To make the kind of instrument I wanted, it was necessary to become an instrument builder and customizer. I made the neck wider, then longer – I added strings,

springs, levers and other novel mechanisms. The purpose of these changes was to allow greater expressiveness; they all worked rather well and I enjoyed using them for about four years, up until I discovered the two-handed playing technique (Chapman, 1987).

Such mechanical ‘tinkering’ is prevalent in the narratives of contemporary virtuoso guitarists, particularly those of Eddie Van Halen and Les Paul (Waksman, 1999), and serves to reinforce notions of mastery of the instrument, and artistic dedication. In Chapman’s case, the narrative is augmented by his attempts to improve the guitar as an instrument for jazz by appropriating elements of instruments, particularly the piano. Chapman was not alone in his attempts, which were independently mirrored by virtuoso jazz guitarist Stanley Jordan. Margaret Emory writes,

Jordan is known for his unique style of guitar playing, which he calls the “touch technique.” It involves tapping the strings with both hands independently on the guitar neck so as to play separate parts in a pianistic manner. According to Jordan, “It brings some of the orchestral possibilities of the piano, while retaining the expressive nature of the guitar” (Emory, 2013).

‘Expression’ is a highly important aspect of both Chapman and Jordan’s performance methodologies, with a pianistic approach to the electric guitar offering the best potential for achieving these goals. While Jordan’s ‘touch’ technique is very similar to Chapman’s ‘free hands’ method, Jordan has focused much less on technological developments and more on the development of virtuosic technique. Jordan’s early career was in many ways defined by his identity as a virtuoso. Take, for example, the following extract,

In a career that took flight in 1985 with immediate commercial and critical acclaim, guitar virtuoso Stanley Jordan has consistently displayed a chameleonic musical persona of openness, imagination and technical wizardry that sets him apart from every known guitarist. His music is also imbued with a combination of passion, sensitivity, humor, daring and sheer brilliance. Whether bold reinventions of classical masterpieces or soulful explorations through pop-rock hits, to blazing straight-ahead jazz forays and ultramodern improvisational works – solo or with a group – Jordan can always be counted on to take listeners on breathless journeys into the unexpected (Feather, 2013).

In addition to impressing his virtuosity, the opening sentence of this quote seeks to establish Jordan as a legitimate artist and creator. An implicit theme of the writing is Jordan's musical diversity – he is described as a “chameleonic musical persona” who is capable of playing in pop, jazz and classical styles. However, the author is careful to note that even in the light of such diversity, Jordan is able to impress elements of his personality, his “passion, sensitivity, humour, daring and sheer brilliance” into everything that he does. The effect of this is a portrayal of Jordan as brilliant and unique, but also as an authentic jazz player whose virtuosity and creativity allows him the rhetorical power to “take listeners on breathless journeys into the unexpected”. By way of contrast, Jordan has also faced criticism from elements within the jazz discourse, such as in the following quote,

After recording a solo album for his own Tangent label, [he] signed with Blue Note. Since then, his career has been surprisingly aimless. Stanley Jordan can play jazz, but he often wastes his talent on lesser material, so one has to be picky in deciding which of his recordings to acquire (Yanow, 2014).

Here the author implicitly restricts Jordan's ‘talent’ to his ability to perform and interpret existing works, rather than composing his own material. It should be noted that the source of this article is a website dedicated to jazz music and musicians, and thus a certain aesthetic bias is to be expected, and likely accounts for the phrase “wastes his talent on lesser material”. However, also contained within the writing is an alignment of virtuosity and musical appropriateness. For the author, in a similar way to that of the discourse surrounding finger tapping in rock music, Jordan's virtuosity is dependent on the credibility of his aesthetic choices. Thus, for finger-tapping in general, virtuosic status is determined according to a variable set of criteria that is genre dependent. Both rock and jazz guitarists, however, must use the technique to create aesthetically acceptable music in a credible way.

3.3 Virtuosity and the Wah-Wah Pedal

Soon after the Thomas Organ Company released the wah-wah pedal to the general marketplace, it began to gain traction with electric guitarists. The precise order of use among rock players is unclear and somewhat contested; guitarists including Eric Clapton and Frank Zappa have been credited as the first to employ the wah-wah pedal on their recordings. However, one of the most often cited and celebrated wah-wah

users is Jimi Hendrix, whose virtuosic legend the wah-wah pedal was an integral part of. Eddie Kramer, for example, suggests that,

The first thing comes to my mind when someone drops the word wah-wah on me, I think, James Marshall Hendrix, for the very simple reason that, he was and always will be the complete and utter master of his craft and of the use of the wah-wah. Period. End of story (Boloian & Tosi, 2011).

In much of the written discourse I examined, Jimi Hendrix is portrayed as the greatest of all the great guitarists, the ‘prima-virtuoso’ if you like. His role in the development of the instrument is seen as pivotal: he is credited with redefining both the technique and its aesthetic application. As Eddie Kramer suggests, a similar conception is reserved for his use of the wah-wah pedal. In the same interview, Kramer expands on these thoughts.

I think his foot was lightning fast, and just to watch him in the studio, do tricks with the guitar and the pedal, and it's all one thing. You couldn't even begin to imagine how the hell did he do that, I mean, wait a minute, that's physically impossible. Because he was so integrated with the thought process, from the brain, through the heart, into the fingers, to the feet. It's all one fluid motion, and to be able to have watched him up close, and how much of a genius he was of pulling sounds out of that thing, that were unheard of (Boloian & Tosi, 2011).

Kramer’s words contain similar sentiment to that of a Romantic conception of the virtuoso. Initially, there is the suggestion that Hendrix was physically superior to other guitarists. Traditionally, such attributions of superiority are reserved for the dexterity and cognitive ability of the musician, but here Kramer extends the sentiment to Hendrix’s “lightning fast” foot. The accuracy of this statement is somewhat hard to gauge. After all, it is perfectly plausible that Hendrix possessed exceptionally fast feet, perfectly suited to exploit the capabilities of the wah-wah pedal. There is, however, a clear motivation for prioritizing this explanation over any other, in that it allows Hendrix’s exceptional ability to be rationalized to the order of cause and effect, as opposed to less clearly defined notions of creativity. Kramer then expands this notion towards a broader statement regarding Hendrix as virtuoso. He proposes that Hendrix’s thought process was so thoroughly integrated with his physical body that it allowed for a ‘fluid’ use of the wah-wah pedal. Thus, Hendrix’s conscious self

is portrayed as a conduit through which musical information, originating from either his sub-conscious' mind or from some higher consciousness, is able to flow freely. Such an idea reflects a Romantic understanding of the virtuoso performer. However, it also contributes to a contemporary and continued portrayal of Jimi Hendrix as prima-virtuoso guitarist.

With respect to the wah-wah pedal, Hendrix's idiomatic use, as exemplified by the track 'Voodoo Chile' (*Electric Ladyland*, 1968), has also more recently been portrayed as a defining influence, and a benchmark by which the pedal's subsequent use by other guitarists should be measured. Take, for example, the following quote.

Jimi Hendrix ushered in the modern age of the electric guitarist and set a precedent for not only creative but also musical use of the tools at his disposal... Hendrix was able to vary his tones in seemingly endless ways that nearly 50 years on, fail to sound dated in the least. Equal parts sonic braggadocio and understated elegance, Hendrix used his instrument, his hands, his effects, and most importantly his ears to concoct a brilliant synergy of sound and song rarely, if ever, equalled (Guitar-Village, 2012).

Here the author makes an attempt to impress both the historical transcendence, and the sheer abundance of Hendrix's creativity. The implication is that, despite the fact that fifty years have passed, Hendrix still retains the upper hand in terms of creativity and innovation over the majority of guitarists. In a similar way to that of Bach or Mozart, such a portrayal of Hendrix allows for his canonization, and thus the continuation of his virtuoso status. The effect is not only that of mythologizing Hendrix, but also of undermining the efforts of subsequent guitarists. In addition, by writing phrases such as "braggadocio and understated elegance", language more often found in classical music criticism, the author not only reaffirms Hendrix's already inarguable virtuosity, but also elevates his music to the assumed status of the classical tradition, and thus above that of 'ordinary' popular music. This is confirmed by the statement, "to concoct a brilliant synergy of sound and song rarely, if ever, equalled".

Wah Proliferation in the 1960s and 70s

Journalist Art Thompson has stated that, prior to the invention of the wah-wah pedal, the array of 'effects' available to the electric guitarist was quite limited (Boloian &

Tosi, 2011). He notes that in the 1950s, guitarists had access to tape-delay and tremolo, while the 1960s saw the development of fuzz and built-in spring-reverb effects. The enthusiastic adoption of the wah-wah pedal is not, therefore, particularly surprising. Moreover, the configuration of the pedal with certain musical ideologies further emphasizes its usefulness. Of these ideologies, most prominent within the written discourse I've examined is the alignment of the wah-wah pedal with musical communication, expressivity and the human voice.

One of my interviewees, guitarist Tim Maple, suggested to me that many developments in guitar playing have been intended to advance the instrument's imitation of the human voice. In another interview, guitarist Tom Loose suggested that the sound of an electric guitar played through a wah-wah pedal is directly derived from blues playing. He states,

It makes me think instantly of BB King – having seen him live twice, I can appreciate how he uses the guitar to ‘speak’ and emulate what a voice can do (Tom Loose, Personal Communication, 7 January 2014).

The connection between the wah-wah pedal and the blues is therefore multifaceted, both in the connection between the communicative potential of the blues and the wah-wah pedal, and also because many of the originators of wah-wah technique, such as Clapton and Hendrix, were blues players themselves. In order to understand the processes underpinning the use of the wah-wah pedal, it is therefore necessary to consider blues conceptions of communication and expressivity. Such an undertaking is doubtless worthy of an entire book, so brevity is necessary here. I shall simply highlight a number of features of the blues, and suggest how they relate to early use of the wah-wah pedal.¹⁰

1) Call and Response. One of my interviewees, Hazel Winter, suggested that,

The call and response in blues playing sounds very much like voices. Wah pedals, like volume pedals can sound deeply emotional: stretching a sound and holding it (Hazel Winter, Personal Communication, 23 October 2013).

¹⁰ Other examples of the link between the electric guitar and the human voice include the Vocoder and use of the Voice Box by guitarists such as Peter Frampton.

Call and response is fundamental to blues music, especially with respect to the electric guitar. Lead guitarists would often vary, imitate and respond to the rhythm and horn sections, and the lead vocalist. Take, for example, 'The Thrill is Gone', by B. B. King. During the verse sections of this track, King alternates between short vocal phrases and short lead guitar phrases, which are often similar in both rhythm and pitch. The electric guitar thus becomes analogous to the voice, and is imbued with an approximation of its verbal expression.

2) *Lead Guitar Style*. Such a process often reaches its natural conclusion during electric guitar solos. In 'The Thrill is Gone', the brevity of King's vocal phrases not only allows for electric guitar and piano interjections, but also creates an overall hierarchy within which the electric guitar is the dominant voice, and thus the primary means of expression. Such a structure is common within the blues, and by imitating and extending the vocal, guitarists are able to extend beyond and alter its symbolic, emotional and literal verbal meaning. This basis for soloing remained fairly unaltered as rock 'n' roll developed, and was prominent as the wah-wah pedal emerged in the popular consciousness during the 1960s.

3) *Physicality and Emotionality*. As 1960s guitarists developed a more involved, 'art-rock' lead guitar style, so too did they appropriate both stylistic and communicative elements from electric blues. This included reliance upon a particular, physically oriented form of emotionality and expression, which was informative in the early development of wah-wah technique. As with Jimi Hendrix, there is an assumption within the written discourse that a guitarist's ability to effectively use the wah-wah pedal as a tool for expression is a result of his or her ability to physically interact with it. Unlike, for example, a fuzz or tremolo pedal, which is adjusted to a particular setting and then turned on or off, the wah-wah pedal is controlled continuously by the guitarist's foot. Guitarist Larry Lalonde expands,

It's not something that with any other pedal you can turn on and it's going to do it. You've got to control that, so it's got a feeling, it's like a human element to it (Boloian & Tosi, 2011).

The most crucial element of this phrase is Lalonde's allusion to humanity. This is derived from the wah-wah pedal's physically and mechanically oriented design, and allows for a clear division between controller and object. That is to say, the wah-wah

pedal only acts upon the signal when the user physically forces it to. Within the discourse, this separates the wah-wah pedal from other effects such as the fuzz pedal, which operates electronically. In terms of virtuosity, these discursive positions create a conception with a clear basis in human agency. The most virtuosic of wah-wah users are those who are most capable of physically manipulating it to achieve their artistic goals. Thus, despite the passive and electronic elements of the pedal, a traditional notion of virtuosity as derived from exceptional human power is maintained.

Funk Adoption of the Wah-Wah

As I suggested in Chapter 2, there is a fairly strong division between two discrete modes of use of the wah-wah pedal. The first, which is arguably the most celebrated and often mentioned, is the Hendrix derived mode of adding expression to lead guitar lines that would, under normal circumstances, still function if the wah-wah effect was removed. The second is a modality derived from the aesthetic of *Theme From Shaft*, which involves the fully integrated use of the wah-wah to create a unique ‘wacka-wacka’ style timbre. Given the existence of such a clear binary within the discourse, I feel it is sensible to consider the two separately before exploring any similarities or convergences.

After its originator, Charles ‘Skip’ Pitts, perhaps the most well known proponent of the wacka-wacka style is Melvin, ‘Wah-Wah Watson’, Ragin. Watson is a prolific session guitarist who has played on a great number of recordings, particularly those of the Motown label, where he was a member of the in-house studio band, The Funk Brothers. As his name suggests, Watson is a frequent user of the wah-wah pedal, and has built much of his reputation upon his highly developed and idiomatic wah-wah technique. Take, for example, the following quote,

Some of you may not know Melvin ‘Wah-Wah Watson’ Ragin by name, but you do know 'Papa Was A Rolling Stone' by The Temptations, Marvin Gaye's 'Let's Get It On' and 'Off the Wall' by Michael Jackson. Wah-Wah Watson is an American guitarist, producer, writer and artist and contributed his skills to hundreds of singles and albums. He is well known for his skills with a Wah-Wah Pedal, hence the nickname, and was a key player in the 70's Motown sound (Staunton, 2013).

Watson is one of the many legions of professional session musicians that exist in America and elsewhere, and are at least partly responsible for the collective development of popular music styles. In this case, the author impresses Watson's importance in the development of a wah-wah infused Motown rhythm style. Both this, and Watson himself were also highly influential in the development of funk. Take, for example, The Temptations' track 'Papa was a Rolling Stone'. Watson plays a guitar line that is heavily saturated with the wah-wah effect, and also reminiscent of 'Theme from Shaft'. The chord played tends to remain static, although some changes do occur throughout the song, as does the strumming pattern. The guitar operates as a textural device, often entering before a crescendo, and fading after the strings and horns. It also operates as a stylistic reference, signifying in this case Motown and its associated cultural sphere.

Watson has received many plaudits for his work as a session musician. However, his work as a composer has been less well received. Although it received good reviews from critics (see Waring, 2012), Watson's debut solo album *Elementary* (1977) sold poorly. Watson went on to play on many more recordings, but *Elementary* would prove to be his last attempt as a solo artist in his own right. One author attempts to explain this discrepancy,

Having wondered whether Wah-Wah Watson's debut and only solo album *Elementary* was far too ahead of its time, I think that was definitely the case. Listening to *Elementary*, what I found was an innovative, imaginative album, where Wah-Wah Watson fuses funk, soul, jazz, disco and even a touch of rock... Basically, *Elementary* was released at the wrong time. Its innovative, imaginative sound was years ahead of its time and released when disco was king. *Elementary*... remains a hidden gem of an album that waits to be unearthed by music lovers. Maybe if it had been released in a different time, Wah-Wah Watson would've been a superstar (Anderson, 2012).

Here we can observe what is effectively the reverse of the traditional position surrounding virtuosity, which often contains an element of implicit populism. There are any number of reasons why Watson's album was unsuccessful, including that proposed by the author. However, one effect of choosing to suggest that *Elementary* was poorly received because it was "too far ahead of its time" is that the author

removes any responsibility for failure from Watson and places it on the music listening public. This allows a continuation of his status as a successful session musician to be maintained. It is also an indicator that inscriptions of virtuosity are more complicated than has been assumed in the past, and that in addition to the physical and technical abilities, reference must be made to contemporary aesthetics. This is discussed in more depth in the following section, where I discuss the decline and resurgence of the wah-wah pedal in popular music.

Wah-Wah Stagnation and Resurgence

According to the narrative outlined in Chapter 2, the wah-wah pedal entered a period of decline during the late 1970s, whereby it was both used on fewer recordings and experienced a reduction in regard within written electric guitar discourse. Commentators have attempted to explain this decline, both in terms of aesthetic trends and the emergence of new and superior technologies. One suggestion is that the wah-wah pedal was victim to overuse, and that its decline was a natural product of this. Take, for example, the following two quotes.

Probably towards the late '70s it had reached the point where people had heard it, a lot, and it kind of went away for a while – Steve Lukather (Boloian & Tosi, 2011).

I think what caused the wah to, perhaps fall a little bit from popularity, was it just got overused – Art Thompson (Boloian & Tosi, 2011).

These explanations are predicated on the assumption that aesthetics operate like a market economy, in that value remains high while demand exceeds supply, and falls when a product saturates the market. The problem with such an assumption is that, while economics is certainly integrated with musical aesthetics and development, the full picture is more complicated. I would suggest that more important to the late 1970s decline of the wah-wah pedal was a disassociation of the pedal from creative and artistic credibility. As use of the wah-wah became more integrated with normative musical style, so its users felt a decline in their ability to innovate and create unconventional music. As I have already suggested, guitar culture prizes innovation, whilst deriding musical cliché and conformity. During the late 1970s, the wah-wah pedal became somewhat pastiche, and lost its credible status, and thus, at

least within the written discourse I examined, became less popular. Such a process, of emergence, followed by popularity increase, followed by self-conscious rejection is not uncommon within popular culture. However, of the three phenomena examined in this chapter, finger tapping, the wah-wah pedal and the power chord, only the wah-wah appears to have gone through an extended period of decline. I would suggest that this is because the pedal is *so* transformative, and the sound it produces *so* distinctive, that its specific semiotic associations were too great to overcome when attempts were made to repurpose the pedal for alternate musical uses.

A further suggested reason for the decline was the emergence of new guitar technologies in the early 1980s. This notably included a ‘rack’-based guitar systems and digital effects processors, as discussed in the following two examples.

Also in the 80s was the rise of the racks. I think that guitar players got really seduced into using a lot of rack FX processors, which were just really coming into vogue at the time – Art Thompson (Boloian & Tosi, 2011).

And so, what’s the next thing? And the next thing is this digital revolution. Now there is electronica coming into the studio. – Ben Fung-Torres (Boloian & Tosi, 2011).

A rack system allows a guitarist to combine various components into one integrated system. This could include a vast-array of devices, including digital delay, chorus, convolution reverb, compression, noise suppressors, as well as studio-quality equalization. Guitarists in the early 1980s were pioneering these systems, which were often large and difficult to transport, requiring a remote foot controller and extensive maintenance. One effect of this was the emergence of a strong discursive theme that considered individuality with respect to guitar-timbre or tone, a point I will discuss in greater detail in Chapter 4. However, as I have already suggested, players are often held in high esteem for their individual sound. This phenomenon became increasingly specialized during the 1980s as the range of guitar technology steadily increased, while simultaneously, the relative importance of the wah-wah declined.

As is often the way with specific artefacts in popular culture, the wah-wah pedal enjoyed a resurgence during the early 1990s, which would prove to have enough staying power to last until the present day. Steve Lukather articulates this process,

The '80s were kind of wah-wah free, maybe, or not used very often I should say. And then, when the Seattle scene hit: Alice and Chains and the heavier guys like Metallica. They started using it in solos, and it came back into vogue again. Those guys were using it in a new and tasteful way, and it became fresh again – Steve Lukather (Boloian & Tosi, 2011).

Lukather's is an interesting analysis; especially given that Metallica's first album was released in 1983. However, even if we take for granted that the wah-wah did re-emerge in the early 1990s, we must still examine his claim that the resurgence was 'new' and 'fresh'. Take, for example, Metallica's 'Enter Sandman', which was released in 1991. The extended guitar solo features heavy use of the wah-wah pedal, which guitarist Kirk Hammett used to articulate and punctuate the phrases. Whilst certainly effective and musically assured, I would contend that there is little originality in his use of the device. The 'freshness' to which Lukather refers in his above quote, I would suggest, is derived more from the overall musical aesthetic, to which the wah-wah pedal is only a part-contributor. Finally, Lukather's use of the word 'tasteful' is telling, in that it implies that passivity of the audience in determining musical 'appropriateness'. This reaffirms an important theme in this chapter, the conflation of virtuosity, credibility and acceptable musical aesthetics.

3.4 Virtuosity and the Power Chord

Unlike finger tapping and the wah-wah pedal, which both require a reasonable¹⁸⁸ degree of technical competence, the power chord can be used effectively by guitarists with only a small amount of experience. For the wah-wah pedal and finger tapping, evidence of musical virtuosity is usually obvious, as the sound produced clearly corresponds to the technical ability of the musician. However, virtuosic use of the power chord is often much less clear. Combine this opacity with the discursive notion that the power chord is 'easy' to use, and it becomes much more difficult to identify what does and does not constitute virtuosic performance. It is therefore necessary to consider 'virtuosity' on a sliding scale, ranging from the most virtuosic, technically proficient guitarists, to the least virtuosic, entirely novice guitarists. On this scale, it is possible to identify a discourse that understands both the power chord, and power chord-derived music as operating to lower entry barriers to guitar-based performance and composition. In the next few pages, I examine the nature of this discourse, and

some of the obstacles that undermine it. Furthermore, I consider the function of the power chord in heavy metal, and how the discrepancies between discourses of heavy metal and accessibility are understood and reconciled with respect to the electric guitar.

