Beat-mixing Rock Music

Abstract

Electronic dance music (EDM) has the capacity of producing not simply individual recordings but also a medium to create new soundtracks through live manipulation of these recordings by disc jockeys (DJs). This immediacy in dance music is in contrast with recorded rock music continuing to be presented in a static form. Research was undertaken to explore the proposition that EDM's beat-mixing function can be implemented to create immediacy in rock music. The term used in this thesis to refer to the application of beat-mixing in rock music is 'ClubRock'. Through collaboration between a number of disk jockeys and rock music professionals the research applied the process of beat-mixing standard rock compositions to produce a continuous rock set. DJ techniques created immediacy in the recordings and transformed static renditions into a fluid creative work.

Adrian Carroll
Queensland University of Technology

Introduction

Beatmatching is the process of matching the tempi of two songs playing simultaneously. Beat-mixing is usually done by listening to the second track on headphones and when the two tracks are playing in synchronisation, mixing in the new track and fading out the old in a creative fashion. The term 'DJ friendly' means that a track is made to be easily mixed by a DJ on the dance floor, but not all dance music complies (Snoman 2004, 49). Making a track DJ friendly entails the inclusion of long intros and outros of percussion to give the DJ time to beatmatch and segué into the next track. The beat-mixing technique from electronic dance music has been deployed in this research project to combine original rock tracks and thereby form a continuous rock set. ClubRock retains the rock aesthetic and is *not* rock music with a dance beat. The compositions comprised of vocal verse/chorus formats indicative of the genre. This paper will demonstrate how musical immediacy and mediated music can coexist in rock music.

The research results were demonstrated on rock music but the principles can be utilised on any form of music. The investigation also discovered how the inclusion of mix-breaks created a framework to creatively explore song structure in composition but this is a by-product of the application of beat-mixing and should be treated as distinct. To explain further, song structure changed as a result of the beat-mixing processes, including the addition of the EDM breakdown to the rock compositions. The hybridisation of the two genres, EDM and rock, resulted in a contribution to rock music compositional approaches.

EDM production techniques, Disco and Jamaican dancehall tradition

Kai Fikentscher, in his book, '"You Better Work!" Underground Dance Music in New York City', gives an insight into the development of underground dance culture from the roots of disco from the late 1960's to the turn of the century. Fikentscher defines mediated music as "musical sound being reproduced independent of the conditions of its initial production" and differentiates this from musical immediacy, sometimes referred to as 'live' or music created spontaneously (2000, 15). In the case of dance music, musical immediacy and mediated music coexist (2000). This enables EDM recordings to be more than just a fixed representation of a song—a recording becomes a component of a new work when it encounters the dance floor, creating new life and endless possibilities. Davis Troop explains "this idea of a seamless flow of music that ran all night created by a DJ ... came from disco", and this has been "one of the most radical changes of music in the last thirty years" (cited in Shapiro and Lee 2000, 38). Shapiro states that

"with the exception of punk rock, every significant development in popular music since the 1960's has in one way or another emerged from the Jamaican dancehall and its tradition of the sound system" (2000, 50). It was in Jamaica that a record stopped being a finished recording. Instead, in the studio it became a matrix of sonic possibilities, the raw material for endless 'dubs' (Brewster 2000, 109). "With a deejay 'riding the riddim' the audience was hearing something absolutely unique; with much the same immediacy as a traditional live performance" (2000, 118).

In discussing pioneer DJ Grandmaster Flash, Brewster states that he "set himself the goal of playing breakbeats with precision—[and to] deliver it to the dance floor with a constant, unbroken beat. At first, he had no idea whether it was possible, just that it would be amazing—and that if he could get it right, he would make history" (2000, 214).