The Power Chord and Discourses of Accessibility

The most obvious feature of the power chord that facilitates ease of use is the simple and ergonomic fingering required. To play a power chord in standard tuning requires the player to finger one of the two shapes shown in Fig. 2. Firstly, the shapes pictured suggest use of the first (index), third (ring) and fourth (little) fingers, which is the most common fingering for these power chords. Use of this fingering allows the player to take advantage of the natural spacing between the fingers, which, depending upon the position on the neck, is approximately 3-4 frets in total. Secondly, the power chord belongs to a family of so-called ‘movable chords’, which means that the shape can be played on any fret along the neck. This means that once the player has mastered these two shapes, they have access to two-note chords based on any of the twelve chromatic notes, with a theoretical range of approximately 3 octaves.

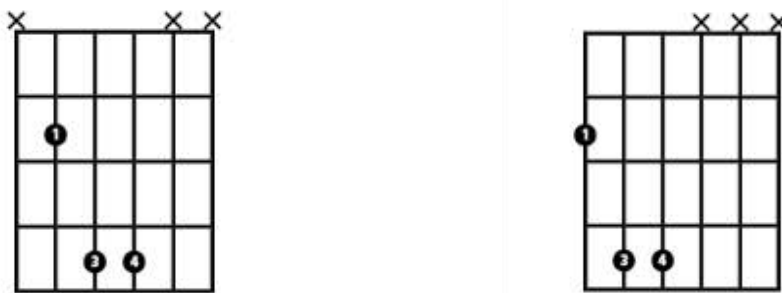


Fig 2. *Power Chord Diagrams* (Pitt, 2015)

These technical features have a number of practical implications for guitarists and the music that they create, and are an important part of the discourse surrounding the power chord. Most importantly, it means guitarists are able to construct chord progressions in any key without accumulating the fairly advanced harmonic knowledge that would usually be required. The power chord’s harmonic ambiguity (lack of a third, major or minor) further lowers this knowledge barrier.

Stylistically, the power chord is most associated with punk rock and heavy metal, which is partly reflective of the device's apparent suitability to be combined with a highly distorted timbre. Focusing initially on the punk rock community, there was something of an 'anti-virtuosity' sentiment, especially during the genre's inception in the 1970s. The power chord was part of a combination of factors that allowed the development of an aesthetic that reflected this sentiment. Although it is difficult to precisely determine an order of cause and effect, the technical features of the power chord have certainly been, and remain an important part of the punk rock aesthetic and ethos. Take, for example, the following two statements from interview participants, who describe the emotive qualities they see the power chord as reflecting.

AL: That was like, I don't know if you can take that kind of primal, like, aggressive thing that (Plays power chords on the guitar). You know, because it's exciting and its aggressive like, to me=

GT: Mmm hmm, sure.

AL: =, I, I don't think that you can do much more with that except for make it louder and get more people there (Ant Law, Personal communication, 14 March 2012).

In this quote, guitarist Ant Law is talking about the power chord generally, but his words also apply to its use in punk rock music. He refers to the device's 'primal' nature, implying that the power chord is natural and instinctive. This is juxtaposed to the refined and precise nature of more developed, virtuosic guitar techniques. Furthermore, Law suggests the power chord is both exciting and aggressive. This reflects the original, and arguably continued mission statement of punk rock, which sought to oppose what its founders saw as the homogeneity, elitism and safeness of classic and progressive rock. Finally, by stating, "I don't think that you can do much more with that except for make it louder and get more people there", Law also alludes to the power of volume in rock music, and the implicitly populist discourse of power chord driven music.

TM: It's [the power chord], I dunno, it's a bit angry young man isn't it? I guess, you know, you could sort of date it back a little bit to that=

GT: Yeah, sure.

TM: =, that era, and it's a little bit like, you know, can't give a fuck kind of sound isn't it, it's a little bit like, "we don't need to mess with your 3rd, with your majors and your minors." This is a power chord, you know, none of your kind of wishy-washy in between (Tim Maple, Personal Communication, 15 March 2012).

Here guitarist Tim Maple describes his own understanding of the power chord, which is informed as much by British Invasion bands like the Kinks as punk rock. The consistent theme, however, is aggressive masculinity. Maple suggests that for these musicians, use of a minor or major third in some way dilutes the 'power' of a power chord. Given the choice of language, "angry young man", we should also read this as a specifically masculine power.

This understanding of the power chord as a tool of masculine expression is, however, not without contradiction. Take, for example, the following quote from Dave Davies, guitarist for the Kinks.

To this day, when I play a G chord I barre it in such a way that it's neither major nor minor. When you sing the melody it's major, when you play the chords its minor. It's like a bisexual chord. That's the secret of 'You Really Got Me'" (Hasted, 2011).

It is therefore important to understand the relationship between the power chord and the assumptions within the written discourse I have examined about gender and power, in particular masculine power. In the case of punk rock, this relationship should be understood within a broader culture of resistance and transgression. Despite the sentiments contained in the statements by Tim Maple and Dave Davies however, there are several problems with punk as anti-virtuosic ideology, which can be observed via the function of the power chord within the genre.

The early punk rock ideology was derived from a combination of left-wing politics, working class alienation and resistance to the mainstream musical discourse. In the early 1970s, the dominant musical aesthetic was one of technical accomplishment, complexity and artistic ‘progression’. Punk sought to undermine this through the development of a musical style that was deliberately ‘unmusical’ and anti-virtuosic. These notions were further reinforced by the mainstream media, who portrayed punks as apathetic, talentless and anti-social.

The issue here is that both the punks and the media were operating with respect to a very narrow understanding of music, which came bundled with various assumptions and prejudices about its ‘definition’. However, if we assume that punk rock *is* music, then it must also adhere to the same structural constraints as all other genres. That is to say, there should be musical examples that exhibit relative levels of the qualities that we associate with virtuosity, and examples that do not.

A widening of the historical lens, for example, allows for the consideration of U.S. hardcore punk in the late 1970s and 1980s. Bands such as Minor Threat, The Descendants, and later on, NOFX and All were lauded for their high tempo and energetic music, which, despite the best effort of many of musicians to imply otherwise, required a great deal of technical facility. The contemporary punk rock discourse similarly values high tempo, energy and by extension, technique.

However, while the proclivity for fast-tempos may have increased since the origins of punk rock, the aesthetic dependency on the power chord has not. Guitarists from the abovementioned bands made frequent use of the power chord, both as a harmonic accompaniment and as a tool to create and reinforce riffs and melodies.

The Power Chord in Metal: Problems With The Accessibility Discourse

Punk’s continued aesthetic dependency on the power chord allows for a comparison with another genre that makes extensive use of the power chord – heavy metal. The two genres have always been aesthetically similar, which is reflected by their respective reliance on a heavily distorted electric guitar timbre. However, while punk rock is derived from a self-declared resistance to 1970s rock and its ‘progressive’ ideologies, heavy metal is represented much more as the product of a natural evolutionary process, and has maintained the primacy afforded to technical and

virtuosic ability by 1970s musicians like Richie Blackmore. The aesthetic similarities between punk rock and heavy metal genres cannot, however, be solely reduced to guitar timbre. Among a wide range of other differences, heavy metal guitarists have also made frequent and sustained use of the power chord. The discursive difference between the two genres, both in terms of the power chord and more generally, is thus characterised by the difference in conception and application of the device.

One of my interviewees, guitar teacher Duncan Cowling, sees the power chord as more characteristic of heavy metal than of punk rock.

To me the power chord is a chord reduction to power high volume, high power music... It's worked its way into existence through high-powered music like Black Sabbath, Deep Purple, Led Zeppelin, and then it's become heavy metal mainstream (Duncan Cowling, Personal Communication, 5 July 2014).

I asked Duncan to clarify what he meant by 'heavy metal mainstream', and he mentioned 1980s thrash metal band Metallica, 1990s southern metal band Pantera, and more contemporary groups within the broader category of 'metal', including Slipknot, Black Label Society and Machine Head.

If we use the above timeline as a simplified example of the evolution of metal, it becomes possible to also observe a change in the way the power chord has been used by metal guitarists. In addition to being one of the most commercially successful metal groups in history, thrash metal band Metallica are also often credited with instigating a paradigmatic shift in heavy metal aesthetics. Take, for example, the title track from the band's 1986 album *Master of Puppets*, which was certified six times platinum by the RIAA (Recording Industry Association of America) in 2003 (RIAA, 2014).

The Metallica track 'Master of Puppets' (*Master of Puppets*, 1986) makes extensive use of the standard power chord shape, using it in combination with single-note pedals to create a succession of heavy-sounding riffs. The most unusual aspect of the track, in terms of the power chord, is the speed with which guitarists James Hetfield and Kirk Hammett are able to change position whilst retaining the required finger shape. The technical standard required to play 'Master of Puppets' is undoubtedly

extremely high, and performance is only made more impressive when you consider the accuracy of the double-tracked guitars on the studio recording.

Towards the end of the 1980s, a trend amongst metal bands developed whereby guitarists would detune their low E string to a D. This means that the lowest two strings of the guitar are tuned to a 5th, and allows the player to play a power chord using just one finger (Fig. 3). This has often been augmented by detuning all six strings by as many as 5 semitones, creating not only the impression a ‘heavier’ rhythm sound, but also meant songs could be transposed to lower keys, allowing singers to hit relatively higher notes. During the last 20 years, instrument manufacturers have also started producing specialist instruments designed to facilitate the use of low tunings, including baritone, 7, and 8 string guitars. The aesthetic consequence of this convention is evident when the other bands mentioned by Duncan Cowling are considered. Although certainly not limited to Slipknot, Black Label Society and Machine Head, these bands’ use of drop tuning allows the development of an understanding of the relationship between modern metal, the power chord and virtuosity.

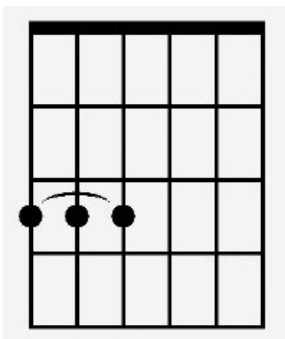


Fig. 3. *Power Chord Finger in Drop Tuning* (Pitt, 2015)

Altering the tuning of the guitar, and thus allowing a power chord to be played with just one finger, means that guitarists are able to articulate the device in a number of new ways. Most obvious is that, in drop tuning, the guitarist need only use one finger to fret the two or three notes required. Not only does this make it ‘easier’ to play the chord, but it also increases the feasible distance a guitarist can travel along the fret board between each articulation, as the full stretch width between first and fourth finger can be exploited. Furthermore, it becomes possible to use the power chord in combination with legato-style articulations, including the hammer-ons and pull-offs

that are so integral to finger tapping. Finally, the tuning of the lowest two open strings to notes that constitute a power chord means that guitarists can make constant reference to a low pedal note, which is usually the key note of the song, whilst playing more intricate lines higher up the fret board. This means that a guitarist can retain a firm harmonic base and low, 'heavy' texture, whilst having the freedom to create melodic and harmonic interest anywhere on the instrument.

Metal guitarists have certainly exploited these possibilities. Take, for example, Machine Head and their 2007 track 'Halo', which is recorded in Drop B. The two guitars, which are panned hard left and right, play a riff in unison during the verse parts that is centred around the lowest 4-5 notes on the guitar. For the most part, the riff moves in quavers, occasionally breaking into semi-quavers. The tempo is fast enough, however, that to play the riff in standard tuning would be extremely difficult. With the properties offered by drop tuning, this is more straightforward, although still requires a high level of competence due to the fast tempo and rhythmic complexity.

It appears then, that the use of the power chord by metal guitarists serves to contradict and undermine a punk rock conception of the device. Metal players have demonstrated quite clearly that the power chord is just as suitable for highly technical music as it is for the simplest. Moreover, the device serves to imbue each genre with different meanings and reinforce different ideologies. For punk rock, the power chord both represents and enables resistance and transgression, both musical and social, and serves as a tool and icon for lowering the entry barriers to musical performance, despite the contradictions presented by many of the more technically accomplished punk rock bands. For metal, the power chord is used to create 'heaviness' within the music, and as the basis for more developed musical experimentation.

Returning to virtuosity, the power chord is variously used to create a range of extremely simple and highly complex music. However, unlike the wah-wah pedal and finger tapping, highly technical power chord-based music is not always identified as such, nor are its performers identified as virtuosi. I would suggest that this is because the power chord lacks the same semiotic associations as the wah-wah pedal or finger tapping. Rather than the classical or funk associations of these, the power chord is connected with punk and heavy metal, which are traditionally considered 'low-art' genres. Furthermore, cultural 'outsiders' often identify the low, distorted

aesthetic produced by drop-tuned metal riffs as aggressive and basic rather than skilful and highly developed. Within the written discourse I have examined in this section, the ascription of virtuosity is often linked to the status of the performer or genre. I would suggest that, in general, performers whose music is considered to have ‘high art’ status, or who have successfully transformed the original status of a particular music to that of high art, are more likely to be understood as virtuosic.

3.5 Conclusion

In this chapter, I have reconsidered electric guitar virtuosity with respect to the discursive methodology that underpins this thesis. The main body of the chapter examined ideas of virtuosity associated with finger tapping, the wah-wah pedal and the power chord. In this final section, I unpack themes that cut across these categories, demonstrating how they relate to a number of wider issues that continue to be relevant to the electric guitar. After discussing identity, aesthetics and ideology, I present a brief comparison of contemporary electric guitar virtuosity with that of the Romantic era, and lay out a number of developments that have occurred since Robert Walser published his paper, ‘Eruptions: Heavy Metal Appropriations of Classical Virtuosity’ (Walser, 1993). Overall, I suggest that contemporary ascriptions of virtuosity within the written electric guitar discourse I examine are closely linked to aesthetic preference.

Identity

Underlying the discussions and attributions of virtuosity in writings about the electric guitar are various implicit references to particular aspects of guitarists’ identities. A particularly powerful theme relates to the gender and sexuality of guitarists. Eddie Van Halen, for example, is often presented as a masculine hero, whose virtuosic abilities give him greater sexual prowess than that of ordinary musicians. This clearly reflects Romantic era notions of virtuosity, but also reinforces typical societal gender roles. Van Halen’s role is understood to be the provider of aural pleasure (read sexual pleasure) to women, who are respectively understood as passive recipients (even if the audience for the music is male rather than female). As a rough contemporary of Van Halen, the narrative surrounding Jennifer Batten provides valuable insight into the position of female guitarists in the 1980s and 1990s. Following her exposure as the lead guitarist for Michael Jackson, she received a great many plaudits for her virtuosic

ability. However, the discourse surrounding her was often couched in terms of her status as a woman, creating an imbalance between her success and that of her male peers. Thus, many aspects of the Jennifer Batten narrative within the discourse have been presented in terms of gender political issues, despite the fact that these were usually either irrelevant or only loosely related.

Returning to a point made earlier on in the chapter, a clear similarity between written electric guitar discourse and the Romantic era can be observed with respect to the wah-wah pedal, particularly the discourse pertaining to the pedal's use by Jimi Hendrix. Writings about Hendrix and the wah-wah are adamant in their agreement on his ability to utilise the wah-wah to a previously unattainable level, and commentators suggest that, above any factor, the physical superiority of his feet is responsible. This explanation clearly highlights the importance of the body within written electric guitar discourse, and reflects the Romantic derived notion that physical prowess is the driving force behind musical prowess. Furthermore, and with specific reference to Jimi Hendrix, it reflects the more general notion of his immense physical and sexual power, as discussed by Steve Waksman (1999).

Finally, there are a number of themes relating to identity that emerge upon examining the power chord and its role within punk rock. The power chord has been imbued with powerful semiotic significance, including an understanding rooted in conceptions of masculine power. However, in similar terms to the device's use within heavy metal, the power chord is also understood to represent the rebellion and angst-driven aggression that is fundamental to the genre. Thus, the power chord becomes a tool for establishing an identity suited to particular genre requirements.

Aesthetics

A second prevalent theme within this chapter is the existence of an aesthetic discourse that heavily incorporates the theme of virtuosity. In many cases, aesthetic criteria are used to judge the credibility or acceptability of displays of virtuosity. For example, Eddie Van Halen often walked a fine line between acceptable and unacceptable virtuosity, and thus the discourse surrounding him serves as a useful demonstration of this process of judgement. Eddie Van Halen's virtuosity is often dismissed as 'sonic masturbation', implying that he is self-indulgent and instantly gratifying, but devoid of any real 'meaning'. However, when affirmed, the same performances are

understood as the pinnacle of skill and musical expression. Thus, virtuosity is not understood as sufficient unto itself, it must be used to express a deeper musical meaning.

In a similar way to Van Halen, ascriptions of virtuosity within jazz guitar discourses are dependant on aesthetic judgements. The discourse surrounding Emmett Chapman, for example, characterises jazz virtuosity in terms of melodic and harmonic exploration, and innovative improvisation techniques. Chapman's development of the free hands technique is understood as facilitating these musical characteristics. For jazz guitarist Stanley Jordan, however, virtuosity is understood in much more traditional terms. Having developed a highly accomplished finger tapping technique, Jordan initially garnered favourable critical reaction. However, between the release of his first album in 1985 and the present day, this has gradually been replaced by discursive ambivalence towards his creative choices and musical aesthetic, which were understood as lacking in some fundamental meaning.

Moving away from finger tapping towards the wah-wah pedal and the power chord, the relationship between virtuosity and aesthetic acceptability remains clearly observable. In heavy metal, for example, obscured virtuosic technique is used to create a 'heavy' aesthetic, whilst in punk rock it is also used to signify utilitarianism. Similarly, within funk music, virtuosic and innovative wah-wah technique has been adopted and fully integrated into a unique, repetitive and texture driven aesthetic. This chapter demonstrates a clear relationship between virtuosity and aesthetics, whereby virtuosity is only revered when certain aesthetic criteria are met. These criteria vary depending on the context of performance, but appear to reflect more general aesthetic preferences. Such preferences are derived from a number of factors, one of which is the ideology manifested through the actions of a particular social group.

Ideology

A consistent feature of the examples in this chapter is their use of or implicit reference to discursive elements or assumptions that are not directly linked to the production of music. Often these elements are used to give the music particular meaning or currency, and in this case, to give meaning and credibility to demonstrations of virtuosity.

For example, Eddie Van Halen's guitar playing is frequently understood through reference to various notions of authenticity. His playing is often described as both 'raw' and 'spontaneous', which clearly reflects the much older, 'naturalistic' ideologies of blues music. Such ideologies are echoed within the discourse surrounding the wah-wah pedal, which emphasises the importance of vocality, communication, and the physical aspects of engaging with the pedal. Furthermore, Van Halen is often praised for his musical appropriateness and credibility, with such praise usually expressed in high-art terms, including his 'expressive' and 'communicative' ability. Such high-art references are also prevalent in the discourses surrounding Emmett Chapman and Jennifer Batten. Batten's musical training was very similar to that provided by classical music conservatoires, and as such her success is often understood in similar terms, with frequent references made to her impressive technique, high degree of accuracy and competitive edge over her peers. Chapman, meanwhile, is lauded for his artistic dedication, which is evidenced by his desire to build an instrument specific to his musical goals. Thus, his authenticity is partly understood with respect to an element of self-sacrifice, which clearly reflects historic tropes of the tortured artist, very much in the vein of the popular van Gogh narrative.

By contrast to finger tapping and the wah-wah, the power chord is part of two culturally specific and differing ideologies whilst performing a similar aesthetic function. Within punk rock, for example, the power chord reinforces a discourse of accessibility, which is closely linked to the DIY ethos of many punk communities. The power chord serves this function despite evidence that suggests a significant amount of punk music requires a high degree of technical competence. Within heavy metal, the power chord is used to inscribe 'power' in the music, which is defined by its heaviness. The power chord is preferred in part because it allows for the development of extended technique whilst maintaining this heaviness, particularly when used in conjunction with drop tuning.

Virtuosity and Romanticism

As I discussed in the beginning of this chapter, much of the ideology underpinning electric guitar virtuosity is similar to that of the Romantic era. The similarities in

conceptions of virtuosity between the two eras can be organised within three categories, which I present in turn.

1) During the Romantic era virtuosos were almost exclusively male, which caused a more contemporary understanding of virtuosity to evolve in terms of masculinity. As such, virtuosic power has historically been understood as masculine power. As demonstrated throughout the chapter, this paradigm has changed little over the course of electric guitar history, and even the discourse surrounding virtuosic female guitarists is constructed in terms of male power.

2) In a similar way to the Romantic era, both audiences and critical reception requires guitarists to make “appropriate” use of their technical skills. With respect to both the Romantic era and the written discourse I have examined, this means that virtuosity as an end unto itself is unacceptable. Rather, there is a belief that the musician must communicate with the audience through the music they are playing, implying that music has some transcendent potential.

3) During the Romantic era, a common conception was of the performer as a conduit for a higher power, either the composer of the music or a transcendent deity. The notion of performer as conduit still has some value within the written discourse I examine in this thesis. As presented in Section 3.2, an example of this is Eddie Van Halen, who considers himself to be a conduit for divine inspiration, and thus understood his own role as being to passively and neutrally facilitate the transmission of music from deity to audience. However, and almost certainly owing to the reduction in organised religion and personal spirituality over the course of the twentieth century, such notions have diminished overall within written electric guitar discourse.

Thus, there are a number of similarities between performance and reception of virtuosity in classical music of the nineteenth century, and that of late twentieth and early twenty-first century electric guitar virtuosity. These similarities include an ideology that promotes appropriate musicality, the use of virtuosity to reinforce an ideology of authenticity, and an understanding of the virtuoso as profoundly transcendent. During the lifetime of the electric guitar, there have also been a number of explicit developments with respect to virtuosity, not least the gradual and increasing acceptance of female guitarists within the profession. Despite this, there

still remain a number of implicit power imbalances between male and female guitarists.