Rock music and EDM

The dance genre of *northern soul* consumes old rare grooves (fast paced 60s American soul music) that the DJ manipulates to create a dance set. These records were not composed to be DJ friendly but can be made to blend through the skill of the DJ. Rock music, like *northern soul*, is not made to be DJ friendly and even though DJs are able to mix rock music the inclusion of mix-breaks would extend the possibilities for the DJ as well as save a lot of time in preparation and pre-performance editing. "DJs playing rock music usually make a pretty good mess of the transitions between tracks; the genre is not easily mixed together because it lacks that extended form and is difficult to beat-mix" (A. Smith, personal communication, August 10, 2011). The "general goal of mixing is to move as smoothly as possible from one record to another" (Butler 2006, 242) and beat-mixing is one way the DJs can mix seamlessly in any form of music.

With regard to rock music's static form, what is in question here is not the effectiveness of the musical presentation, but the predominance of specific prescribed ways to present a song, and the value of creative adaptation of representation. In talking of rock format or musical structure, Theodore Gracyk in his book 'Rhythm and Noise' notes that "we simply tire of our minor variations of the same old thing" (1996, 206). Gracyk and others (e.g. Golman cited in Brewster 2000, Durant 1985, Blume 1999 et al.) support the premise that most rock music still remains fixed into a format designed for optimum radio playability.

Rock music does not require beat-mixing in order to be presented in a long form, especially in the live music context. In a chapter entitled 'The death of

rock' Brewster notes that The Grateful Dead "would play songs as long as they felt good, as long as they made people dance and when most of the audience is high on something, that can be a long time" (2000, 66), but then adds that rock "abandoned early danceable psychedelic forms" (138). Brewster describes the abandonment as "the age of the concept album, the rock opera, the tortuous guitar solo" and goes on to state that "rock, after a trip too many, would soon drift well away from the dance floor and become serious music, sounds for the head rather than the body" (2000, 70). In the early 1970s rock indulged so pervasively in the extended form that it inspired punk bands to exclude improvisation and to resort to tight song structures.

In reference to the 1980s Kronengold (2008) discusses the introduction of four-on-the-floor (a disco beat with a bass drum on every beat) into the *new wave* genre and cites Blondie's *Atomic* and The Clash's *Lost in the Supermarket* as demonstrating borrowing or exchange from dance music. He also asserts that this exchange enabled AOR (Album Orientated Rock) to borrow from disco as well. Queen's *Another One Bites the Dust* and *I Was Made for Loving You* by Kiss are two examples cited. Talking of the Manchester Sound Brewster states " after acid house, this sound was seen as a brief resurgence of band-driven music, but it was actually a clever reconstruction of rock to make it palatable to a market that had learned how to dance", and then continues, " rock bowed to the dance revolution" (2000, 137). This exchange is of interest because although borrowing from dance music, these examples succeed in retaining the rock aesthetic in the performance.

Many dance producers have incorporated rock feels and elements creating cross-genre dance tracks—the Junky XL remix of *A Little Less Conversation* by Elvis Presley (2002) is one commercially popular example. Producers have successfully incorporated rock music into the electronic dance track, what is not evident in the field is evidence that the beat-mixing function of EDM has been used to enhance originality in rock music. Two questions guided the research: How can rock music implement EDM's structural fluidity to create an album in the form of a DJ set? And how do rock musicians read the ClubRock set as a rock album?

Method

The specific method of data collection to produce the creative synthesis or the beat-mixed rock album will now be explained. An alternate album structure was explored by applying the EDM trance format to rock compositions and documenting and refining the processes. Data took the form of transcripts of over fifty interviews, transcribed lecture presentations

on the topic, compositions, constructed ClubRock sets and field notes. I drew on my personal experience, documented in a journal, and this became a rich source of self-reflection. A Lab Book documenting the whole process can be found as part of the full record of the study (Carroll 2013), including the recorded tracks that make up the rock set. In the full study individual observations from interviews with the principle co-researchers—DJs and Rock professionals—have been included verbatim to portray the subjective views of the individuals. Some of these observations suggested new formatting approaches and co-researcher's alternative mixes also provided ideas about structure and arrangement that were incorporated into the final outcome.