In this chapter, I attempted to understand virtuosity from a discursive perspective, and have demonstrated that the level of virtuosity ascribed within written discourse is usually determined by judgements based on aesthetic preference. Furthermore, I have outlined the similarities between notions of virtuosity in contemporary electric guitar culture, and in classical musical culture of the Romantic era. This includes various assumptions and implicit prejudices about the value of musical performance. Developing the work of Robert Walser (1993) in particular, I have provided a more up-to-date examination of virtuosity with respect to the electric guitar, and more specifically in relation to the phenomena that form the focus of this thesis. In the coming chapter, I expand my field of enquiry to include a number of hitherto unexamined developments in, and contemporary examples of electric guitar technology.

Chapter 4 – Technological Discourses: Innovation, Conservatism and the Digital Age

4.1 Developing Electric Guitar Technology

Until now, my analysis has centred on finger tapping, the power chord and the wah-wah pedal, and treatment and understanding of these phenomena within written discourse. The focus of this chapter is somewhat broader than the previous two, in that I examine a number of other music technologies relevant to the electric guitar. For the purposes of this chapter, I define technology as the hardware and software used by electric guitarists to facilitate the creation and performance of their music. This includes items as rudimentary as the guitar itself, and the amplifier with which it is paired, but also includes analogue and digital recording hardware and digital software, guitar modelling software and digital distribution tools. Throughout the chapter I make reference to various technologies that I identified throughout my initial reading and research for this thesis. The defining characteristic of the technologies is that they are used in some way by one or more electric guitarists.

The more general category of ‘music technology’ has received a great deal of attention from academics, and the current body of work covers artefacts ranging from Edison’s phonograph (Gelatt, 1977) through to complex musical software (Rumsey, 2004), and from a wide range of theoretical and analytical positions. Before presenting an in-depth analysis of the discourse surrounding contemporary electric guitar technology, I outline a number of abstract theoretical works that inform my analysis of electric guitar technology and music technology more generally. Having done this, I also provide an overview of recent advances in music technology, including changes in the way that music is listened to and distributed as a result of the proliferation of digital music processing.

Marxist Cultural Theory and Technological Determinism

In this chapter, I discuss the emergence of and reaction to a number of new electric guitar technologies. Much of the discourse surrounding these new technologies makes implicit reference to the dialectic between technological determinism and constructivism, which has played out in popular music scholarship throughout the twentieth century.

Of particular significance is Frankfurt School theorist Theodore Adorno, whose work regarding music recording and reproduction technologies is widely cited within popular music studies. Adorno favours a Marxist interpretation of these technologies, suggesting that they were influential in turning music and art into economic commodities. He theorizes that the commodification of its products would undermine art's fundamental power and value. Adorno suggests that a mechanized and reproductive culture industry confused the illusory pluralism of competing products with a real pluralism of human freedoms (Adorno, 1991). He develops this theory by suggesting that consumers will willingly engage in the new cultural economy because otherwise they face social and institutional exclusion (Adorno, 1991). Such thoughts were developed a number of years later by cultural theorist Walter Benjamin. His pivotal work, *The Work of Art in the Age of Mechanical Reproduction* (Benjamin, 1992), builds on many of the principles suggested by Adorno. Benjamin theorizes the 'aura' of a piece of art, which he implies is integral to its cultural value, and impossible to replicate through mechanical reproduction. However, unlike Adorno, whose elitist perspective seeks to reinforce a division between high and low culture, Benjamin sees the undermining of aura as vital to the breaking down of the power structures implicit in art production (Benjamin, 1992). The invention of reproductive technology could therefore be considered a tool of the disempowered for achieving greater cultural equality.

One commonality between these two authors is the level of technological determinism that they were willing to validate. Both Adorno and Benjamin support the concept that technology is affective over social and cultural structures and human behaviour, ideas that were developed by scholars studying communication and the media. Habermas, for example, suggests that developments in communications technology led to the, "unification and interlocking of the press" (Habermas, 1991). This idea is extended by Innis, who suggests that the characteristics of any age are circumscribed and defined by the communication technologies employed at the time (Innis, 1950). Perhaps most relevant to this study, however, is the work of Marshall McLuhan (McLuhan & Fiore, 1967), whose book length study entitled *The Medium is the Massage* is of seminal importance in a number of areas of cultural studies. McLuhan suggests that media reshape and restructure patterns of social interdependence, and that, "the 'message' of any medium or technology is the change of scale or pace or

pattern that it introduces into human affairs” (McLuhan, 1994). He argues that societies are first shaped by their means of communication, and then by the content.

There are a number of problems, however, with both the work of these authors and the determinist positions that they take. Firstly, little work by Adorno, Benjamin or McLuhan is based on any empirical evidence, and often appears to be highly generalized. Most importantly to this thesis however, is that they afford a great deal of agency to technologies that are, as far as the most contemporary development is concerned, fundamentally passive. Thus, the agency and decision making power of people and cultures is undermined. More specifically, it assumes that people are unable to make a choice or form an opinion about a new technological object, collectively or individually. In spite of this, the direct opposite of the determinist position, that people can do whatever they want with complete disregard for structural imposition, is equally invalid. An agent may only choose to act using the technology that is available to her or him at the time. To this end, Clive Lawson suggests a reciprocal model of technological activity, called the ‘transformational model of technological activity’ (Lawson, 2007). Lawson calls his approach ‘critical realism’, which effectively represents a compromise between strict determinism and technological constructivism. He suggests that while the structures that pre-exist our actions do not occur independent of human agency, our social reality is created solely by those actions. Rather, they are reproduced and transformed by all our action and everyday activities (Lawson, 2007). In this chapter, my analysis reflects the pragmatic approach suggested by Lawson, which goes a long way towards avoiding the problems presented by either an entirely constructivist or determinist perspective.

Changes in the Modern Landscape of Music Production and Reception

In addition to the above theories of technology, there are also a number of more contemporary theoretical developments that have occurred as a result of paradigmatic technological changes in the music industry, and which are likely to have affected the discourse surrounding electric guitar technology.

The most obvious empirical change to the musical landscape in recent times has been the emergence of the Internet and associated high-speed, global communications technologies. This has, in part, contributed to the development of a new virtual media environment for musicians and audiences. Scholars have suggested that this new

environment, which includes social media and downloadable digital music, will result in the breakdown between consumer and producer, leading to a new participatory culture (Tapscott, 2006). A number of scholars celebrated these possibilities. Jenkins (2006b) for example, suggests that participatory culture leads to collective intelligence, expanding a community's productive capacity because it frees individual members from the limitations of their memory, and enables the group to act upon a broader range of expertise. Critics of these principles, however, have voiced concerns that amateurism enabled by the Internet is both endangering professionalism and putting off ambitious amateurs from attempting to make a living from their work (Lovink, 2008). Such notions are extended by Keen, who writes that participatory culture enabled by the Internet and other communication technologies turns the culture industry into, "an endless forest of mediocrity", reducing the value of cultural content and undermining expertise, experience and talent (Keen, 2007).

Writing up to seven years after these authors, it appears that neither prediction was completely accurate. The fundamental undermining of industry hierarchies predicted by Jenson and others has not yet come to pass. There have certainly been a wide range of fundamental changes in the way that music is distributed and received, such as file sharing and the free downloading of music, which have impacted negatively on the traditional music industry. However, large companies and major record labels have also developed mechanisms for maintaining income streams and attempting to retain their dominance, such as with subscription services including Spotify and Apple Music, or through more heavily advertising-based services such as YouTube. However, nor have a sea of would-be musicians and amateurs flooded the musical landscape. Some exist, certainly, but for the most part commercial music production remains a professional environment. Nonetheless, there have been a number of important changes for musicians as a result of the Internet. Most notable is the massively increased flow of musical information, simultaneously performative, pedagogical and journalistic (Green, 2008). It is now very easy to access tutorials for your chosen instrument, listen to new or existing music, and to access relevant written material. For musicians, it also means a reconfiguration of the traditional system of industry gatekeepers. For example, while the recording and reproduction processes are now much more accessible, it remains difficult to get your music heard. There has been a significant decentralization in the music marketing process, with independent

radio stations, bloggers, online video channels and social media users now holding much more power. However, as major record labels catch up with these new outlets, so too do they develop strategies for regaining and retaining control.

The second significant change to the contemporary musical landscape was the emergence of digital music technologies. Interfacing music with computers allowed for enormous changes in the recording, performance, listening to and watching of music (Patmore, 2009). Firstly, the rise of personal digital music players, anticipated by the Walkman and Minidisc, has changed the way that people listen to music, both in terms of the physical process and the way that it is interpreted. Music listening has become a decentralised, often portable activity, and digital social media has enabled the rapid sharing of music between individuals. Digital music storage also means that people are able to purchase, store, transfer and share practically unlimited amounts of music without it occupying any physical space, apart from the device used for playback (Anderson, 2014). Secondly, the emergence of digital recording technologies, including digital audio workstations (DAWs) and digital editing software has coincided with enormous changes within the recording industry. For some, this is less than ideal, and has resulted in either the pursuit of perfect recordings, which removes the small, unique mistakes that they believe are so vital to 'good' music (Calore, 2012). Furthermore, there are some that suggest the editing potential of these technologies means that the standard of musicianship is declining (Eppstein, 2013). For others, however, these same properties mean that barriers of entry are lowered to non-professional musicians and those without recording contracts (Tapscott, 2006). The final consequence of digital technology, at least with respect to this chapter, is the emergence of digital instruments, including synthesizers, samplers, keyboards and, most importantly, digital guitar technologies.

Digital processing has been particularly effective in changing the technological landscape of the electric guitar. In addition to the opportunities, accessibility and portability offered by digital recording, a number of guitar specific technologies have emerged. These include digital amplifier modelling, which is discussed later in the chapter, guitar-like midi controllers, such as the Keytar and those that use touch screen technology such as the Kitara. There are a number of instruments that use on board digital signal processing to alter timbre or tuning, such as the Peavey/Antares Autotune guitar, the Moog guitar and the Line 6 Variax.

These technologies are constantly developing, and it is extremely difficult to keep track, never mind present a completely and continuously up-to-date analysis in an academic text. Waksman (1999; 2004) in particular has theorized the effects of guitar technologies on guitar culture. For example, he examines the emergence of distortion and its role in the development of rock and heavy metal. However, his analysis focuses on the opportunities distortion presented and its adoption by young, often experimental players. This focus on innovation came at the expense of covering any opposition to technological development, which, as I will demonstrate, has often been extremely well articulated within written electric guitar discourse.

Technological Discourses and the Electric Guitar

The purpose of this chapter is to explore the discourse surrounding some of the most recent examples of guitar technology, which were yet to have emerged within electric guitar culture when the most recent book length studies were published, including comprehensive considerations of guitar technologies by Waksman (1999), Bennett and Dawe (2001) and Dawe (2010). Given their importance and prevalence within the written discourse, it would be impossible to complete an up-to-date and comprehensive study of the instrument without some reference to the technologies that have emerged or developed considerably since the publication of these works.

In the first section of the chapter, I examine the significance of timbre or ‘tone’ to electric guitarists. One theme that emerged in the analysis of written electric guitar discourse was the value placed on individual and innovative tone. There also appears to be quite a narrow band of acceptance for unusual timbres. This conservatism is the subject of the second section in this chapter. I suggest a number of reasons for the conflict between innovation and conservatism, including the institutionalization of the electric guitar, the ageing of an original generation of young electric guitarists and the development of implicit power structures with respect to the electric guitar.

Acceptance of digital technologies by electric guitarists has been varied. The ambivalence is derived from a number of fundamental understandings and ideologies that guitarists have about technology. The third section of this chapter examines this phenomenon, and attempts to present an understanding that is framed within wider discourses of digital music technology.

In the final section, I consider one particular instance of electric guitar technology, the proprietary Antares Autotune Guitar. The Autotune Guitar has provoked fierce debate within the written discourse I have examined, involving arguments about what it means to give a ‘real’ performance, the evolution of the instrument and the democratizing effect of new technologies. I conclude this chapter by discussing, in more abstract terms, the meaning and value of the technologies I have presented. I examine how electric guitar technology relates to issues of identity for guitarists, how it serves to either undermine or reinforce existing structures of power and control, and finally, the opposing understandings of technology as either a democratizing or disempowering force.

4.2 Technology, Guitar Tone and Individualism

The Search For Tone

Pervading the written discourse I have examined is the concept of a guitarist’s ‘tone’. More specifically, this refers to his or her unique timbre, as produced by a combination of instrument (including string choice, plectrum set-up, pickup choice, neck profile etc.), effects and amplifier, as well as the equipment used to record or amplify the sound in a live environment. The possible combinations of guitar equipment are infinite. However, of far greater importance, at least as far as much of the discourse is concerned, is the way that a guitarist chooses to set up this equipment, and, vitally, how they physically produce sound via their chosen combination. Thus, any budding guitarist wishing to imitate their favourite guitar sound must do more than just buy the same equipment; they must also learn how to play like the musician in question. This concept is illustrated by the following quote, whereby Eddie Van Halen recounts an encounter with Ted Nugent when Van Halen was opening for the guitarist in 1978.

It’s all in the fingers man. Ted was cool enough to give the band a sound check. He’s standing off to the side and he’s listening to me, and he comes up and says, “Hey, you little shit! Where’s your little magic black box?” I’m going, “Who the fuck is that?” And it was Ted. “Hey Ted, its nice to meet you, thanks for the sound check.” And he’s going, “Let me play your guitar!” I go, “Okay, here you go.” He starts playing my guitar and it sounds like Ted. He yells, “You just removed your little black box didn’t you? Where is it? What did you do?” I go,

“I didn’t do anything!” So I play, and it sounds like me. He says, “Here, play my guitar!” I play his big old guitar and it sounds just like me. He’s going, “You little shit!” What I’m trying to say is I am the best at doing me. Nobody else can do me better than me (Yang, 2012).

This quote serves to counter the notions of technological determinism implied by Nugent, who suggests that Van Halen’s unique tone is derived from his use of a ‘magic black box’. Elsewhere, Van Halen discusses his equipment at great length. His early set up included a heavily modified Marshall Plexi 100 Watt Amp, two Echoplex delay units, an MXR Phase 90, a flanger, and a heavily modified Charvel Stratocaster (Obrecht, 1980). However, here he tries to downplay the importance of this contemporaneously unique combination of gear. Instead, he suggests that his tone, widely referred to as the highly unique ‘brown sound’, is “all in the fingers”. According to Van Halen, the importance of physical technique relative to use of technology is so great that he could use any other guitarist’s equipment and still sound like himself.

This is likely an overstatement that underestimates the importance of technology to guitarists. However, it also functions to underscore Van Halen’s individuality and capabilities for innovation. As suggested, such individuality is highly valued within the written discourse I have examined. The implication is that people chose to prioritize the differences between guitarists’ tone over the similarities, which, it could be argued, are often quite strong. The above example illustrates a pervasive theme of individuality with respect to electric guitar tone. Guitarists who develop a unique sound are valued much more highly than those who are defined as derivative or unoriginal. Take, for example, the following writing about guitarist Jimi Hendrix.

Hendrix’s musical technique with his guitar playing conveyed the meaning of being an individual and expanding one’s creativity, stretching the envelope and thinking outside the box; the unusual beginning and ending of the song, the raunchy sounds and the spacey sounds were all different, unique and creative (Cox, 2006).

The first of these quotes focuses specifically on Hendrix, but it also provides a good example of an understanding of ‘individuality’. Key phrases like, “stretching the envelope and thinking outside the box,” suggest an understanding grounded in

transgression and rebellion, of doing something that nobody had heard before. Individuality is integral to the Jimi Hendrix narrative, and it is the primary facet for which his music has been praised. However, in addition to his technical abilities, Hendrix is often lauded for his innovative use of technology. Take for example, the following:

Jimi Hendrix's use of effects to create unique tones and soundscapes is legendary. Never satisfied with the established he'd push the boundaries with long studio sessions (Basener, 2013).

In this quote Hendrix is portrayed as the 'master' of the effects he uses, making use of their potential for creative purposes. However, there is also a suggestion that Hendrix was not satisfied with simply using the technology at hand for its intended purposes. Rather, he would conduct 'long studio sessions', making a personal and temporal sacrifice for the sake of his art. Thus, at least in terms of Hendrix, individuality is closely aligned with repurposing technologies.

There is little doubt that to many, Hendrix was an exceptional player, highly original and creative. However, there is also a certain irony in the above writing. Hendrix has certainly developed legendary status, along with many of his 1960s peers, but his and their personal innovations have also formed the foundations of a much more narrow band of acceptability for electric guitar timbre, based around derivations of the rudimentary arrangement of an electric guitar and tube amplifier. This combination is often represented as the definitive utilitarian choice or as 'all that's required', with the timbral diversity presented by digital technology rejected in favour of the preservation of tradition. Such an ideology clearly reflects the canonization of 1960s rock guitar music, whilst also creating an irreconcilable paradox between innovation and conservatism.

The Power of Sustain

One significant variable regarding electric guitar tone is the level of sustain a player is able to command from their instrument. Before the electrification of the instrument, players had little control over the its sustain. It was possible to hold a note until it faded away to nothing, but this decay time was largely determined by the construction of the particular instrument, and the acoustic characteristics of the environment it was

being played in. Following the rise of electric guitars and dedicated amplifiers in the 1940s and 1950s, players began to experiment with techniques for achieving greater control over the release envelope of the sounds they were making. The most obvious of these was guitarists' use of amplifier distortion, as discussed in Chapters 1 and 2. In addition to producing a noisy, aggressive sound, a distorted guitar amplifier also creates 'pseudo-sustain', which is achieved by a combination of two effects. Firstly, the overdriving of the amplifier causes it to 'clip' the peaks from the sound wave, which compresses the sound. This compression reduces the dynamic difference between the attack and decay portions of each note, thus creating the impression of sustain. The second effect produced by a distorted guitar amplifier is feedback. If a player faces the pickups on the guitar towards the amplifier, and sufficient volume is reached, then a feedback loop may be induced, whereby the amplified signal is detected and reproduced by the pickups ad infinitum. By fretting different notes on the fret board, and standing at predetermined distances from the amplifier, guitarists are able to control the pitch of this feedback, again, giving the impression of sustain. Prominent musicians have transformed this principle into a highly developed compositional tool, such as Robert Fripp through his use of 'soundscapes' (Cox, 2006).

The subject of sustain is a significant theme within the written discourse I have examined. A number of new technologies have emerged that allow for more controllable sustain, in both a rhythmic and melodic sense. In addition, the level of sustain a guitarist is able to achieve using his or her combination of equipment has become an important indicator of proficiency within the community. I am reminded here of the classic scene from *This Is Spinal Tap* (Reiner, 1984), where guitarist Nigel Tufnel (NT) is interviewed by Marty DeBergi (MB) in a room full of his guitars and other equipment. When asked about a particular instrument, he replies

NT: This is the top of the heap right here. There's no question about it. Look at the, look at the flame on that one...

MB: Yes.

NT: I mean...it's quite unbelievable [Picks up guitar]. This o- this one is just ah...is perfect...1959...ah...you know, it just, you can uh...listen!

MB: How much does this...

NT: Just listen for a minute... [Doesn't play guitar]

MB: I'm not...

NT: The sustain...listen to it...

MB: I'm not hearing anything.

NT: You would, though, if it were playing, because it really... it's famous for its sustain...I mean, you could, just hold it...

MB: Well I mean so you don't...

NT: Aaaaaaaaaaaa... You could go and have a bite an'...aaaaaaaa...you'd still be hearin' that one.

(Reiner, 1984)

While there has been a certain amount of self-consciously ironic dismissal of sustain by guitarists, it nonetheless remains an undeniably important aspect of practice, and therefore is worthy of attention here. Take, for example, this slightly more serious excerpt of an interview conducted by Paul Guy regarding the importance of sustain to guitarist Eddie Van Halen.

PG: That's a really nice guitar sound [*Van Halen 1*, 1978]. It was interesting that you said about the low-output pickups, I don't think you can get that sound with high-output pickups.

EVH: Yeah, I never liked the Super Distortion thing, it's like the 5150/2 amp that's going to be coming out in a while, we added another preamp tube, so it's got six preamp tubes now – just to smooth it out, you know, cause I don't like distortion, I like sustain.

PG: Ritchie Blackmore said the same thing when I interviewed him, he said he was always looking for sustain without distortion, he said an AC30 was about the best for that.

EVH: Yeah, but it just wasn't quite enough for me.

(Guy, 1998)

The impression I take from this example is that distortion is a by-product of achieving the desired level of sustain. Robert Walser suggests that sustain provided by distortion represents “extreme power and intense expression” (1993, p.42). In addition to Walser’s suggestion, I would suggest that there are two likely motivations for the desire for sustain. The first is more general, and applicable to all guitarists. Put simply, the ability of a player to sustain a note represents that player’s control over the guitar. If a player cannot sustain a note for as long as they wish, then they are seen as effectively submitting to the instrument. In a culture where power and control are fundamentally prized, a player’s passivity with respect to technology is seen as unfavourable. The second motivation relates more specifically to Blackmore and Van Halen, although it could apply to other players. Both have a stated affinity for classical music, and are documented to have incorporated classical elements into their music and guitar technique. I would suggest, consciously or otherwise, that by increasing control of the sustain characteristics of their guitars, Blackmore and Van Halen achieve a semblance to violins and cellos, and thus appropriate a level of these instruments’ semiotic value.

Contemporary Sustaining Technologies

In addition to these ‘traditional’ electric guitar technologies being used to achieve greater sustain, there have been a number of recent technological developments specifically designed for this purpose. These include the Fernandes Sustainer (1990) and Sustainiac pickup systems (1987) and the Moog Guitar (2008). These three make similar use of electromagnets to induce vibrations in the strings. In a similar way to amplifier feedback, once the string is struck by the player, the magnet, which is best conceptualized as an inverse pickup, is switched on and sustains the vibration of the string until it is physically stopped. Thus, a guitar becomes capable of emulating the sustain of the violin or that offered by the sustain pedal on a piano, and even surpassing the violin as the restrictions of bowing are not present. However, the response to these technologies has not been universally positive. Take, for example, the following quotes.

Guitarists (mostly) have very little interest in overpriced “guitar-like” instruments (fatusstratus, 2011).

Anyone who compares Moog guitar with ‘normal guitars’ will chiefly come to the conclusion that it is overly expensive (GYang, 2013).

Judging by these quotes, it appears there is a threshold for modifications, after which the instrument is understood to have lost some of its essential properties. For the above authors, the Moog guitar obviously crosses that line. In the next section of this chapter, I will discuss in more general terms the tension between innovation and conservatism intimated above.

Before I do so, there are two further points I would like to make about the way these contemporary sustaining technologies are seen to contribute to the value and meaning of guitar-based music, which is also relevant in the coming pages. Firstly, I would suggest that the acceptance of the Moog guitar and other sustainer systems has been less than universal because they represent the undermining of a guitarist’s essential control and power over the instrument. Secondly, the cost of these technologies is clearly a factor in their acceptance. The spending power of guitarists is obviously not uniform, and as such the cost of the devices I have described would be prohibitive to some, and to others such that they are understood as toys or non-essential add-ons to the instrument. However, there are numerous examples of new technologies that have achieved widespread recognition within written electric guitar discourse, and the points I have made must be understood with respect to the continuous wave of technological change and acceptance that pervades contemporary society.

4.3 Analogue and Digital Guitar Technologies

Digital Amplifier and FX Modelling

The emergence of digital technologies has had an enormous impact on both music in general, and the understanding of technology by electric guitarists. Most relevant to the electric guitar are technologies that use digital signal processing (DSP), whereby the analogue signal from the guitar is converted into digital data. Different algorithms are then applied to this information, varying the sound that is produced when it is converted back to an analogue signal. Using this basic principle, engineers and programmers have the capability to emulate all manner of analogue effects and processors, as well as create new ones that are only possible in the digital domain.

For the purposes of this section, there are two relevant categories of DSP guitar technologies; instrument modellers and amp/effects modellers.

In the 1980s, a number of companies began introducing guitar effect units that used digital converters and signal processing as an alternative to more traditional analogue units. The initial motivations for this were varied, but the change in approach resulted in cheaper to produce, more consistent and durable products. It meant that the physical limitations of analogue equipment were overcome, particularly with respect to digital reverb and delay algorithms. It also became possible to build ‘multi-effects’ units, which included any number of digital approximations of analogue effects, and the ability to combine settings into different pre-sets. In 1997, Line 6 released a new device, called the ‘Pod 1.0’, which extended this concept and attempted to simulate different brands and models of guitar amplifier. This allowed guitarists to emulate the sound of a wide range of ‘classic’ guitar amplifiers, including the Marshall JCM 800 and Plexi 100, the Mesa Boogie Dual Rectifier, Vox AC30 and Fender Twin Reverb. More importantly though, this technology could be purchased for less than the cost of a single one of those amplifiers, played at low volumes, and inputted directly into a mixing desk or recording interface. In the following 17 years, amplifier modelling has become more and more advanced, diverse and accessible. It is now possible to purchase software versions of most available hardware units, which can be used in combination with recording software.

Proposed Disadvantages of Amplifier Modelling for Electric Guitarists

The response to amplifier and FX modelling has, perhaps unsurprisingly, been less than unified. As part of the research for this chapter, I visited a prominent and respected online music forum. I encountered a conversation thread entitled, ‘Is Digital Amp Modelling the Future of Guitar Tone?’ The instigator of this thread, Jason Burns (2012) chose to write up and publish some of the responses and ensuing discussion. In the article, the author categorizes both the positive and negative responses to amplifier modelling evident within the discussion. I have outlined these in Fig. 4, which shows Burns’ summary of the proposed advantages and disadvantages of digital amplifier modelling as per the original thread.

Clearly digital amplifier modellers represent much more than just a passive technological item. Use or rejection of these devices is linked with particular

ideologies about music and what it means to play the electric guitar. Take, for example, the statement that amp modellers don't, "sound and feel like 'real' amplifiers." I would suggest that the highlighting of this particular feature of amp modellers reflects the canonization of guitar timbre that occurred as a result of 1960s and 1970s guitarists such as Eric Clapton, Jimi Hendrix and Jimmy Page, all of which used either Gibson or Fender guitars and tube amplifiers. Their canonization, a point discussed in detail by Waksman (1999), has led to the sound they produced becoming something of a 'benchmark' for 'great tone'. For many people, the sound these guitarists produced using a Gibson or Fender guitar and tube amplifier has become the sound that a 'real' guitar and guitarist produces. Take, for example, the following quote from one of my interviewees Duncan Cowling.

I understand using an amp modelling software package to be able to do direct recording onto the computer. But what would be the point of getting amp modelling hardware? I don't understand that, because if you want to be able to imitate a Marshall, then why don't you get a Marshall amp? If you want to imitate a Fender amp, then why don't you get a Fender amp? But if you want to be able to imitate any kind of amp, then you become somebody who's a generic session player with no identity (Duncan Cowling, Personal Communication, 5 July 2014).

Positives of Amplifier Modelling	Negatives of Amplifier Modelling
<ul style="list-style-type: none"> • The digital ‘versions’ are considerably cheaper than their physical counterpart. • It is much faster to ‘dial-in’ the required sound using amplifier modelling. • The same quality of sound can be achieved in an amateur environment as in a professional studio. • They are more accessible. • They are more versatile. • They are more reliable. • The digital versions take up less space. 	<ul style="list-style-type: none"> • They don’t sound and feel like ‘real’ amplifiers. • The latency is disconcerting to the player. • They don’t inspire a player like a real amp. • The sound produced does not ‘sit’ in the overall mix well. • They will result in new audio engineers not knowing how to record ‘real’ amplifiers. • Use of amplifier modelling is lazy and will result in ‘mediocre’ music.

Fig. 4. *A summary of the advantages and disadvantages for electric guitarists of digital amplifier modelling proposed by Jason Burns (2012).*

I would argue that Duncan’s statement reflects his ideology in respect of the value of different electric guitar technologies. For him, the practical advantages of software amplifier modelling are obvious and undeniable. However, and as he explained earlier in my interview with him, there is nothing quite like the ‘real thing’ (Duncan Cowling, Personal Communication, 5 July 2014) when it comes to classic amplifiers such as a Marshall or a Fender. An amp modeller will always be inferior, and if you are somebody who is prepared to put up with that inferiority for the sake of versatility, then you become a, “generic session player with no identity” (Duncan Cowling, Personal Communication, 5 July 2014). Thus, he implicitly aligns musical individuality and identity with tone, reinforcing the comments I made in the previous section.

A further dismissal of amplifier modelling as presented in Fig. 4 is that such technologies don’t ‘inspire a player like a real amp’. Tube amplifiers are considered by many electric guitarists to embody an inherent authenticity. Take, for example, a

Vox AC30, which has been used by numerous distinguished guitarists, including the Beatles and Brian May of Queen. Even the newer versions of the AC30 are understood to have an inspirational ‘vibe’ within the thread considered by Burns. However, digital simulation is not understood to inspire the same feelings (Burns, 2012). Certainly, it serves a practical purpose, but with none of the same aura and assumed authenticity. This lack of aura and authenticity suggests comparisons with Walter Benjamin’s concept of ‘aura’ and art (1992). For many of the detractors of amplifier modelling, their primary concern results from the technology’s status as a *reproduction* of an original analogue device. For Benjamin, “Even the most perfect reproduction of a work of art is lacking in one element: its presence in time and space, its unique existence at the place where it happens to be” (1992, p. 214). The original work of art is inscribed with a particular authenticity and the context of creation, whereas the reproduction is removed from that context, and therefore lacks the authenticity of the original.

There are a number of problems with the comparison between tube amplifiers and digital amplifier modelling, not least that tube amplifiers are similarly the product of ‘mechanical reproduction’. However, there are definite similarities between modern criticisms of amplifier modelling and those of scholars who wrote negatively about the early-mechanized music industry, such as Adorno (1991) and Adorno & Horkheimer (1997). Phrases such as, “use of amplifier modelling is lazy and will result in mediocre music”, cited by (Burns, 2012), and which originally appears in the context of an online forum discussion, clearly mirror some of the prejudices that afflicted western popular music during the early twentieth century.

Possible Advantages of Digital Amplifier Modelling for Electric Guitarists

Within the discourse I have examined, there exists a more positive attitude that seeks to advocate the perceived benefits of amplifier modelling. A number of claims have been made about the possible effects of amplifier modelling on both guitarists and the music industry more generally. Take for example, the following quote.

Digital effects are becoming cheaper and more powerful. They are computers, which process digital data in real time. As costs decrease and power increases in the computer industry, we reap the benefits in this equipment. They already

provide effects more cheaply than if the same sounds and flexibility were to be built with analogue components (GM Arts, 2014).

There are some apparent similarities between this position and that which followed the emergence of the Internet and Web 2.0. For example, the Internet's strongest proponents saw it as a primarily democratizing phenomenon. This response was further developed by music commentators, who foresaw a general lowering of entry barriers to the music industry, and an overall democratization of its participants (see Jenkins, 2006a; Tapscott, 2006; Wikstrom, 2009).

However, the similarities with the Internet are more than circumstantial. The author has highlighted the dependency of amplifier modelling on available and cost effective processors, memory and storage space. Thus, as these things are made more available in the general marketplace, so too are digital amplifier simulators. However, the same criticisms apply to both the Internet and digital amplifier modelling. The questions must be asked, cheaper for whom, more accessible for whom, and, in the case of amplifier simulation, are they really more flexible than their analogue equivalents?

The fact is, that in many parts of the world, computers remain a scarce resource, as do digital guitar technologies. Not every guitarist has a Line 6 or Digitech dealership on their doorstep, and the shipping costs for cheaper items are prohibitively expensive. As with discussions of the Internet, there is a certain amount of tunnel vision from participants in the written discourse, particularly those from the developed world. Moreover, if cost is disregarded, then the level of accessibility granted by many amplifier simulators is determined by the experience and proficiency of the user in exploiting general digital technology. For the most part, there is a correlation between age and proficiency in use of information technology. It therefore seems probable that while younger users may find amp simulation more accessible, older users are more likely to be comfortable with traditional analogue equipment. Finally, it is important to question whether amplifier simulators really are more flexible than their analogue equivalents as claimed by some. Undoubtedly, amp simulators are able to perform a wider range of tasks than one hardware amplifier. However, it is unlikely that a piece of software with only a single purpose would be any more flexible than the equivalent hardware, particularly given the potential for user modification of hardware that software has not yet achieved. The reasons for this are

twofold. Firstly, there is less expertise within the guitar community in programming than there is in electronics and mechanics, and secondly, there are very few open-source versions of music software that can compete with their commercial equivalents. This means that, even if somebody was technically capable of performing modifications and personalizing their software, it may require a breaking of the license agreement to do so.

Instrument modelling and the Line 6 Variax

In more recent times, both the technology and general approach used to facilitate amplifier and effect modelling has been applied to the guitar itself. A number of prominent guitar and musical instrument manufacturers, including Moog, Line 6 and Fender have developed products along these lines. The purpose of ‘instrument modelling’, as opposed to amplifier or effects modelling, is to emulate specific brands and models of guitar. This often involves the emulation of ‘classic’ guitars such as the Fender Stratocaster and Gibson Les Paul, and their myriad variants, but also the emulation of separate, yet related instruments, such as the steel strung acoustic guitar, classical guitar, 12-string guitar, and banjo.

Arguably the most popular example of this technology is the Line 6 Variax, which was released to the general market in 2003. The Variax used a variant of the DSP technology found in the Pod amplifier modeller, actively processing the harmonic content of the original electro-magnetic signal to achieve a resultant signal as close as possible to the instrument of intended emulation. Furthermore, the original Variax used pitch-altering technology to affect the tuning of the instrument without the user changing the string tension. For example, the physical strings could be tuned to standard tuning (EADGBE), but sound ‘drop D’ tuning through the amplifier (DADGBE).

Reactions to the Variax have been varied, but in a similar way to that of amplifier modelling, they illuminate a number of key motivations and ideologies for electric guitarists and other contributors to written discourse. Take for example, a quote from a review of the Variax by a working musician.

Every now and then, a piece of technology is released that addresses several consumer needs in one device. In the same way the iPhone is capable of housing

a phone, still camera, video camera, web browser, and a slew of other applications in a single pocket-sized apparatus, the Variax by Line 6 packs banjos, resonators, sitars, and classic electric and acoustic guitar tones into a single instrument. I recently had to fly to California for a gig with a pop artist at the Whiskey A-Go-Go in Hollywood. The set was only five songs, but every song was in a different tuning and some required acoustic guitar in the verses and huge overdriven electric sounds for the choruses. In the days before the Variax, I would have had to use several different guitars to get through the set. Knowing I had all the bases covered with one Variax in a gig bag when I walked on the plane was a great feeling (Allen, 2011).

Once again, this brings to mind Jenkins' 'convergent' media technology theory, which suggests that as technology develops, various technological tasks will converge and be completed using the same device (Jenkins, 2006a, 2006b). However, comparing the Variax to the iPhone is not simply referring to the device's ability to perform multiple functions, but also to its paradigm altering status. The writer Paul Allen is clearly highlighting the advantages of the 'one size fits all' approach, paying less attention to the perceived quality and accuracy of the individual sounds the instrument is capable of producing. His writing suggests that as a session musician, he prioritizes cost reduction and the ability to use the same instrument for a whole set over achieving the perfect tone for a particular track. Thus he reinforces the dogma of functionality over artistry that is commonly attached to session musicians.

With respect to the Variax, the conclusions reached by Allen are hotly contested. One online blogger writes,

Many guitarists wish their guitar would sound like a different guitar. Why they didn't buy that guitar in the first place is a mystery. Subsequently they modify the instrument to make their Strat sound like a Tele or their Tele sound like a Les Paul (O'Hara, 2012).

Here the author espouses another commonly held view, that it is preferable to own or use the original, 'authentic' instrument rather than an imitation. The reasons for this are fairly obvious – a Fender Telecaster, for example, has a certain semiotic significance that is actualized by a huge number of variables, including its physical appearance, its age and physical evidence of its use as well as its sound. An

emulation of the Telecaster, especially one that makes no attempt to imitate its shape and style, lacks much of this semiotic content, and therefore also lacks the same authenticity and desirability as the original. Similarly, it is often cheaper to buy to desired instrument in the first place, rather than to make potentially expensive modifications.

However, I would argue that the above author presents a very particular understanding of the electric guitar. There are many reasons why a guitarist would, “wish their guitar would sound like a different guitar”, without attempting to alter the sound quite so drastically or permanently. For example, a Telecaster player may install a humbucker pickup in the bridge, which is a distinctly ‘Les Paul’ feature. They may do this, not in an attempt to emulate the Gibson, but simply to allow themselves greater timbral scope and the ability to achieve a modern high-gain sound, to which the Telecaster’s single coil pickups are notably ill-suited.

A further, widely held concern relating to the Variax is the instrument’s physical appearance. Chris Gill writes,

When Line 6 introduced its Variax technology back in 2003, guitarists were immediately knocked out by its ability to produce the sounds of various guitars and stringed instruments in numerous alternate tunings. However, many players were somewhat lukewarm about the solid body guitars that housed the technology, which were decent and playable but not particularly sexy (Gill, 2012).

This quote comes from a review of the third iteration of the Variax, which was available in three different body shapes, all of which were designed by independent guitar designer James Taylor. Up until this point, sales of the Variax had been disappointing. Many, including Gill, pointed to the unusual aesthetic of the original design. His phrase ‘decent and playable but not particularly sexy’ is telling, not only because of its implied reference to the guitar as a representation of the human form, but also in its indication of the conservatism of many guitarists. Aesthetically, the original Variax occupied a vague space somewhere between a Les Paul and a Stratocaster, whilst in reality looking like neither. It could be viewed as an attempt by Line 6 to downplay the aesthetic importance in order to focus on its technological potential, or perhaps it is simply a result of copyright laws. Whatever the reason,

guitarists reacted negatively to the physical appearance of the Variax, and I would suggest not because it was ‘objectively’ unattractive, but because it didn’t conform to the aesthetic norms of the canonized Stratocaster, Telecaster or Les Paul shapes.

4.4 The Autotune Guitar

Before moving on to a more general discussion of technological discourses and the electric guitar, I examine the Autotune guitar, a proprietary technology developed by Antares Audio Technologies in partnership with the Peavey Electronics Corporation. I feel this is worth doing, because to me the Autotune guitar feels like one of the most extreme uses of music technology. It has certainly provoked some strong reactions within the discourse I examined, and furthermore there are obvious and direct links with the Antares Autotune software designed for use by vocalists in the studio.

Although a number of alternatives to the Autotune guitar existed prior to its invention, including Gibson’s mechanized automatic tuning pegs, and the abovementioned Line 6 Variax, none have developed the concept to such a great extent as Peavey/Antares. The device is shaped and constructed like a ‘traditional’ electric guitar, and can be mechanically tuned and intonated so that the instrument pitches true in the acoustic domain. However, within a cavity in the body of the instrument lies an array of analogue to digital converters and digital signal processors. When a note is sounded and detected by the pickup, the electro-magnetic waveform is converted to a digital signal, which is then treated by the on-board processors. The resulting signal is then converted back to analogue, and exits the instrument through a traditional ¼ inch jack socket, and can be used with any amplifier or interface. For the automatic tuning system to work, the user must first record a baseline, reference pitch, which is done by strumming once across the open strings. The instrument then compensates for any deviation in string tension and pitch from the desired tuning, outputting a signal of an instrument that is perfectly tuned and intonated. Using a number of controls, the user can also switch to alternate tunings such as Drop D, DADGAD and Open G. Furthermore, the instrument is capable of real-time, active pitch adjustments. If, for example, one or more strings is bent out of tune as a shape is fingered on the fret board, then the Autotune guitar will compensate and output a signal that is perfectly pitched. The software is also programmed to detect and accommodate attempts at pitch bend or string vibrato.

This technology therefore has the potential to overcome one of the most fundamental design flaws of the electric guitar. The arrangement of the bridge saddles, frets, and nut, along with the pitch relationship of the strings in standard tuning mean that it is impossible to achieve a perfectly tuned instrument. For example, even if all six strings are perfectly tuned and intonated, so that the twelfth fret sounds a perfect octave above the open string, then there will be some frets that sound either flat or sharp. Furthermore, the B string (2nd string) often sounds slightly sharp when played with the others, which is due to it being tuned a major third above the string below it, as opposed to a perfect fourth like all the others. For many, these small discrepancies, which are difficult to hear in most contexts, have become an idiomatic component of the electric guitar's sonic identity. However, in a number of applications, particularly in the recording studio when accurate tuning is imperative, these issues present an unwelcome obstacle. The Autotune guitar is a contemporary means of overcoming these problems whilst retaining a maximum likeness to the traditional electric guitar. A summary of these advantages are proposed by a Peavey press release, which states,

It's one thing to tune up your strings, but as anyone who's been playing for a while knows, the tougher challenge is maintaining perfect intonation as you move up and down the neck and finger complex chords. Luckily, this is where Auto-Tune for Guitar performs some of its most dramatic magic. Less-than-perfect intonation muddies your guitar's tone. But by using our new Solid-Tune™ Intonation system, an Auto-Tune for Guitar equipped guitar constantly monitors the precise pitch of each individual string and makes any corrections necessary to ensure that every note of every chord and riff is always in tune, regardless of variables like finger position or pressure or physical limitations of the instrument. As a result, listening to a guitar with Solid-Tune is a revelation, offering a purity of tone that has simply never before been possible (Peavey, 2012).

This statement contains a number of clear marketing techniques. The most obvious is “anyone who’s been playing for a while knows, the tougher challenge is maintaining perfect intonation”. The implication is that either you are one of these people, and therefore experienced enough to know that you need the Autotune guitar, or you’re not one of these people, but now you know about the problem, perhaps you should think about getting an Autotune guitar. More interesting, however, is the company’s

use of the term 'tone'. Its traditional meaning, and one maintained throughout this thesis, relates to the timbre of your combination of equipment. However, here Peavey is suggesting that tone or timbre is also dependent upon tuning. As popular music has developed, idiosyncrasies in tuning have become less pronounced, and tuning has become more consistent and accurate. In the above statement, Peavey is suggesting that the pursuit of perfect 'pitch' for the guitar will allow the development of even greater tone. Specifically, it is suggesting that the Autotune guitar can serve as a transparent 'medium' that allows a guitarist's tone to pass through unaltered. The motivation for this statement is quite clear, in that within the written discourse I have examined, great tone is both highly valued and considered a mark of individuality. The above statement by Peavey could thus be read as an attempt to appropriate this value and desirability. However, these assumptions are not without opposition. Take, for example, the following statement,

Guitars are not meant to have perfect pitch. Even the finest classical guitar in the hands of the finest classical guitarist will have notes that are slightly "out" in certain areas of the neck. If you tune a guitar so that chords low on the neck are perfectly in tune, then chords high on the neck will sound a little out. There are ways of tuning guitars so that these small imperfections are averaged out over the whole neck. But more importantly, people generally prefer music that's imperfect, the same way as they prefer art that isn't geometrically perfect. Take drums - drum machines which churn out beats that are accurate to the nearest millisecond have been available for decades, yet most people still prefer the sound of a human drummer, because their timing falls a little behind and ahead of the beat and thus sounds more human. You listen to a drummer like Steve Gadd versus a drum machine and there is no comparison. It's called soul. These pitch perfect guitars are just going to contribute to a growing trend of horrible shrink-wrapped music that's excruciating to cultured ears. You might as well just buy a MIDI guitar, and those sound freaking horrible enough as it is (Tarantola, 2012).