Recording procedure

Original rock tracks, with the standard verse and chorus format, were recorded and the drums were looped and copied onto the beginning and end of each track to form mix-break sections. A set was achieved by overlapping the end mix-break section of one track with the beginning mix-break section of the next track. The tracks were tailored to fit into each other perfectly. As the tracks developed it became apparent that in the context of the set the internal song structures benefited by further expansion in a number of sections and song structures expanded as they were assembled and reassembled. Having verified that the songs could be beat-mixed, the mixes were then given to the collaborating DJs to produce various ClubRock sets.

Phenomenological themes

Five phenomenological themes were explored while recording, beat-mixing and producing the ClubRock sets. These themes of tempi, vari-speed, beat-mixing, breakdown, and the ClubRock set itself, explain the particular processes in making the production and also portray the subjective experience.

Tempi
DJ Jett stated that "it's not actually common to beatmatch a rock album because of the huge difference in speed" (personal communication, December 10, 2011). As mentioned above, beatmatching is the process of matching the tempi of two songs. To facilitate beatmatching the DJ would usually select a BPM (beats per minute) that is close or identical in tempo. As Whiteman, a consulting DJ, noted, "this enables the DJ to beatmatch the songs fairly easily and one of the problems that I encountered with the tracks was that they are so disparate. The similarity of tempi within EDM genres gives the DJ flexibility to navigate his way through a collection of tracks,

without being constrained by disparate tempi. It also allows a different set configuration/order each time the DJ performs the set" (personal communication, January 13, 2012). "Some genres of dance music are defined by BPMs" (Dettmar and Richey 1999, 195) and having similar tempi is a major ontological difference between the EDM and rock genres. The necessity for a similar tempo for beat-mixing was not initially evident and the tempi recorded were considerably different between the songs (tempi ranged from 118 BPM – 193 BPM). Disparate tempi caused problems beat-mixing the tracks. First attempts tried matching the speeds to the fastest track using the process of vari-speed discussed below. This created excitement in the set, however, the speeding up process caused unpleasant audible artefacts. Eventually it was decided to arrange the tracks in order of tempo from slowest to fastest, which also produced continuity and increasing intensity over the length of the album. To achieve beat-mixing the following process was developed: The speed of the introductory mix-break section of the subsequent track was slowed down to match the tempo of the previous track, but only in the mix-break. The second track was then returned to pitch after the mix-break, usually in an arrhythmic breakdown section.

Vari-speed

In recording terminology the term 'vari-speed' describes the increase or decrease of tempo. In the digital domain it is possible to vari-speed a track without affecting the pitch (pitch-lock). However due to the limitations of the technology unpleasant audio artefacts can be produced. This quality degradation was exacerbated by the DJ software (Traktor, Serato) and compact disc (CD) players that operated at a resolution of 16 bit 44.1 KHz. DJ software, professional DJ CD players (CDJ 1000 Mk3s) and Digital Audio Workstations were all unsuccessful in being able to pitch-shift (vari-speed) rock or other types of music without artefacts. The investigation of different vari-speed hardware and software is currently in progress but at the time of writing no satisfactory solution had been found. As stated previously, in the final stages of the project I slowed down the mix-break of the next track to match the tempo with the previous track for beat-mixing. Artefacts were not a problem in the mixbreak because of the combination of the masking effect and the tonal character of the drums.

Beat-mixing

When two tracks slowly blend together the resulting combination is identifiably EDM influenced and demonstrates a new possibility in rock music. The mix-breaks were achieved through following these mix rules:

- Each mix-break will be 64 bars long, consisting of 32 bars of tonality and 32 bars of drums.
- Mix-break drums need to be 'tight' (well defined, hard-edged sounds).
- No bass-lines are to be included in the front mix-break.