The above quote is predicated on an assumption about what makes music valuable. That is to say, Tarantola is of the opinion that the value of music is in its imperfections. His opening phrase, which references classical music, is telling, because he suggests that even the most prestigious and accomplished musicians (i.e.

classical musicians) are aware of this fact, a point reiterated by the phrase “excruciating to cultured ears”. This is augmented by a comparison with art, the purpose of which is to demonstrate that valuing imperfection is a universal concept. In the eyes of this author, the Autotune guitar is comparable with drum machines or the midi keyboard, all of which use digital signal processing to generate sonic approximations of acoustic instruments. These ‘instruments’, the author implies, are at least partly responsible for the development of “horrible shrink-wrapped” music. However, in addition to the obvious prejudices, there is a certain amount of conflation between ‘imperfection’ and ‘difference’ here. The author assumes that removing tuning discrepancies from the guitar will lead to a lack of creative difference in music. The assumed result will be unimaginative, ‘generic’, and ‘sterile’ music, similar to the ‘excruciating’ music that he describes.

The issue of sterility is one that appears frequently with respect to digital guitar technologies, but appears to be particularly pertinent to the Autotune guitar. One writer suggests that,

Those overtones, inflections, mistakes, all make up the character of the music. Without that, everything is sterile. As a studio tool, in certain genres of music, or in some applications I can see this thing [Autotune Guitar] working great. For me, it's the equivalent of being neutered (Tarantola, 2012).

Initially, the fear of being neutered can be understood as a fear of music losing its essential power. Most often, music labelled as ‘sterile’ is seen as a product of the music industry, whose sole objective is to package a song to make it suitable for mass consumption. ‘Creative’ music, meanwhile, has the power to transgress the boundaries put in place by the music industry, and is thus capable of overcoming the confines of commercialism. However, as Tarantola implies, this notion of sterility is a specifically masculine one. In writing, “it’s the equivalent of being neutered”, the implication is that the Autotune guitar has the potential to disempower a guitarist as both a musician and as a man.

Pedagogy and the Autotune guitar

A further issue with respect to technological discourses is the pedagogical effect of the Autotune guitar on developing guitarists. As a beginner, there are obvious

advantages to a guitar that tunes itself. Although there are a multitude of aids to help with tuning, none of these can help with intonation, and a poorly set up instrument is a great hurdle to overcome for aspiring guitarists, as no matter how well a piece is performed, it will never sound quite correct or in tune. Thus, the Autotune guitar presents a means of lowering some of the entry barriers to new guitarists. Additionally, its price of \$599 (£350) means that, unlike most new guitar technologies, it is reasonably affordable as a first or second instrument.

There are similarities between the Autotune guitar and contemporary digital recording technologies, which have become similarly accessible to both emerging musicians and established professionals. For example, the most recent iteration of the digital audio workstation Logic, Logic Pro X, retails at £139.99 in the UK, and allows for unlimited track counts, automation and effects and processing. By comparison, a 24 track analogue mixer, tape machine and the equivalent outboard processing equipment would cost somewhere into the tens of thousands of pounds. By adapting existing digital technology, Peavey and Antares have been able to keep the cost low. However, in a similar way to the broader discourse surrounding digital technology in the music industry, I have identified a number of problems that have been proposed by some writers.

With respect to the Autotune guitar, there are concerns from electric guitarists, particularly in online communities, that the technology will lower standards of musicianship amongst younger, more inexperienced musicians. The theory goes, that if guitarists don't have to learn how to tune their instruments then they won't, and the technology will become a 'crutch' replacing actual musical expertise. Tuning is a particularly important issue within the discourse, because it relates to the aural proficiency of a musician. The fear is that a guitarist who never learns to tune their instrument will also fail to develop other, unspecified aural skills. Take, for example, the following quote from an online article,

It [the Autotune Guitar] seriously promotes bad musicianship. The SOBs [sic.] at Antares have already loosed a plague of singers who can't sing on us, we don't need another plague of guitar players who can't tune their instruments or be bothered to learn to play in tune. This is an evil invention and cheapens the art of musicianship (Eppstein, 2013).

The author here expresses his concern that the Autotune guitar will lead to a mirroring of the perceived decline in musicianship engendered by Autotune for vocalists. While the above quote represents a relatively extreme response, it reflects more general notions of music technology reducing practical skills and creating a pool of mediocrity. However, also contained within the statement is the commonly held belief regarding the importance of ‘sacrifice’ on the part of musicians, particularly guitarists. That is to say, for a musician to be authentic, they must have spent a significant amount of time pursuing mastery of their instrument, a conception that clearly relates to classical notions of musical excellence. Thus, a technology such as the Autotune guitar, which reduces the length of this pursuit, potentially ‘cheapens the art of musicianship’.

This position provides useful insight into electric guitarists’ attitudes towards technology. Primarily, it is problematic because it fails to take into account highly accomplished musicians who play instruments that do not require manual tuning, including synthesizers and other digital instruments. For these instrumentalists, as well as guitarists, the value of aural skills lies not in being able to tune an instrument, but in being able to quickly and easily transfer a melody from the head to the instrument. There may be some truth in the claim that the Autotune guitar will hinder the development of this ability, but, at least currently, it is not able to replace it. However, the wariness towards the Autotune guitar reflects a general wariness by electric guitarists towards developing dependence on technology, which in turn reflects the importance placed on the retention of agency.

4.5 The Discourse of Technological Conservatism

This chapter demonstrates that the electric guitar is valued as a technological object. On the surface, this could be seen as slightly confusing; surely all guitars, even all instruments, are technological objects. As Steve Waksman implies in the introduction to *Instruments of Desire*, the electric guitar represents a paradigmatic shift away from the ‘acousticity’ of traditional instruments. The introduction of electromagnetic circuitry represented a loss in the naturalness of the original acoustic instrument, as well as a loss of fundamental power and control for the performer. By the same token, the introduction of the electric guitar in the 1950s, especially the Fender Stratocaster, also represented the absolute cutting edge of modernity (Waksman,

1999). Since its emergence, the electric guitar appears to have retained its technologically modern status, despite the fact that it has changed very little. There are many instances within the discourse, as I have already demonstrated, where particular guitarists are lauded for the innovative use of technology to a creative end. However, there exists a fairly narrow band of acceptable use of guitar technology and the different timbres it produces. This section explores this paradox, and aims to understand the function of a number of conservative elements within the discourse.

The first instance of conservatism is exhibited in the construction of a distinct binary between digital and analogue guitar technologies. I have already discussed part of this discourse, with respect to digital amplifier modelling, but it also exists in a much broader sense. There are a number of causes for this opposition. The first relates to the fundamental paradigmatic difference between analogue and digital technologies. That is, while an analogue signal operates continuously, a digital signal is made up of a series of discrete instances. While theoretically, digital audio operates at a high enough sample rate and bit rate that it is perceptually indistinguishable from analogue, some contributors to the written discourse I have examined maintain that a difference can be heard, and in some circumstances, felt. Take, for example, this quote from Eddie Van Halen. He states,

I don't like digital shit. My pedal board is homemade. It's all about sound. It's that simple. Wireless is wireless, and it's digital. Hopefully somewhere along the line somebody will add more ones to the zeros. When digital first started, I swear I could hear the gap between the ones and the zeros (Gill, 2008).

This reaction was not uncommon when digital processing began to make its way into musical equipment in the 1980s. The original 4 and 8 bit processors were not capable of producing the necessary dynamic and harmonic content to create a reasonable comparison with highly developed analogue equipment. This led to statements such as 'I swear I could hear the gap between the ones and the zeros'. However, since the 1980s, digital technology has developed at a fast rate, and the CD standard of 16-bit 44.1 kHz sampling provides comparable perceptual quality to analogue audio sources. Furthermore, most modern recording studios are now capable of recording at a rate of 24-bit, 96 kHz or above. Despite these advances, sentiments similar to that of Van Halen remain prominent within the written discourse I have examined. Take, for

example, the following excerpt from a report of a conference presentation by musician Neil Young.

Digital music files download quickly, but suffer a significant loss in quality. Bitrates for most tracks on iTunes average 256kbps AAC audio encoding, which is drastically inferior to the quality of recorded source material in almost every case. By Young's estimation, CDs offer only 15 percent of the recording information contained on the master tracks. Convert that CD-quality audio to MP3 or AAC, and you've lost a great deal of richness and complexity. [Young said], "my goal is to try and rescue the art form that I've been practicing for the past 50 years," Young said. "We live in the digital age, and unfortunately it's degrading our music, not improving it" (Calore, 2012).

With the advent of Web 2.0, high-speed broadband and digital downloading of music, file sizes for music have shrunk from the original CD quality .wav. File formats such as the MP3 and AAC are approximately one-tenth of the size of CD audio. However, and this is the crux of Young's concern, this had led to a decrease in digital audio fidelity. The MP3, for example, reduces the sample rate and bit depth of the file, which in turn reduces high-frequency information. Interestingly, in suggesting, "it's degrading our music", Young asserts that audio fidelity is directly linked to musical quality. Another author takes issue with these claims, however, and suggests,

I take exception to these [Neil Young's] claims, which are a bit off the cuff. First, comparing 24/192 files to anything is ludicrous. In order to get all of the "data" from those files, you need very high-end stereo equipment... Recording artists listen to their recordings in studios on equipment that is even better than what the most obsessive audiophiles have in their homes. But suggesting that LPs, with their clicks and scratches, or tapes, which are notably known for problems at high frequencies, are of higher quality than digital recordings is just disingenuous. It's interesting that Neil Young became famous during the time of AM radios. Even those with stereos had equipment that was light years behind the average stereo today. He got famous because of his music: his songs, his lyrics and his voice, not the quality of the sound. Analogue recordings did not approach the 24/192 benchmark that he cites, and the sound quality of the average stereo then was crappy compared to today's iPods. (It's worth noting that Neil Young suffers

from tinnitus, or at least he did in 1995 – it generally never goes away – so how much of that 24/192 does he actually hear?) (McElhearn, 2012).

Here Kirk McElhearn makes some very practical observations regarding Neil Young's claims. As a musician, Young has a vested interest in making sure the listener hears his music in the best environment possible. For Young, and indeed for most songwriters, it is of the utmost importance that the playback system does not interfere with the essence of the music itself. However, McElhearn points out that most people do not have access to, or perhaps do not desire to listen to music on the perfect reproduction system. Similarly, as Jonathan Sterne (2012) notes, there is no inherent link between attention, contemplation and immersion, all of which relate to the aesthetic experience of listening to music, and high-definition. Scholars have pointed out the change in trends of musical listening (Herbert, 2011), towards a more mobile, personal model, which necessitates the ability to store large amounts of music in a small space, and listen on the move without the track skipping. McElhearn's query of Neil Young's aural health is also incisive, as the most clearly audible difference between analogue, low and high fidelity digital sounds often occurs in the upper frequency range, precisely the range that tinnitus affects most powerfully. Thus, there are number of discrepancies between Neil Young's account of digital music reproduction, and what could be hesitantly described as the 'reality'. He is not the only objector, however, and forms only one part of a larger discourse of digital conservatism.

Another writer has gone even further than Young, with an article about the perceived effects of digital audio reproduction on the human brain. Below is a selection of excerpts, from a 2006 article.

I have tested many thousands of phonograph recordings made over a period of more than eighty years, and have found that most examples have been therapeutic, often highly so. In 1979 this changed. I suddenly found that I was not achieving the same therapeutic results as before, that playing records of the same compositions to the same patients was producing a completely contrary effect! When I investigated these and many other paradoxical phenomena, I found that in all cases they were related to the use of digital recordings (Diamond, 2006).

There seemed to me little doubt that something was “wrong” with the digital process. Apparently the digital recording technique not only did not enhance Life Energy and reduce stress, but it was actually un-therapeutic; that is, it imposed a stress and reduced Life Energy (Diamond, 2006).

Many audiophiles and engineers state that they have noticed that they can discern something vaguely “wrong” with the digital recording process but cannot quite pinpoint the problem (Diamond, 2006).

These extracts are written by John Diamond, whose focus is on general musical culture and contemporary listening practices, and come from an article entitled *‘Human Stress Provoked By Digital Recording’*. The article is written in a scholarly tone, although the content is largely anecdotal, autobiographical, and ultimately nonsensical. Furthermore, the citations and references that appear in the text are made exclusively to other works by the author. Thus, the scientific merit of this article is questionable.

The initial excerpt posits Diamond as an experienced practitioner in music therapy, implying the authenticity of his writing. He defines a ‘therapeutic’ event as something that increases ‘life energy’ and reduces ‘stress’. This is followed by the observation of a correlation between the emergence of digital recording and a reduction in the therapeutic effects of music. This is the premise for the remainder of the article, but it should be noted that this correlation is not evidenced statistically, nor is any attempt made to suggest causation. Instead, he writes “there seemed to be little doubt that something was ‘wrong’ with the digital process” (Diamond, 2006). This is telling, because it echoes the statements of many other digital audio critics, who suggest there is something inherently ‘wrong’ or that ‘doesn’t feel right’ about digital technology, yet are unable to identify precisely what it is. Furthermore, Diamond suggests that digital audio actually has a negative effect on the human mind. Elsewhere in the article, he gives specific examples of the effects of digital technology, which include a couple having a physical argument, two vegetarians eating hamburgers for the first time, and himself nearly walking in front of an oncoming car (Diamond, 2006).

There is undoubtedly something about digital recording that makes both Diamond and Young, and a wider community of analogue enthusiasts uncomfortable. This is

evidenced by the resurgence and recent sales increase of vinyl records, the continued presence of analogue tape recorders and other equipment in recording studios, and the emergence of the 'specialist', all analogue recording studio. It is possible to understand these views as examples of technological conservatism. However, as with all examples of conservatism, this has not occurred simply because of a fundamental and abstract fear of change – but also for economic and cultural reasons.

Within both musical culture and contemporary culture more generally, there is a historical trend of resistance towards devices that mechanize or simplify originally manual and skilled processes. The undertaking of analogue recording required a number of specialist personnel. This evolved to include a recording engineer/mix engineer, producer, tape machine operator, mastering engineer, as well as assistants, runners and engineers responsible for the maintenance of the highly specialized equipment. Each of these roles was different, and required specialized training over a significant period of time. If somebody wished to become, for example, a recording engineer, then they would have to invest a significant amount of time and effort to train and acquire a professional reputation. For a recording studio to operate at the highest level required a great deal of expensive equipment, which often meant significant financial investment, either from a record label or wealthy business person. While this remains true for professional recording studios, digital recording programs and equipment have allowed someone with no more than a personal computer to begin recording.

For those professionals who have already invested a significant amount of time establishing themselves in the analogue recording industry, digital technology presents a threat to both their livelihood and their prospects of career advancement. For those who see themselves as too old to relearn their trade, it could feasibly mean unemployment or redundancy. Thus, for these people there is a self-preserving imperative for their resistance to digital technology. Moreover, given that older, more advanced professionals tend to hold more power and influence within any given industry, the effect can be an overall resistance to change and a slowing of general technological progress.

A second reason for this resistance to digital technology is more culturally and aesthetically based. Whilst not actively 'responsible' for aesthetic changes, digital

technology certainly emerged at the same time as enormous stylistic shifts were taking place in western popular music. Two hugely influential genres, Hip Hop and Electronic Dance Music have both come to rely heavily on digital technologies. Thus the prevailing aesthetic in popular music is arguably a digital one. For those whose conception of popular music is rooted in analogue technologies, or at least genres that are traditionally analogue-based, digital technology represents a shift towards an unknown aesthetic. Similarly, Sterne (2012) has noted that much of the discourse surrounding the marketing of new technologies focuses on its verisimilitude. It is understood as desirable for technologies to reflect a certain 'realness', and the logical conclusion of this position is that, the more 'real' something sounds, the better (Sterne, 2012). The problems with defining realness notwithstanding, this provides an additional means for understanding resistance towards digital music technology, as its connotations to computing and the virtual create a sense of digital music being 'unreal', and therefore less desirable than its analogue equivalent. This also explains the pursuit of higher sample rate and bit depths, as these are understood to close the gap between continuous analogue and discrete digital.

Returning to the electric guitar, it is possible to see the undermining of specialist expertise and the ownership of equipment occurring with respect to digital guitar technologies. For example, in a discussion regarding the merits of digital amplifier simulation, one interview participant suggested that it would be preferable to buy original versions of the technology being emulated (Duncan Cowling, Personal Communication, 5 July 2014). This is a somewhat disingenuous suggestion, given that the price difference between the two options is likely to be tens of thousands, or even hundreds of thousands of pounds. However, for the studio engineer or guitarist who has spent years accumulating a large collection of amplifiers, digital amplifier modelling represents a threat to their investment. Thus, there is an economic imperative in the resistance to digital technology.

4.6 Conclusion

Identity and Value

In this chapter I have examined numerous examples of written discourse relating to the electric guitar, all of which are linked by their reference to electric guitar technology. Underlying these different examples, I have identified three prominent

themes: identity and value, power and control, and democratisation and disempowerment.

In the examples I have given, technology has been variously used to emphasise and make value judgements about particular aspects of guitarists' identities. Such judgements are based on the assumption that the user has choice and control over the technology they use; meaning that technological usage reflects their personal ideologies and subjectivities. In many cases, technology is part of a discourse that affirms or refutes the individuality or originality of a guitarist, for example, the market demand for signature electric guitar equipment. However, there also exists an inverse discourse that suggests technology is subservient to the physical performance style of individual musicians. A combination of these two positions indicates that appropriate technological use is a contested area for guitarists and other relevant groups.

Further examination indicates that technology is used to reinforce a wide range of values and aspects of identity. Building on the concept of individuality is the interesting case of digital modelling technologies. Laying aside the technical differences in the sound production of such technologies, critics have also highlighted the homogenising effects of having so many timbres available to a single user. For these critics, such a wealth of timbral options could hinder a guitarist's development of an individual musical identity. While the sounds created by digital modellers may be acceptable according to the constraints of a particular style, the use of such technology to cut across styles could mean that the user is not engaging with the other, non-musical requirements of a genre, such as particular ideologies, values, or ways of producing and performing music. Thus, guitarists who use a wide variety of timbres in practice may be disregarded as 'generic' session players. This has the effect of reinforcing a dogma of artistry over practicality, which suggests that an authentic and credible guitarist shouldn't make creative sacrifices, such as using anything less than the original equipment or instruments, as the result of practical, logistic or financial restraints.

Finally, a prominent aspect of identity and value within the written electric guitar discourse I have examined involves a conflict between digital and analogue technologies. In many cases, the conflict can be derived from the basic principles of

both digital and analogue paradigms, and how each relates to a particular set of values and cultural ideology. Many digital advocates, for example, highlight the possibilities for reduced cost, and the increased accessibility of technology to musicians across all levels of the professional spectrum this allows. However, analogue stalwarts often attempt to undermine the fidelity of digital audio, hence Eddie Van Halen's claim that he can 'hear the gaps between the ones and zeros' in digital recordings. Thus, for proponents of analogue technologies, audio fidelity is linked with perceived musical 'quality' or 'value'.

Power and Control

A consistent theme throughout the examples quoted is that technology is not simply a passive tool, but rather is inscribed with all kinds of meanings that provoke judgements about the identities and value of electric guitarists and their music. From this viewpoint, the agency of technology is understood as operating somewhere between the strict determinism proposed by Adorno, Benjamin and other early twentieth century theorists, and free-for-all constructivism implied by postmodernism. In other words, technology constrains and affects our understanding of the electric guitar, but is also controlled, utilised and led in new directions by guitarists. Within the discourse I have examined, these two positions are often poorly reconciled or function to actively contradict each other.

For example, at the start of this chapter I discussed the prevalence of equipment exposés in electric guitar journalism, whereby the specific combinations of equipment used by famous guitarists are listed and analysed. The intention is to provide the reader with the information necessary to sound like their favourite guitarist. However, this was often undermined or contested by claims that even with the same equipment, two guitarists would always sound different, and that this individuality was derived from the inherent physical and emotional differences between musicians, hence the phrase, 'it's all in the fingers'. These claims serve to imbue electric guitarists with an individualistic power, aligning control over the physical body with control over the instrument. The importance of control over the electric guitar is further reinforced with respect to observations about digital guitar technologies. For many, digital technology represents an increase in the agential power of the guitar, and thus a reduction in human control. For so-called technological conservatives,

embracing digital technology was considered tantamount to submitting to the power of technology, and losing part or all of their essential humanity.

Within the written discourse I have examined, this power is often understood as a specifically masculine power. For example, there are various and frequent references to the ‘neutering’ effects of new technology. Such language and its underlying constructs is similar to those surrounding the phenomenon of signature equipment, in that it refers to new electric guitar technology undermining the power and agency of electric guitarists. The implication that a reduction in power is equivalent to a loss in male fertility implies that the original power is couched in notions of masculinity, demonstrating a considerable lack of gender equality within electric guitar culture.

Despite the prominence of human agency as a theme within the discourse, and the control of technology and its meaning that this implies, many examples I have given reinforce the notion of the electric guitar having some fundamental, and thus unalterable qualities. Take, for example, the various sustaining technologies that have emerged in the late twentieth century. These allow guitarists to overcome some of the inherent design limitations of the guitar, giving them control over articulation that was previously available only to orchestral string players. For some, sustainers present an opportunity to create previously impossible sounds. However, the development of integrated, infinite sustainers such as the Fernandes Sustainer or Sustainiac have been met with greater ambivalence, as they are considered to undermine the instrument’s essential properties, namely those which define it as an electric guitar. Thus, it is also possible to observe discourse that affirms the effects of technological determinism over electric guitar culture.

These three examples, of signature equipment, ‘neutering’ technology and sustaining technologies are representative of more general considerations of technology and the electric guitar. That is to say, control and absolute power are highly prized and often presented as a reality, but such claims are undermined by the realities of social organisation, which rely on pre-existing structures to give meaning to individual actions.

Democratisation and Disempowerment

I have loosely defined the third thematic group in terms of the perceived democratising and disempowering effects of technology on the electric guitar. Within the written discourse examined, new technological developments are often lauded for their democratising potential, as they can lead to a reduction in either cost or required skill level. A number of technologies have both pedagogical and democratic significance. For example, integrated Antares technology in the Peavey Autotune guitar means that the guitar has excellent, if not perfect tuning and intonation, which is a hallmark of a high quality, expensive instrument. Furthermore, the active processing retunes that instrument in real-time, meaning that the poor intonation caused by inadvertently bending strings, which is a common problem for novice guitarists, is no longer an issue.

However, despite the considerable amount of discourse lauding the democratising potential of new technologies, there is a part of the discourse that takes a more negative perspective. The low cost of reproduction for digital technology means that electric guitarists can easily access tools that would have previously cost tens of thousands of pounds. Established professionals may already own the analogue originals, meaning that the emergence of digital technologies undermines and devalues this investment. This situation only intensifies as digital simulation becomes cheaper and more accurate with increases in processing power.

Finally, the discourse of democratisation often overlooks its fairly narrow demographic with respect to properties including age, gender and ethnic origin. For example, the representation of digital guitar technologies as democratising is predicated on a collective cultural familiarity and proficiency with contemporary information technologies. While this assumption may be reasonable for certain demographics, for those groups with less IT familiarity, the emergence of digital guitar technologies represents a mechanism for disempowerment.

In this chapter, I have identified and analysed a range of discourses about technology and the electric guitar. Having plotted historical developments in audio technology, I examined various contemporary electric guitar technologies including digital amplifier and instrument modellers, infinite sustainers and the Autotune guitar. The discourse surrounding these suggests that, for electric guitarists, technology is closely

linked to a number of wider themes. These include identity and value, and in particular individualism, power, control and agency, and democratisation and empowerment. In the coming chapter, I develop a theoretical framework through which I consider the discourses presented in Chapters 2, 3 and 4.

Chapter 5 – Neoliberalism and the Electric Guitar

5.1 Exploring Neoliberalism within Popular Music

In the final chapter of this thesis, I consolidate the themes and issues I have illustrated so far. Furthermore, I develop these with the aim of integrating the conclusions of each chapter into a more general theory of the electric guitar. To this end, I borrow from an increasingly broad body of contemporary literature that deals with historic global trends towards a neoliberal economic and cultural ideal. My basic premise is that constructions of meaning and identity within the written discourse I have examined are largely analogous to the ideological development of neoliberalism, particularly with respect to the latter's strong conception of the individual. I suggest that within the discourse I present in this thesis there exists an imperative for individual achievement and success, as well as a discourse that reflects neoliberal conceptions of personal agency, freedom of choice and reward for innovation, all of which reflect wider cultural changes within the UK and the US in the latter half of the twentieth century, specifically the emergence of neoliberalism as a prominent socio-economic paradigm. That said, the discourse I have examined in this thesis is complex and diverse, which means that there is a range of potential views in respect of this point, including opposition to what I am proposing. This diversity is something that I am aware of and try to reflect in the coming pages. Similarly, there are likely other developments in contemporary political economies that will have impacted on electric guitar cultures. Consideration of these is beyond the scope of this thesis, and in this Chapter I limit my consideration to the effects of neoliberalism. However, expanding this analysis to consider other areas presents an interesting opportunity for future study.

Before progressing, it is necessary to examine more precisely what is meant by the term 'neoliberalism', and how the concept functions within popular music culture. David Harvey describes the global evolution of neo-liberalism in the twentieth century as follows:

Neoliberalism is in the first instance a theory of political economic practices that proposes that human wellbeing can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework

characterised by strong private property rights, free markets and free trade (Harvey, 2005).

He suggests any study of neoliberalism should take into account its lack of global uniformity. The motivations and stimuli for adopting neoliberal economic policies have been extremely diverse, as have been the patterns of development. However, these various iterations all derive from the fundamental principles outlined above. Clearly the concept extends beyond this, both on a geographic and historical dimension. For example, there are arguably parallels between neoliberalism and the fundamental tenets of the American Dream as outlined in the American Declaration of Independence, such that “all men are created equal” and entitled to “life, liberty and the pursuit of Happiness” (United States Congress, 1776). However, with respect to this Chapter, I limit my consideration to neoliberalism as it occurs in an Anglo-American context, and specifically within the time range defined by the discourse examples I have examined.

Contemporary neoliberal theory was initially developed soon after World War II by academics such as Milton Friedman, Friedrich Hayek and the Mont Pelerin Society, and arose as a reaction to the increasing popularity of Marxism. The neoliberal approach began to gain traction in the mid-1970s, as an extended period of stagnation in the West led to increasing dissatisfaction with the more statist, Keynesian approach that had dominated since the 1920s. The two most famous advocates of neoliberalism were Margaret Thatcher in the UK and Ronald Reagan in the United States (Peck, 2010). Their policies led to a sweeping deregulation of the financial system, privatisation of public services, tax reform, fiscal conservatism, and the embrace of market determinism with respect to interest rates and currency exchange. The effects of these policies saw enormous market expansion during the 1980s, which occurred simultaneously with rapid improvements in communications technology and the beginnings of globalization (Harvey, 2005). Since then, the UK and US economies have followed a clear growth-recession cycle, which was most recently demonstrated by the market crash and global recession of 2008. The specific economics are beyond the scope of this thesis, but they are relevant in that they reflect the fundamental assumptions of the neoliberal project. That is to say, according to neoliberalism, the individual is free to make his or her own choices with minimal influence from external structures, states or governments. It is the responsibility of the state to

minimise intervention, thus allowing the individual to maximise his or her own potential. Within this system, the only arbiter is the market, which it is assumed will always allow for maximum economic efficiency. The intention is that, on a personal level, everybody has the same chance of success or failure, and that this is determined by each person's skills and endeavour (Harvey, 2005).

This theoretical notion of neoliberalism outlined by Peck (2010) has in reality been diluted in its application as an economic and cultural paradigm. However, it has arguably become the dominant political ideology, particularly in the UK and United States, and its gradual acceptance over the last forty years has affected both individual and communal notions of meaning and identity. For example, educational policies in the UK, from both the neoliberal right wing and an increasingly neoliberal left wing have focused on individual excellence, innovation, technological expertise, and a general focus on the development of supply-side economics. This has been augmented by an increasing hostility towards public services, including healthcare, social welfare and publicly owned transport and infrastructure services (Crouch, 2012). The effects of neoliberalism have also extended to culture, and in particular, music. David Hesmondhalgh (2007) has discussed these effects, suggesting that changes in cultural policy “became increasingly bound up with efforts on the part of government, to boost culture as a new opportunity for investment for business in their domain” (p. 300). Such changes led not just to the increased monetization of culture, but also changes in cultural ideology.

I would argue that political economy is inherently influential over music, and this reflects the more general effect of context and social forces on musical cultures at both an individual and collective level. For example, as the relationships between Romantic composers (for example, Beethoven) and their patrons developed in the 19th Century, composers were able to detach themselves from such institutions and develop more individual identities as composers (Hurd, 2016). Similarly, the emergence of the phonograph and the general marketisation of popular music occurred simultaneously with the emergence of Tin Pan Alley, which meant a consistent level of musical product allowed the industry to grow (Furia, 1992).

Within the written discourse I have examined, I would suggest that the trend has been towards narratives that emphasize many of the key neoliberal ideals. For example,

not only have both the electric guitar and its culture been reinforced as part of the market economy, generating products to be bought and sold, but there are also numerous examples within the discourse of personal narratives that emphasize individuality, innovation and authenticity. In the coming pages, I examine how electric guitar culture embraces, reflects and actualises these neoliberal ideals. Similar to the trajectory of global society, the intersection between neoliberalism and the electric guitar has not been entirely unproblematic, and as such, I also make observations about the conflicts and contestations that exist with respect to the electric guitar.

Accordingly, this chapter is divided into four sections. The first deals with the value electric guitarists place in their own control and agency, and how this is valued by others. The second section explores how a discourse of innovation is used to ascribe authenticity and credibility to a guitarist, and how this reflects wider neoliberal notions of social value. The third section deals with a neoliberal conception of success and reward, and how this is reconciled within written electric guitar discourse. Finally, I discuss some of the problems exhibited in the written discourse I have examined, particularly with respect to economic disparity and inequality between social groups. I suggest that these issues are reflective of wider, neo-liberal society. That is to say, while the basis for discrimination within law has all but evaporated with the introduction of human rights legislation such as the Universal Declaration of Human Rights (United Nations, 1948), there still remains an engrained social and structural basis for exclusion. Similarly, as much as the guitar provides a vehicle for the aspirations and interests of a range of individuals and groups, it is also the product of corporate culture (Dawe, 2010).

5.2 Agency and the Electric Guitar

One of the most frequently recurring themes in this thesis has been the notion of ‘agency’. Various references in terms of ‘skill’, ‘experience’, ‘power’ and ‘control’, it is clear that agency is an enormously important concept within written electric guitar discourse, and one in which a great deal of importance and value is placed. On a purely conceptual level, an ‘agent’ is described by Shoham (1993) as any entity to which a ‘mental state’ can be ascribed. Accordingly, a mental state consists of components such as beliefs, capabilities and commitments. Shoham

clarifies by suggesting that there is no unique, correct selection of these components. Luck and d’Inferno (1995) expand on this concept by proposing a minimal requirement for an entity to be considered an agent. They suggest a three-fold tier of entities comprising objects, agents and autonomous agents. Within this hierarchy, all known entities are ‘objects’, agents are viewed as objects with goals, and ‘autonomous agents’ are agents with motivations (Luck & d’Inverno, 1995). While the original intention of this framework was to assist with the classification of agential artificial intelligence systems, it also facilitates a useful understanding of human agency.

Within this framework, human beings act as either ‘agents’ or ‘autonomous agents’. However, within the confines of society, the motivations for human actions may be neither optional nor controllable (see Hesmondhalgh, 2013). For example, within the social structure of contemporary capitalism, a person must have a monetary income. The means of achieving this income vary, from sources including welfare and state benefits, compensation for employment or hereditary income. Ultimately, however, income is required for basic amenities such as housing, food and heating. In this circumstance, the motivation for achieving an income is, at a basic level, the maintenance of physical and mental health and, ultimately, survival. Given the biological and evolutionary imperatives for achieving these goals, the person in question actually has very little control over his or her actions and thus cannot be described as fully autonomous. By contrast with this example, however, there are actions where there is little biological imperative and as such a person does retain control. Therefore, in such circumstances people could be described as autonomous agents.

The motivations for retaining one’s agency reflect the neoliberal economic paradigm. A primary principle of neoliberalism is the assumption that everybody is free to make a choice, or at least they have a right to make a choice. Thus the ideological focus of neoliberalism is on autonomous agency as outlined above. If this goal is achieved, the only arbiter of success and failure is the marketplace, which, while unpredictable, is ultimately rational and fair. Thus, the only way of ensuring success within the neoliberal marketplace is to ensure one’s personal agency, removing the uncontrollable influence of any external forces. This has led to the emergence of a culture heavily focussed on individuals, who Triandis (1995) has suggested are

motivated primarily by their own preferences, needs and goals. Thus, within neoliberal culture the ideological emphasis is on self-sufficiency, self-glorification, personal efficacy and the necessity of personal struggle/achievement (see Klucholn, 1956; Klucholn & Strodbeck, 1961; Mead, 1967).

Within the written discourse I have presented, such ideologies are prevalent. Much of the discourse presented in previous chapters contains themes and ideas that reflect an ideology of individualism. Furthermore, the function of such discourse appears to emphasize the rationality of the popular music marketplace, reinforcing the notion of deserved success, commensurate with this broader socio-economic context. In the following sections, I discuss agency with respect to two themes prominent throughout this thesis: technology and virtuosity.

Electric Guitar Technology and Agency

With respect to the electric guitar, issues of agency are most prominently displayed in the discourse surrounding music technology. This is perhaps unsurprising when wider technological discourses are considered. For example, a key difference between the poles of technological determinism and constructivism is the agency afforded to technology. For many, this remains a contentious issue, and one that engenders genuine apprehension. In this Chapter, I discuss the possibility that fear of losing one's job has led to the rejection of new technologies, both in the world of the electric guitar and in wider culture. However, as I will demonstrate, the discourse is more complex than that.

Thus, I turn my attention initially to the perception of technology amongst guitarists and others within guitar culture. It is possible to identify two extremes on this spectrum, and for the purposes of this chapter, it is these that I consider. That is to say, on the one hand there are those who embrace new technology, quickly incorporating it into their practice, while on the other there are those who resist technological progress, such as the technological 'conservatives' identified above. Viewing these two positions through the lens of agency and control, it becomes clear that they are informed by two different, yet not entirely opposite rationales.

The first position, defined here as that of the technological 'progressive', understands electric guitar technology as fundamentally passive. From this perspective,

technologies such as effects, amplifiers and even the guitar itself represent a tool, or means for the actualisation of the progressive's creative potential. New and developing technology therefore represents variously a new means for creating music, the reduction of barriers to creation, or those that somehow complicate or slow down the process. Consequently, this perspective implies the retention of agency on the part of the musician – the guitarist in question is understood to have power over the technology used.

The second position, that of the technological 'conservative', to which I have already devoted significant attention in previous chapters, begins in many ways with the opposite understanding of technology to that of the progressive. Thus, technology is seen as fundamentally active, or at least granted some agency with respect to the electric guitar. For the majority of conservatives, this understanding of technology is a negative one. Technology, especially new and developing technology represents an obstacle or blockage through which creative thought must pass. From this perspective, electric guitar artistry is most authentically expressed using a minimum of technological devices, the bare minimum and thus most authentic being a guitar and tube amplifier combination. However, there exists one fundamental resemblance between this position and that of the progressive; for the technological conservative, creative expression using a minimum of electric guitar technology also represents the retention of human agency. Put more simply, successful actualisation of both positions is understood as the preservation of human power and control over technology.

Identification of this key similarity raises two questions. Firstly, if the end goal of these two positions is the same, at least with respect to agency, then what other properties differentiate them? Answering this requires dissolving the binary I constructed above between technological progressives and conservatives, and developing a less abstract, empirical consideration of the electric guitar. I would suggest that guitarists' consideration of technology relates much more to other, more disparate aspects of their identities. Some important variables include education and early exposure to technology, age, and the style of genre of music being performed, as well as many others. These combine and inform the spectrum of considerations and uses of technology by guitarists. In spite of this variety, the objective of agency retention over technology appears to be fairly consistent. Thus, these different uses

and ways of understanding technology represent mechanisms by which the diverse members of the electric guitar community can retain their own personal control and agency.

The second of the two questions relates to why guitarists consider it so important to retain agency over technology. To answer this, it is necessary to refer back to some of the aims and motivations of neoliberalism as outlined in the introduction to this chapter. The important concept here is that, according to neoliberalism, the only arbiter of success or failure in any endeavour is the market, which is inherently rational. Musical culture, at least in an Anglo-American sense and most likely globally, also operates under the auspices of neoliberalism, and thus is answerable to its own market. If decisions of the market are assumed to be rational, and thus not the result of chance, then it is in the interests of musicians to remain active agents, and in control of their own creative products and careers.

There are other motivations involved in this process, such as the relationship between agency and authenticity, and neoliberal notions of success and reward, which will be unpacked in the coming pages. However, at this point it is necessary to examine virtuosity, the second important aspect of the written guitar discourse I signalled earlier, and of which agency, power and control are fundamental components.

Virtuosity and Agency

In Chapter 3, I considered virtuosity and how, amongst other things, guitarists and other groups reconcile notions of power and control. In the past, virtuosity has often been discussed and analysed by scholars in terms of masculine power, and the development of rational control over an instrument. Robert Walser (1993) in particular develops this line of thinking in his study of heavy metal music, devoting an entire chapter to electric guitarists' appropriations of classical virtuosity. In addition, Steve Waksman (1999) posits the idea that an early understanding of electric guitar virtuosity was derived from blues performance idioms, and thus integrated with broader, racialised notions of the black male body and its assumed sexual power. I would argue that the pursuit of virtuosity among musicians is derived from a more universal, gender-neutral consideration of human power, and also an important contributor to the cultural 'value' of popular music. There are two important motivations for this pursuit. Firstly, there is an element of competition, where

guitarists desire to become, and are praised for being more highly accomplished technical players than their peers. This follows from a neoliberal ideology, whereby those most successful within the marketplace are those who can triumph over the competition. However, and for the same reason, guitarists are often criticised for their virtuosity at the expense of being ‘musical’. When this happens, players are accused of turning guitar playing into a competition rather than a creative art, and are thus deemed inauthentic.

Therefore, there is a second motivation for the pursuit of technique and virtuosic ability - it is understood as a means by which to close the gap between concept and product, or thought and sound. Thus, becoming a virtuoso is another means to neutralise and develop power over the instrument. Take, for example, guitarist Eddie Van Halen - highly virtuosic, he is celebrated as much for his compositional ability, his ‘riffs’ and ‘solos’ as he is for his technical ability. The music Eddie Van Halen produces is valued in itself, not just as a medium for demonstrating his skill with the electric guitar.

Thus, maintaining individual agency is extremely valuable for electric guitarists. Widening the lens once more to capture global neoliberal culture in its entirety allows some insight into the foundations of this belief. Within neoliberalism, all people are autonomous agents, with the power to do whatever they wish or make anything happen. Simultaneously, neoliberal ideology minimises the effects of social structures, meaning that there is far more to gain through developing an identity grounded in autonomy and individuality. Thus, guitarists seek to construct, and are acclaimed for the construction of an identity that affirms their own individuality and agency. Furthermore, evidence of such thinking is an indicator of the extent to which neoliberal thought has permeated electric guitar discourse.

5.3 Discourses of Innovation and Authenticity

The desire for agency by electric guitarists is motivated in part by the value they afford to authenticity. Quite clearly, this is reflective of more general notions of authenticity within popular music, which Roy Shuker (2002) describes as, “a central concept... imbued with considerable symbolic value (p. 98). In ‘Authenticity as Authentication’, Allan Moore (2002) identifies three distinct ‘types’ of authenticity. His first, designated ‘authenticity of expression’, describes the process by which a

composer or performer succeeds in conveying the impression that his/her utterance is one of integrity, that it represents an attempt to communicate in an unmediated form with an audience. His second, 'authenticity of execution', "arises when a performer succeeds in conveying the impression of accurately representing the ideas of another, embedded within a tradition of performance" (Moore, 2002). Finally, his third type 'authenticity of experience', occurs "when a performer succeeds in conveying the impression to a listener that that listener's experience of life is being validated, that the music is 'telling it like it is' for them" (p. 220).

Each of Moore's types of authenticity has a certain relevance to this thesis. For example, many of the discourse examples included in the thesis are interviews or articles that feature the guitarist or musician talking about their music. The function of these interviews is two-fold; they allow the audience an additional insight into the world of the guitarist, while also allowing the guitarist a chance to explain the meaning of their music in words. In many examples, it is possible to observe the musician attempting to inscribe an authenticity of expression in their music. Furthermore, many of the quoted examples discuss the position of the guitarist or phenomenon in question within wider guitar culture. They are often evaluated within the constraints of a particular performance tradition, and thus it is possible to observe a process where Moore's authenticity of expression is either affirmed or refuted. Finally, and perhaps least frequently, many of the quoted examples make reference to the upbringing and lifestyles of the musicians, often in a 'before they were famous' format. The purpose of this is to allow readers and listeners to relate to the musician, to see that he or she is 'just like them', and to fit with the neoliberal idea that this is an individual who excelled due to their own agency rather than as part of a world that enabled and supported their creativity. Thus, many of the interviews quoted throughout the thesis function to affirm a guitarist's authenticity of experience to the reader or participant.

In general, many judgements of authenticity within popular music discourse occur with respect to commerciality. Shuker describes this relationship, stating that,

Important in identifying and situating authenticity is the commercial setting in which a recording is produced, with a tendency to dichotomize the music

industry into independent labels (more authentic, less commercial) and the majors (more commercial, less authentic) (Shuker, 2002).

That is to say, broadly speaking music and musicians that are understood to have less of a 'commercial' motivation are considered to be more authentic than those perceived to have greater commercial motivation.

There are a number of other factors in the determination of authenticity, including live performance style, use of technology and validation by a subculture or counterculture, and these all occur with significant frequency within the written discourse I have examined. Yuval Taylor and Hugh Barker (2007) suggest that authenticity is defined primarily in its opposition to 'faking it' (p. x). Using this definition enables a link to be made between authenticity and neoliberalism, as it implies that the 'authentic' musician is also the hard-working and deserving musician. Such notions of success based on merit are a crucial component of more general neoliberal ideology, and highlight the importance of authenticity. Shuker suggests that, within music,

The term authenticity assumes that the producers of music texts undertook the 'creative' work themselves; that there is an element of originality or creativity present, along with connotations of seriousness, sincerity and uniqueness (Shuker, 2002).

This definition allows for the authentication of various musical activities, many of which are contradictory. The centrality of authenticity is apparent in many of the discourse examples quoted within the thesis, and is also central to neoliberal ideology. Generally speaking, authenticity is understood as a crucial element of success, which according to another fundamental principle, must be determined by the marketplace. However, as Shuker notes, within popular music culture authenticity is usually considered incompatible with commerciality (Shuker, 2002). This contradiction is one of the many problems presented by an absolutist consideration of authenticity, and as such this section takes the position that it is a discursive construct, reflexive and continuously changing in meaning. Thus, rather than trying to define authenticity, or indeed, inauthenticity for guitarists, I shall focus on its function within the written discourse I have examined, and how this reflects its wider function within neoliberalism. In the coming pages, I describe two disparate discourses - of innovation and of traditionalism. Despite their seeming incompatibility, these two

positions appear similar in their shared pursuit of authenticity, which functions to validate the experience of guitarists and other relevant groups, and serves to further align the dominant ideologies of the discourse examined with those of neoliberalism.

Authenticity and Innovation

In Chapter 2, I discuss a number of narratives of invention, discovery, and innovation. Each of these narratives contains a technological element. Of these, some are heavily reliant on the development of a new technology, while others are less so. However, each of the narratives also contains a vital human element, and as I demonstrated in the previous section, this is what undermines any accusation or interpretation of determinism. This human element is also what allows for an ascription of authenticity as understood by neoliberalism, which impresses the importance of both individuality and originality.

Take, for example, the narrative that surrounds the invention of the Chapman Stick. Emmet Chapman is a neoliberal in the purest sense, and is careful to impress this when constructing his personal narrative. He is ambitious, entrepreneurial and successful as a businessperson as well as an inventor and musician. Despite evidence that guitarists prior to himself had utilised a tapping technique, information of which he admits being aware, he chooses to focus on the minor elements of his invention that make it unique – the rotation of the fret board until it is vertically aligned, as opposed to horizontal in the traditional playing position. Arguably, this focus represents a choice made by Chapman, albeit perhaps an unconscious one. He could have chosen to construct himself as part of a ‘great line’ of finger tappers, as improving and adapting an existing tradition to reflect the modern age. This choice reflects the value he places in originality, within the framework of neoliberalism, and in retrospect it was highly lucrative for Chapman: it allowed him to carve and maintain a niche where his status as authentic creator and leader is effectively unquestioned.

In a similar way, there is a preoccupation with individuality within the written discourse I have examined, as evidenced in the discourse surrounding Eddie Van Halen. In addition to his virtuosic prowess, Van Halen is oft lauded for his unique musical style, and portrayed in terms that reflect more traditional rock notions of authenticity. He is variously described as being rebellious, as having left school at an

early age, of engaging with drugs, sex and alcohol, and of having little opportunity outside of music. In conjunction with this is his portrayal as someone who spent countless hours rehearsing, who possessed unparalleled aptitude, and who, broadly speaking, represented an extraordinary successful person of entirely ordinary origins. Furthermore, his music was successful. Van Halen achieved massive commercial success as well as being frequently positioned as an authentic, aspirational figure. Overall, he is understood as highly individualistic, which reflects his construction as an authentic musical figure, but also someone whose success was inevitable and thoroughly deserved.

Authenticity and Traditionalism

In Chapter 4, I discuss a number of motivations for the conservatism exhibited within the written discourse I have examined. These motivations can be described as primarily either economic or aesthetic, and function as a means to inscribe value to particular elements of guitar culture. One means by which this value is derived is through the ascription or implication of authenticity. A particularly strong example is those guitarists and other groups who place great value in the use of traditional tube amplifiers and a narrow range of instrument brands and models, including the Fender Stratocaster and Gibson Les Paul. As discussed, one proposed reason for this is that using this combination of equipment effectively neutralises the effect of technology on the music being produced. It allows for the personality, musical or otherwise, of the guitarist to show through. Within this understanding of technology, such a process is considered to be a good thing. Take for example the following quote, which discusses the confluence of modern music with such traditional technological paradigms.

Whatever people think of the musical merits of grunge, it did guitarists a favour when they realised that a stripped-down guitar setup (that is, a guitar, amp and a few effects pedals) didn't necessarily sound worse than a rack-full of digital effects and, in many cases sounded better because it allowed the guitarist's personality and the natural sound of the guitar to shine though (Roberts, 1996).

In this article, Howard Roberts alludes to the discourse of naturalism and technological transparency that is prevalent in blues and early rock music, and has subsequently pervaded popular music history. Following the rapid proliferation of

digital technologies in the 1970s and 1980s, he suggests that a return to ‘technological naturalism’ was both a reactionary process and an act of authentic ‘rediscovery’. Such an article could have focused on the economic deprivation of many grunge musicians, many of whom grew up in the industrial, working class cities on the west coast of America, and the effect of this in limiting equipment choice. Through the representation of grunge musicians as rediscovering a particular form of artistic potency, the author emphasises the function of technological traditionalism and conservatism in establishing the authenticity of guitarists who adhere to its ideologies.

A further example of traditionalism and conservatism within the written discourse I have examined is the continued use of blues derived musical idioms by electric guitarists. It is difficult to separate out processes of conservatism from the more consistently evident phenomenon that is musical influence. However, there are certainly examples of guitarists who quote or reference elements of blues music to appropriate its assumed authenticity. Within the discourse examined, the blues is assumed to be a pure music, unadulterated by the commercial and aesthetic pressures of modern musical culture, and thus completely authentic. This ideology is repeated and reinforced by guitarists such as Eric Clapton and Jimi Hendrix, who were vocal in their support and adoration of traditional acoustic blues players (Clapton, 2007; Wenner & Wolman, 1968). More recently, the ideology has been embodied by players such as Slash from Guns ‘n’ Roses, John Mayer and Joe Bonamassa, who all make use of blues derived musical structures and lead guitar playing, including frequent use of pentatonic scales, chromatic passing notes and string bending.

There are numerous ways in which both guitarists and other groups derive notions of authenticity, although these are not all nested within the category of technological use. For example, one further means is the construction of a narrative of authentic individual expression, using the electric guitar as a conduit for a personal voice. Throughout the thesis, there have been various allusions to this process within the discourse, particularly in Chapters 2 and 3. Eddie Van Halen, for example, considers his own mind and body a conduit for the voice of God to pass into the sonic domain (see Section 2.4). Within discussion of the wah-wah pedal, expression was also understood as highly important. The voice-like properties of the wah-wah technology enabled guitarists to produce an approximation of the human voice, and therefore, in their approximation, to communicate more profoundly with their audiences (see

Chapter 2.3). Such communication is understood as a vital component of the music-making process, and music that communicates poorly or not at all is seen as ineffective. Musical expression is highly valued within the written discourse I examined, and along with innovation and agency contributes to the ascription of authenticity to a particular guitarist. Furthermore, and similar to discourses of innovation and agency, it is predicated on the establishment of an individual voice. Musicians who have something original to ‘say’ with their music are prized, whilst those who merely repeat the ‘words’ of others, or worse still, ‘say’ nothing at all are disregarded.

Overall, it is impossible to identify a single process through which some electric guitar phenomena are deemed ‘authentic’, and others ‘inauthentic’. What is more relevant is the importance afforded to authenticity. Although rarely explicitly stated, proponents of a particular cultural phenomenon are motivated to accommodate notions of authenticity, because they give that phenomenon greater appeal and credibility within broader culture. With this in mind, both this and the previous section, which dealt with concepts of agency, combine to present an understanding of the process by which success is defined, achieved and rewarded within neoliberalism. As stated, particular importance is placed on agency, as according to neoliberal ideology, only through the retention of individual choice and freedom can the certainty of success be ensured. Moreover, it is considered necessary that an agent be both innovative and authentic. If these conditions are achieved, then success is wholly determined by the choices and actions of said agent. There are certainly a great number of other elements within this process, both within and outside of written electric guitar discourse, such as prevailing musical trends, industry strategy and the reception of audiences. However, the discourse I have covered throughout this thesis has identified these as being of particular importance. In the following section, I examine how success is determined and defined, and importantly, how it is rewarded.

5.4 Neoliberal Success and Reward

Absolutely fundamental to neoliberalism is the idea that if the correct choices are made with respect to the market, then success is guaranteed. Moreover, the concept that gives neoliberalism such wide appeal and currency within contemporary culture is that success will be rewarded. Within neoliberalism, the market is considered a

rational force. As Luxton (2010) explains, “a core ideological position of neoliberalism is that individuals are responsible for themselves and that the choices they make determine the outcome of their lives” (p. 173). The same can be said of not just individuals, but also organizations and businesses, and therefore bands, musicians and any other involved parties. Importantly, it is also understood that the outcomes of these endeavours represent the sum of all previous choices and endeavours. Therefore, if a musician is successful, it is reflective of the good choices they have made in their careers, and if they are unsuccessful, then it reflects their poor choices (Luxton, 2010). Ultimately then, people supposedly get what they deserve. This is augmented by a contemporary tendency towards understanding individuality in terms of the market. As Gershon (2011) explains, there has been a move from “the liberal vision of people owning themselves as though they were a property to a neoliberal vision of people owning themselves as though they were a business” (p. 539). This means that individual actions are therefore subject to the same pressures and scrutiny as other entities within the marketplace, including respective risks, investments and rewards.

There are some important underlying problems with this ideology, that relate not just to wider culture, but also specifically to music. Firstly, it pays little attention to the extraneous, unpredictable variables that affect every person in every aspect of life, and which we usually have little control over. Secondly, reward is justified according to the principles of neoliberalism, which prioritizes the market as a means for determining success. Thus, other indicators that are less easily quantified, such as ethical considerations or cultural ‘value’, are seen as secondary. This second issue is particularly pertinent to popular music, given that there appears to be a conflict about how success, endeavour and reward should be defined and determined. For example, one means of judging the success of a pop song is to determine the number of copies that have been bought. In more recent times, this has been augmented to include digital downloads, streaming, music video rotation and merchandising, all of which are easily quantified in monetary terms. These means of judging success remain widely used within popular music, which is reflective of success measures in contemporary neoliberal society. As Harvey (2005) writes, “neoliberalism has meant, in short, the financialisation of everything” (p. 33), and as with neoliberalism, the

clearest and most authoritative means of determining and rewarding success within popular music is financial.

However, there are a number of other means through which the success of musicians is determined, and through which they are rewarded. Within a discursive framework, the most obvious is in the ascription of authenticity and credibility of a band/musician/artist by its various audiences. This includes general listeners, critics and scholars, all of whom contribute to an intangible level of status that the artist in question can draw and build upon. However, this more intangible quality is often considered to conflict with the abovementioned economic measures. In the coming pages, I examine how the conflict between these alternative measures of success play out within written electric guitar discourse, and how they are reconciled with neoliberal notions of success and reward.

Rewarding Success

Of greatest interest to me, with respect to success and reward, are those artists who successfully negotiate a middle ground between each pole, or guitarists who are both financially successful and deemed credible. Of course, each measure is relative – the success of each of the guitarists I have discussed is measured with respect to their own niche, genre or subculture. However, within each of these subcategories, there are some players who have successfully occupied a middle ground, whilst there are others who achieve financial success at the expense of credibility, or vice versa.

Once again, I start with a discussion of Eddie Van Halen. As a member of the hugely popular band Van Halen, he is certainly the most commercially successful guitarist discussed at length in this thesis, and yet he is arguably considered to be one of the most credible (see Section 3.2). This credibility is achieved in a number of ways, the first of which is by offsetting any discussion of commercial success with references to Van Halen's traditionally credible musical qualities. Take, for example, the following quote from an interview by Jas Obrecht discussed in Chapter 3.

The immediate success of Van Halen catapulted the band on a 10-month world tour, during which Eddie stunned audiences with his seemingly off-hand ability to instantaneously convey to his fingers what he heard in his head. He took a

suitcase full of guitar parts with him, building and fixing instruments in his spare time (Obrecht, 1980).

Here the band's commercial success is briefly acknowledged, before being replaced with a discussion of Eddie the individual. In the short space of two sentences, Obrecht makes references to his spontaneity and ability to musically communicate, as well as his skill in crafting his own instruments to his own rigorous and ever changing specification, therefore alluding to Van Halen's 'suffering for his art'. This quote should be read within the context of Van Halen's enormous popular success following the release of *Van Halen* in 1978. In the late 1970s and early 1980s, everybody wanted to know about the young American virtuoso who made his own instruments. Thus, the combined effort of many journalists had the effect of downplaying Van Halen's commerciality in favour of the band's, and especially the lead guitarist's authenticity.

However, this is problematic, precisely because the financial aspect of musical success is so important. It is a reasonable assertion that without the huge sales achieved by *Van Halen I*, or at least the respective publicity paid for by the band's label Warner Bros., few of the authors and journalists who went on to write about Eddie and his creative authenticity would have even been aware of him. Admittedly this and similar articles would have positively affected the sales of *Van Halen I* and the band's subsequent releases. I would suggest however, that it is unlikely a major music publication such as *Guitar Player* would have allocated such a large amount of article space based on a hunch. Thus, I would argue that there is a reciprocal relationship between a guitarist's credibility and their commercial potential.

A second example of neoliberally informed individual success is Emmett Chapman and his proprietary instrument, the Chapman Stick. Chapman's story provides particularly clear insight into discourses of success and reward, primarily because the Chapman Stick can be as easily understood as a product of shrewd marketing and business acumen as it can a musical instrument and cultural artefact. In Chapter 2, I discuss Chapman's claims to originality and aggressive enforcement of patents with respect to the Stick. Chapman is careful to downplay the latter actions, particularly those regarding a lawsuit against a competitor, to which very few references now exist on the Internet. However, evidence of his continued pursuit of exclusivity in the

marketplace is provided by exploring the online world of the Chapman Stick. As I mentioned, Chapman has retained a great deal of control over his intellectual property, which includes a patent for the Chapman Stick itself. The 'official' website of the Chapman Stick is the primary source of information surrounding the instrument, including tutorials, articles and dates for upcoming concerts and seminars. This is in addition to his ownership of Stick Enterprises, the name given to the commercial entity responsible for sales, manufacture, distribution and repair of the instrument.

Thus, it is reasonable to assert that Emmett Chapman has a safe hold on the financial aspects of the Chapman Stick. It is perhaps also reasonable to suggest that his commercial strategy has allowed him to retain an authoritarian, monopoly hold on the commercial aspects of the instrument. However, and in a similar fashion to the discourse surrounding Van Halen, much of the writing pertaining to the Chapman Stick seeks to minimise the importance of the commercial aspects in favour of language that prioritises artistic merit. In the following quote, Chapman suggests that the Stick possesses inherent properties that mean it is difficult to mass-produce and therefore does not neatly fit with a contemporary notion of globalised business. He states,

The Stick is not a normal product, but has its own unique life span and trajectory. In today's world economy, wealth is created by replication - printing, pressing, molding, publishing of electronic and printed media, and soon maybe cloning. An actual product in 3D must be manufactured in more traditional ways and is not so profitable in this economy, though some can be stamped, molded, vacuum formed, extruded or robotically assembled... What I'm trying to explain is, the craft itself slows the business down (Cides, 2002).

The effect of this quote is to distance both himself and the instrument from the perceived negative aspects of mechanised mass production. In suggesting that the Stick is "not a normal product", Chapman both reaffirms its originality (an agenda that is consistently present in all of his interviews and literature), but also assures the reader that he is not simply involved in Stick Enterprises to exploit the customer and reap the financial rewards. In portraying the manufacturing as a craft, he is aligning himself with a long tradition of luthiers who make the design and construction of

guitars their life's work, and imbue a part of themselves in every instrument that they make.

However, in a separate interview, he states his desire to develop more efficient and economical processes of production, allowing him to expand his business.

I've mechanized much of the production, from CNC machining of metal parts and hardwood beam to injection molding of other hardware, to electronic assembly of the three pickup modules. Still, there's a hand made quality to the Stick, mainly because of the precision that goes into the setup and fret work for very low action and light touch. With my next model, now in prototype stage, I hope to mechanize much of this final setup work too (Warnock, 2010).

This contradiction demonstrates very clearly the difficulties faced by musicians and people operating within musical culture in the face of neoliberal economics. In order to ensure success, Chapman must constantly negotiate between the commercial and cultural aspects of his business, meeting the productive requirements of running a manufacturing business whilst retaining credibility and authenticity. Within the world of the Chapman Stick, it appears that he has been fairly successful in this endeavour. However, a further dimension of the discourse surrounding the Stick relates to the monopoly power wielded by Emmett Chapman. Given that the primary forum for distribution of much of the relevant discourse is Stick Enterprise's official website, it remains unclear how much scope there is for dissension within the Chapman Stick community.

Within the sphere of popular music, financial return is not the only measure of success. A track that performs well in the charts and sells in large quantities will be considered successful by some, particularly the investors and stakeholders of major record labels. However, large sales figures do not guarantee longevity, or even necessarily profit. For the record label, artist and audience, continued, sustainable and consistent sales are also important. For this to happen, however, a musician must develop credibility and authenticity within their audience group. Such a requirement is demonstrated by the rapid rise and fall of so-called 'one hit wonders', for whom credibility is often lacking. Without this credibility, audiences are often wary, even suspicious of commercially successful musicians who are often deemed to be overly controlled by their record label or management, and thus part of an effort to exploit

the consumer. However, as much as the guitar provides a vehicle for the aspirations and vested interests of very many different types of individuals and groups, it is also the product of corporate culture (Dawe, 2010). For example, as I demonstrated in Chapter 2, businesses such as Stick Enterprises must operate in accordance with the principles of commerce, maintaining a competitive brand and advantage over competitors, whilst simultaneously trying to ensure the credibility of their product in a culture where overtly corporate practice is often treated suspiciously.

I would suggest that the relationship and conflict discussed above is reflective of a wider trend within neoliberal culture, which involves downplaying the importance of wealth and capital within popular discourse. In the two examples discussed above, both prioritise the less tangible elements of their craft over either commerciality or the importance of sound financial decision making. However, the financial commercial aspects of each are, at least implicitly, just as important, not just as a measure of success but also as an enabler. In disregarding the importance of capital, these two discourses are reinforcing the neoliberal myth that everybody has the same opportunity to succeed within the marketplace. There is a clear power dynamic in operation here, between those who have great control and influence over the cumulative direction of collective discourse, and those who do not. Thus, when powerful musicians such as Eddie Van Halen, business people such as Emmett Chapman, and writers such as Jas Obrecht reinforce the importance of working hard, being original and climbing the ladder, less powerful, ordinary members of musical culture have no voice to disagree, and must act accordingly despite the lack of capital investment. Furthermore, these members become gradually enculturated into these values up to the point where they become normative.

5.5 Taking Issue with Neoliberalism and the Electric Guitar

In the final section of this chapter, I build on the above critique of ideas of success and reward, and suggest a number of other problems and conflicts that have occurred with respect to the electric guitar during the neoliberal era. The most obvious problem is the way in which neoliberal philosophy treats disempowered and minority groups, which arises from the consideration of society as individuals, as opposed to social groups. At this level, the importance of differences that constitute social sub-

groups, such as gender, sexuality or ethnic origin are minimised in favour of individual differences. As Luxton (2010) has suggested,

The power of belief in individual identity and personal responsibility made it difficult for many people to recognise the impact of social forces on the way they lived their lives (p. 179).

A key facet of neoliberalism is the pursuit of deregulation and a non-intrusive government. Legislating for the protection of rights for disempowered groups conflicts with this ideology. According to pure neoliberal thought, these should not need legal protection; assuming that a disempowered individual is afforded the same rights as any other individual. However, such philosophies are at odds with the reality of life in the neoliberal era.

Many such issues have been drowned out by discourse intent upon the marketization of everything. Speaking with respect to higher education in the UK, Morrish and Saunston comment on the effect of this marketization on some minorities. They state,

While these discourses often suggest a widening of opportunities within higher education, with an emphasis upon unlimited individual freedom and choice, the lived experience can be rather different for women and sexual minorities (Morrish & Saunston, 2010).

The implication is that neoliberalism actually serves to reinforce existing, and in some cases reinstate previous power imbalances. By deregulating and reducing intervention, neoliberal policies allow for the a priori forces that originally established social disparity to re-emerge or flourish. These forces appear to act particularly strongly on two aspects of identity, gender and personal wealth, both of which I deal with in the coming section.

Gender and the Electric Guitar

Throughout its history, the electric guitar has had a tumultuous relationship with gender politics. Accusations of sexism and misogyny have been levelled by voices too numerous to list, but include scholars, journalists, politicians and guitarists themselves, female and male (see, for example Davies, 2001; Millard, 2004; Strong, 2011; Waksman, 2003b). Such charges were made most frequently during the 1970s

and 1980s, when guitar driven rock and heavy metal bands were at the height of their popularity. In more recent times, feminist critiques of the electric guitar appear to have receded to the classrooms or perhaps occasionally to the culture section of a left leaning newspaper. However, it remains uncertain whether very much has actually changed, or whether, in a reflection of wider neoliberal society, issues of gender have simply been obscured from the discourse by the political focus on individual rights and differences (Hesmondhalgh, 2007; Lazzarato, 2009).

An understanding of gender with respect to guitar cultures has been developed by a number of scholars. For example, Kevin Dawe and Moira Dawe (2001) have examined the classical guitar in Spain, with particular focus levelled on notions of the female body and guitar construction. Other works dealing with gender and the guitar include Bayton (1997) and Dawe (2010). Throughout this thesis, I have highlighted the use of discourse-specific terms such as ‘sonic masturbation’, ‘emasculatation’, and ‘neutering’ that are used contextually to affirm a specifically male sexual power. In Chapter 3, I discussed the work of acclaimed electric guitarist Jennifer Batten. Despite her status as the long-term lead guitarist for Michael Jackson’s touring band, and despite the best intentions of many authors, the discourse surrounding her still operated primarily in terms of her gender. Thus, we have been subjected to comparisons of her with her male colleagues and sustained references to her physical appearance, themes that rarely occur within the discourse surrounding male guitarists.

During the late 1980s, there was a feeling of discontent with the hyper-masculine discourse pervading heavy metal culture. This discontent is considered to have been embodied by grunge music, particularly the Seattle-based Nirvana, who spearheaded a return to the DIY and minimalist ethos of 1970s punk. Concurrent with this movement was the emergence of Riot Grrrl, which has been traditionally understood as a feminist musical movement. Catherine Strong notes that the grunge movement generally contained a high number of female performers and bands. This was combined with explicit anti-sexism stances taken by prominent male grunge musicians. Overall, it was arguably a more gender-neutral scene than many others in rock (Strong, 2011). However, in a paper addressing ‘the forgetting of women in culture’ more generally, she provides empirical evidence that shows men prominent within the early 1990s grunge scene are more likely to be remembered and understood as influential than women (Strong, 2011). Furthermore, those women that were

remembered tended to be categorised as Riot Grrrl, indicating the accuracy of the observation that independent successful women within popular music are usually also labelled as ‘feminist’.

As this brief foray into the state of gender politics and then electric guitar illustrates, there still remain inherent structural inequalities that make it difficult for female electric guitarists to achieve parity with their male counterparts, despite the progress made by feminist movements. This is a reality not just with respect to the electric guitar, but also more broadly. Returning to the point I made at the beginning of this section, I would argue that rather than achieving equality, the efforts of neoliberalism have served to remove issues of gender inequality from public and musical discourse, obscuring their continued existence by asserting the importance of individual differences.

Much of the neoliberal understanding of gender politics and feminism is, at least in the United Kingdom, derived from the popular narrative of Margaret Thatcher, who is understood by neoliberals as the archetypal successful woman. She is considered strong, powerful, and hard working, and as a woman who was capable of achieving individual parity with men and overcoming the hardship imposed on her because of her gender. I would argue that Thatcher improved little for the average British woman, particularly those within the working class. Arguably, she simply became ‘one of the men’, embracing and reinforcing the philosophy that led such a male hegemony to exist in the first place. Furthermore, the Thatcher narrative is particularly damaging, because it gives fuel to the neoliberal fire, allowing its proponents greater ammunition in affirming its effectiveness. A similar process appears to have occurred with respect to Jennifer Batten, for whom the narrative rarely displays dismay that so few female guitarists occupy such a position. Instead, there is an implication that her success proves there is little remaining in the way of gender inequality within music, and a suggestion that, if she can do it, then surely so can everyone else.

Neoliberal Wealth and the Electric Guitar

The intersection between economics and culture is covered in great depth by Keith Negus (1999), who suggests a reciprocal process whereby “industry produces culture and culture produces industry” (p. 14). Within this cycle, each actor is dependant on

the other for survival. For example, the music industry needs musicians to keep on producing marketable products, while musicians are reliant upon the music industry to generate revenues which will, at least in theory, be passed along the line. This arrangement is the primary means through which music is monetised, and has remained in place through the development of capitalism and later, neoliberalism, in the 20th and 21st centuries. Furthermore, the organisation of popular music economics is largely aligned with that of neoliberalism, assuming the existence of an economic trickle-down effect, whereby wealth is accumulated by those towards the top of the fiscal hierarchy and invested in enterprises that stimulate the economy and increase the financial mobility of those towards the bottom.

However, within both popular music and electric guitar cultures, there exists a contradiction between the pragmatics of musical economics and the ideological discourse that surrounds it. Hesmondhalgh (2007) suggests that,

The creativity/commerce pairing helps to generate the relative and provisional autonomy that many symbol makers attain. It is [sic] also adds to the uncertainty and difficulty of the environment in which cultural businesses work (p. 20).

As discussed in the authenticity and innovation section, there is an ideological preference within the discourse I have examined for a ‘rags to riches’ narrative, as exemplified by that of Eddie Van Halen. As within wider culture, the written electric guitar discourse favours those who retain their personal agency, creating self-made success. The issue with this narrative is of course that it obscures many of the realities of both everyday life and contemporary musical activity. For example, in the United Kingdom, the fundamental neoliberal principle is that every person has an equal opportunity to succeed in life, regardless of hereditary wealth or circumstance. This is espoused despite much evidence to the contrary, particularly that relating to inequality in education and future employment and earnings prospects. The same process applies to the electric guitar, despite the existence of a similar ideology.

Despite the introduction of cheap equipment, and the advent of online tuition videos on hosting sites such as YouTube, the financial entry barriers to a successful career as a professional guitarist are still very high. Realistically, entry-level equipment will only get a player so far, and significant investment is required in high quality instruments, amplifiers and peripherals such as effects pedals and recording

equipment. Additionally, given the establishment of various pedagogical institutions for the electric guitar, particularly in the US and the UK, the cost of a musical education has become a factor. Finally, and most significantly, there is the cost of career development for an emerging guitarist, who must invest time in promotion, playing unpaid gigs, and developing contact networks. Like everyone else, electric guitarists and musicians in general have to pay their rent, and yet must also suffer through an unspecified and unlimited period of hardship before being rewarded by the music industry with a stable and financial rewarding career. As Hesmondhalgh (2007) argues,

Creative autonomy itself is bound up with the interests of cultural-industry businesses, and cannot be defended in a simplistic, dualistic way against commercial imperatives. For the promise of creative autonomy represents a means by which (mainly young) people are persuaded to accept uncertain and often poorly paid working conditions (p. 199).

Thus, the continued arrangement of neoliberal music economics serves not to undermine traditional economic power hierarchies, whereby early career musicians are disempowered with respect to more established players, but rather, it reinforces them.

5.6 Conclusion

My analysis of the discourse surrounding the electric guitar has revealed numerous narratives that appear to construct and reflect an ideology of individualism. Furthermore, many of the themes that emerged were analogous to those in a neoliberal political discourse. Such themes included an imperative for individual success, and the importance of personal agency, freedom of choice and reward for innovation. Neoliberalism is closely linked and derived from contemporary capitalist philosophy, and is thus concerned primarily with competition, particularly in the marketplace, but also in its general approach to the cultural sphere. Within writing pertaining to the electric guitar therefore, there is a powerful and prominent discourse dealing with success and failure. It is not enough to simply be a technically proficient, creative or effective electric guitarist; one must be original, innovative and authentic as well. With respect to the electric guitar, such requisites are combined with the primacy afforded to the individual, which is also derived from neoliberalism.

This chapter has illustrated some of the factors that determine and define a musician's "success" within the written electric guitar discourse I have examined, whilst also suggesting a number of problems that arise for minority groups and disempowered people as a result of neoliberalism's influence. Within written electric guitar discourse, the retention of individual agency is considered vital. This reflects two aspects of neoliberal thought, firstly that only through ensuring one's freedom of choice can an agent remove the barriers to success imposed by external forces, and secondly, that only through ensuring individual autonomy can credibility be achieved. The attainment of credibility is important to electric guitarists and related groups, as it demonstrates that an artist is more likely to succeed within the neoliberal marketplace. Thus, the written discourse often prioritises the inscription of authenticity within a particular narrative. In the examples covered in this thesis, this process has usually occurred with respect to either a discourse of innovation, whereby guitarists are praised for their original and creative technical skills or use of new technology, or a discourse of traditionalism, where guitarists are lauded for sticking with what works, or refusing to engage with new trends that risk devaluing the electric guitar. A further issue of note is how success is defined and rewarded within written electric guitar discourse. It appears that definitions exist on a loosely defined spectrum between easily quantified, monetary measures of success, and more subjective, critical measures that include musical authenticity and credibility. I have suggested that if long-term success is to be ensured, which is surely the aim of both record labels and musicians, then it is necessary for a middle ground between these two poles to be walked. However, this is easier said than done, as written discourse often posits these two poles as mutually exclusive.

Lastly, I discussed some of the problems inherent to both neoliberalism and the electric guitar with respect to gender politics and fiscal inequality. My main point is that by emphasising an ideology of neoliberalism, the problems and inequalities suffered by minority groups, such as women or people with low incomes are removed from popular discourse. This is replaced by the idea that if individual rights and freedoms are ensured, then each person starts from the same place, and success is simply a function of the effort and choices made by people from a particular culture. However, I would suggest that such an approach allows for the maintenance of the power imbalances that originally led to such structural inequality.

By bringing together themes that have cut across the previous chapters, this chapter contributes to current thinking about both the electric guitar and popular music. As my discussion has illustrated, much of the writing about popular music and late-capitalism (Negus, 1999) focuses on the economics of the music industry, and in particular how this has developed given the emergence of digital music and communications technologies. Few studies, however, have examined the cultural ramifications of contemporary political discourses, including neoliberalism, and fewer still have focused specifically on the guitar. Amongst others, this chapter builds on Kevin Dawe's (2010) recent study of the guitar within a globalised world, and how, given contemporary communications technology, interplay, evolution and exchange currently operate within guitar culture. In this chapter, I have gradually narrowed my focus to exclude all but the electric guitar, allowing me to show in greater depth how the discourse surrounding the instrument is influenced by and constructs a culture reflecting the contemporary political paradigm of neoliberalism.

Chapter 6 – Conclusions

6.1 Reflecting on the Current Study

The aim of this thesis was to better understand the values and meanings associated with particular electric guitar techniques and technologies, and how these meanings and values are constructed through written discourse. Using discourse analysis, I also theorise more generally about themes within this written discourse that guitarists and other groups within electric guitar culture consider to be particularly meaningful, and how these themes reflect and contribute to the identities of such people. In this final chapter I reflect back on this goal, evaluating my conclusions with respect to the strengths and weaknesses of my overall methodology.

The thesis considered three electric guitar phenomena, the power chord, the wah-wah pedal, and finger tapping, as well as various recent electric guitar technologies, primarily derived from digital signal processing technology. Chapters 2, 3 and 4 ask questions of the written discourse that relates to these phenomena, while Chapter 5 examines more broadly how these written discourses relate to the ideology of neoliberalism. The relationship between these two components can be conveniently broken down into three categories, each of which I will now examine briefly in summary.

Individuality

The vast majority of the discourse examples presented in this thesis serve to affirm the individuality of their subject. In Chapter 2, for example, the narratives presented reinforce the individuality of the inventors. Often this occurs despite a lack of compelling evidence, or occasionally in the face of entirely contradictory evidence. The process of individualization has various functions, including the affirmation of the authenticity and credibility of inventors, and the provision of a simple solution to representing the complex cultural processes of invention and creation. In Chapter 3, the expression of individuality within written discourse functions similarly to authenticate virtuosic musicians, who are presented as one-of-a-kind and as self-made-success stories. However, within this chapter individuality is also closely linked to the theme of masculine dominance and sexual prowess within the virtuosity discourse, as this masculine dominance requires power not only over women but also

over other, less powerful men. In Chapter 4, technology is discussed in terms of individuality, as many of the concerns surrounding technological use are derived from concerns about a loss of individuality. My overall argument was that a contemporary understanding of technology within the written discourse is largely rooted in a conception of human agency and autonomy as inherently authentic, with the more conservative discourse focusing on how technology undermines this autonomy and agency. In Chapter 5, I combine these disparate analyses of individualism and the electric guitar, and make a comparison with contemporary neoliberalism. I suggest that the individualist elements contained within the written electric guitar discourse I have examined reflect a neoliberal desire for individual success, and are closely related to a high valuation of personal agency, freedom of choice, and reward for innovation.

Innovation

In a similar sense to the affirmation of individuality, many of the examples I have presented in this thesis suggest a strong element of innovation or originality on the part of the guitarist they discuss. The primary focus of Chapter 2 is on narratives of invention and discovery, and innovation and originality emerge as key themes. In the discourse examined in this chapter, acts of invention are represented as occurring acontextually; with the inventor taking credit for an act that was, in most cases, contingent upon historical developments. Similarly, in Chapter 3 I suggest that ascriptions and understandings of virtuosity are strongly dependent on the appropriateness of musical performance, and thus the innovation of virtuosic technique is constrained by acceptable aesthetics.

An important aspect of the thesis is the development of new electric guitar technologies, as presented in Chapter 4. Given the close relationship between contemporary capitalism and neoliberalism, ideologies relating to the latter prize competition and innovation in the marketplace. Thus, for a musician to be successful within a neoliberal paradigm, they must be both innovative and original. The development of new technology is an obvious avenue for such innovation. The development of new technology affects barriers of entry to practice, which is beneficial to those not already established within popular music, but also presents greater competition for established professionals. This theme of ‘technological

conservatism' is evident in a great deal of the written discourse surrounding digital electric guitar technologies, and reflects the concern that new technology will result in reduced agency and ability to compete in the marketplace. Thus, there is tension between innovation and conservatism within the written discourse I examine, which reflects the neoliberal conception of technology as simultaneously facilitating innovation and reducing individual autonomy.

Working in the Marketplace

The concept of markets is of vital importance to neoliberalism, which suggests that the marketplace is the only means for rational decision-making. I have suggested that this assumption is reflected within the written discourse I have examined. The themes of 'individuality' and 'innovation' are highly important in this regard, and come together to reinforce the notion of competition and the electric guitar.

The marketisation of the instrument is also played out in the way the written discourse is constructed. For example, the commercial nature of many electric guitar publications, which are also required to succeed within the marketplace to survive, means that the articles and interviews that they produce both reflect and construct the financial success of the guitarists that are being covered. This then affects other types of discourse, both that which operates for non-commercial reasons, and that which aspires to succeed in the marketplace, as both types must reflect the content of the more powerful, economically and reputationally established sources in order to be successful. Furthermore, many of the opportunities presented to electric guitarists, that allow them to succeed according to the other aspects of neoliberalism, are available as a result of pre-existing financial capital. For example, it takes time and resources to create innovative music or develop new technologies, which requires financial support, either as a result of previous commercial success or from investment. Those without such support must combine creative acts with other, often unrelated means of raising capital. This is reflective of wider neoliberal society, in which those parties that already have financial capital have more power than those that do not.

In closing, I end Chapter 5 by outlining what I see as a number of problems with neoliberalism, which are in turn reflected in the written discourse I have examined through the thesis. I demonstrate that, in aggressively promoting a programme based

on individuality at all costs, on innovation and the rewards offered by engaging in the marketplace, neoliberalism is responsible for removing a discussion of inequality from the popular agenda, particularly with respect to wealth, class, gender and sexuality. I conclude by arguing that this allows for the restoration and maintenance of the power imbalances that led to such structural inequality in the first place.

6.2 Ramifications for Other Research Fields

This research has drawn from a range of academic fields, and as such, the analysis I present and conclusions I have drawn have similarly wide relevance, particularly to the disciplines of electric guitar studies, popular music studies and studies of technology within society. In this section, I argue the relevance of my research to each in turn.

Electric Guitar Studies

As I stated in the introduction to this thesis, specific academic study of the electric guitar remains in its infancy, although a number of excellent book-length texts exist (for example Waksman, 1999; Bennett & Dawe, 2001; Dawe, 2010). Many studies of popular music gloss over the role of the electric guitar, despite its historical importance. It is hoped that this thesis will contribute to the understanding of the meaning and role of the electric guitar in human culture, meeting the call to arms of the above authors.

Of particular significance is my discussion of invention and discovery narratives in Chapter 1. While other scholars, such as Steve Waksman (1999, 2001, 2003a, 2003b) had previously examined some of these narratives, they were touched on as part of a discussion of a broader historical analysis of the electric guitar. An analysis of the veracity and implicit meanings contained within the narratives, as well as the construction process itself, has not been undertaken in any great detail. My analysis revealed that certain traits allowed narratives to gain more widespread acceptance and longevity within the written electric guitar discourse I have presented, and that the narratives also mirrored particular aspects of neoliberalism, including a focus on the individual and on the marketplace.

Popular Music Studies

The application of the thesis to the field of popular music studies is arguably much broader than that of electric guitar studies. The findings in Chapters 4 & 5 are of particular relevance, including, for example, the presentation of an extended discussion of various digital music technologies, in which I conclude that discourses surrounding contemporary electric guitar technology are wrapped up in notions of identity, agency and empowerment. Despite my focus on the electric guitar, many of my conclusions regarding music technology are transferable to other genres and professional areas, including in particular the field of audio engineering. There is added relevance given that most current literature regarding the now established digital paradigm have tended to focus on either music production or electronically produced music, leading to the overlooking of genres and styles that continue to produce music in a traditional manner, but which have engaged with digital music technology in other ways.

In addition, Chapter 5 develops the work of authors such as Hesmondhalgh (2007) and Negus (1992; 1999) in its analysis of the effects of neoliberalism within popular musical culture. A great amount of literature has examined the role of contemporary capitalism within popular music in a similar way to this thesis (Burnett, 1996; Taylor, 2001, 2007), but neoliberalism is arguably a more contemporary social and political paradigm, with different, albeit related ideologies, and therefore a full understanding of this phenomenon is vital to ensure a deeper understanding of popular music.

Studies of Technology and Society

Finally, this thesis contributes to understanding the role of technology in society. My discussion of the discursive relationship between human technology and agency within a digital paradigm is applicable far beyond consideration of the electric guitar, and also reflects a developing understanding of the importance of individual human agency within neoliberal culture. Furthermore, my discussion of the democratising and oppressive effects of new electric guitar technologies in Chapter 5 is reflective of similar processes that occur within popular music more broadly. As with the electric guitar, more widespread discourses of digital technology are concerned with both the barrier lowering potential of cheaper and more efficient means of achieving the same ends and the less positive risk of job losses and obsolescence.

6.3 Methodology

An important aspect of this thesis was the discursive methods I used. The decision to use discourse analysis of written sources was driven by a number of factors, but fundamentally my choice was the result of the problems imposed by conventional historical analysis. That is to say, I wasn't interested in creating 'my own' history of the electric guitar, or the phenomena that appear throughout this thesis, but rather in reflecting the written accounts of others. I feel the discursive approach has been particularly effective in this regard, as it has allowed me to consider a wide range of material as primary sources, and from a wide time period. Although a number of authors have employed aspects of discursive methods in their analysis of the electric guitar, in particular Steve Waksman (1999), this study is unusual in the extent to which discourse analysis is used. That said, there are a number of limitations with the current study that I highlight in what follows.

Depth and Breadth Limitations

An inherent property of discourse is that it quite literally occurs in every aspect of human society. Where human interaction occurs, there is discourse of some type, and thus the amount of extant discourse is essentially limitless. A smaller amount is relevant to the electric guitar, particularly when only catalogued discourse is considered, but it still represents an enormous body of raw data. Through specifying even further, by focussing on written discourse relating to a handful of phenomena, as I did here, it is likely that I have remained ignorant of a significant amount of data, despite my best efforts. However, I placed limits on the scope of my enquiry from the outset, focusing on English language sources with a range of origins of around 115 years, and primarily from sources in the United States and United Kingdom. In addition, the limitless and continuously evolving nature of discourse means that I was, by definition, unable to consider sources that were not documented and therefore not 'findable'.

As stated in my introduction, the three phenomena were chosen because the written discourse surrounding them was both abundant and diverse, but they also had clear definitions and therefore discursive limits. In an effort to manage this abundance of discourse, I employed a grounded approach, whereby when no new themes or narratives were emerging from my analysis, I decided that I had done enough

research. While this is an acceptable and documented method (Strauss & Corbin, 1998), it is still possible that I overlooked or ignored relevant narratives or examples. Arguably, if I had chosen different phenomena, my results would have been different. However, the consistency of the themes that emerged for each phenomenon suggests there would be significant similarities if different phenomena were subsequently examined.

Furthermore, and as a result of attempting to overcome this problem within the scope of a doctoral thesis, I was forced to choose particular phenomena at the expense of others. In many cases, these choices were made on the availability of data and the size of the written discourse, but it remains true that a sacrifice in investigative breadth was made. For the same reasons, I have not discussed the acoustic guitar in this thesis. Further work is needed to explore the relationship between the different instruments that belong to the guitar family in the context of written discourse, and with respect to the performance techniques and technologies that I have examined here.

Interpretative Bias

Throughout the thesis, I have conducted a great deal of interpretative analysis into many discourse examples. As I stated in Chapter 1, a difficult aspect of such analysis is to step outside of the research, and attempt to act objectively. Such a concept arguably goes against the fundamental philosophy of discourse analysis, which suggests that in performing and writing analyses, a researcher is generating their own discourse and implicit discursive meaning (Gee, 2005).

In order to overcome this methodological problem, I saw it as important to conduct my analysis transparently. This required the contextualisation of discourse examples and quotes, both through providing their original location and not presenting small fragments of discourse. Furthermore, presentation of my analyses was conducted in real time, in the hope that the reader could follow the development of my lines of reasoning. Therefore, readers are able to understand how I have generated my conclusions, and if they disagree with them, which is certainly possible, it is a simple matter to discursively engage with me, either directly or through the publication of other research (Strauss & Corbin, 1998).

6.4 Avenues of Future Study

Having acknowledged some of the limitations of this thesis, in conjunction with observations I have made throughout the research and writing process, there are a number of directions in which I feel further study would be beneficial. At the beginning of thesis, I explained the status of the performance techniques and technologies I examine throughout. My goal was not to provide a history of these phenomena, and as such I have not expanded on the changes of these phenomena over time. The meaning of these phenomena is as contextually dependent as that of the electric guitar itself, and for the purposes of this thesis I used definitions informed by the written discourse I have analysed. However, it seems likely that an examination of other discourses would lead to different definitions, meanings and understandings. As such, it would certainly be worthwhile to examine these phenomena in different cultural contexts, particularly with respect to different languages and different musical histories. Furthermore, many of the new technologies I discussed in Chapter 4 are at the beginning of their lifespan. Therefore, it seems probable that as these technologies are integrated and developed into common practice, so too will the narratives and discourse that surrounds them. Perhaps, given time, each will develop a distinct invention narrative of its own.

In addition, I would suggest it would be both academically fruitful and interesting to compare the technological discourses as they exist now, and how they develop over time. If history is to repeat itself, then it seems likely that as digital electric guitar technologies develop, they will be integrated more thoroughly into normal electric guitar practice, to the point where they no longer engender such a sharp polarization of opinion as identified in Chapter 4. Examining this process could produce an interesting and valuable study.

In broader terms, comparisons between the meanings contained within written electric guitar discourse and neoliberalism have been very useful in this thesis, and have shed a great deal of light on the implicit values and ideologies within the former. However, neoliberalism remains a multi-faceted phenomenon, as does the electric guitar, and as such there remains much work to be done. Of particular significance would be an examination of developing economics within popular music, particularly with respect to the significance of digital music distribution. Further comparisons

between neoliberalism and both popular music and the electric guitar would shed some light on both of these processes, and perhaps point us in a direction towards overcoming many of the inequalities that neoliberalism helps to reinforce.

Finally, and as a result of further exploring the relationship between neoliberalism and the electric guitar, it would be extremely useful to develop an understanding of the performative aspects of the instrument. Theories of musical subjectivity suggest that when music is performed, people take on its value, beliefs and modes of being (Cumming, 2000). If this were the case, then it would be reasonable to assume that both the instrument itself, and the relevant body of written discourse are reinforcing behaviours and beliefs compatible with neoliberal ideologies. It would be extremely useful to develop this concept in a structured, empirical context.

In closing, the electric guitar is an instrument that retains an important, yet constantly changing significance within both western popular music and global music culture. In this thesis, I have examined written discourse relating to a number of specific electric guitar performance techniques and technologies, uncovering prominent discursive themes that reflect and construct meaning with respect to the instrument itself, but are also closely related to neoliberalism. In the future, it will be necessary to examine how the relationship between neoliberalism and the electric guitar develops, as well as closely monitoring the global evolution of the instrument itself.

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