The value of these mix rules became apparent as the tracks were tailored to work together. The 64 bar mix-break provided a constant predictable work-part so that the DJ knew when to start the next track. The mix-break drums needed to have tight, well-defined, hard-edged sounds so that the DJ could differentiate the tracks when beatmatching. Having no bass-line at the front of the mix allowed the drum track to sit over the end of the previous song without a clash in key signature. The amount of bass allowed at the end of the mix-break determined the entry point of the subsequent track.

Breakdowns

In EDM there are two kinds of breakdown—one at the beginning of a track for transitioning, and one in the middle for dynamic relief and subsequent build up. DJs use atmospheric breakdowns, i.e. sections with no rhythmic component, as a device to enable transition between songs of different tempi. When beat-mixing the album subsequent tracks of a different tempo were usually returned to their normal tempo at these arrhythmic sections.

The main breakdown in the *middle* of a song in EDM has a different purpose which is to create a climactic build. In rock music we found it served a different purpose again. "In rock music a breakdown is opposite to dance music because the breakdown in dance music is a huge build-up to a drop, whereas this is a relief of thick fast loud music" (J Jett, personal communication, December 10, 2011). Dance music has stratified layers that peel off and give the listener sonic rest whereas rock music has a limited dynamic range and because of its 'radio friendly' format breakdowns in rock music are rarely utilised. A very clear example of a breakdown in rock is in *Whole Lotta Love* by Led Zeppelin. Composer Colin Webber stated that "the breakdowns worked well and created relief… and space to anticipate" (personal communication, January 31, 2012). Breakdowns in ClubRock did provide space in the set, an important component for a continuous rock soundscape.

ClubRock set

Once the mix-breaks were constructed we started experiencing the phenomenon of beat-mixing rock music. Tim Whiteman describes the experience:

> In order to combine rock and dance you need to use production techniques representative of both styles. Once the sound of the genre was established we had to make it DJ friendly. To do this Adrian essentially had to sample himself [the recordings we'd done], adding a mix-break to the start and end of the songs in Pro Tools using existing pieces of the recordings... Essentially we recorded the songs and then sampled the same recording in order to create a new version of the compositions which adhered to the dance music form (personal communication, September 1, 2011).

When asked what he felt about the rock album being presented as a set DJ Josh Jett stated that "presenting it in a way that is mixed and is flowing as a rock album is one step above the rest in presentation ... that's full-on, that's like a cut above" (personal communication, December 10, 2011). Everett True, music critic, stated that "pop (and rock) songs are often about the 'whole'. Dance music is often about the 'moment'. Taking out the gaps between the songs blurs the boundaries, makes the music quite relentless. There are no silences. There's no pause for reflection" (personal communication, December 29, 2011).

The researchers did not feel that the outcome held a strong association with EDM but in the end produced a very hard-hitting and exciting rock album. Beat-mixing created a very distinctive sound unusual in a rock album context. The technique also benefited by the mix-breaks having two drum kits playing simultaneously. This created a sonically rich new structural component. The effect was advantageous for a rock enthusiast because it resembled twin drum productions such as Feargal Sharkey's *You Little Thief*. However, Whiteman noted that because the songs were not edited to a tempo grid the drums shifted against each other and the double drums could be seen from an EDM perspective that the DJ was not mixing accurately (personal communication, August 18, 2011). "Musicians generally agree that groove works best when it is not strictly metronomic—that is, when it is not perfectly machinelike" (Levitin 2006, 167). Finally, to help the DJ beat-mix the track, the mix-break sections were aligned to the tempo grid, whilst leaving the song itself in free time.

Analysis

The knowledge area that was transformed in my practice was the ability to extend the musical form in rock music. The internal song structures moved away from traditional 'radio friendly' forms and gave the songs space or 'air' and an independent character. The ability to repeat sections a number of times enabled the tracks to open up and be developed in a longer form. Stanley (cited in Butler 2006) uses a diagrammatic representation to depict the way EDM builds and drops over its track duration. My adaptation below shows how the format worked in ClubRock.

Figure 1: Visual representation of a typical structure of a ClubRock track.

The two larger rectangles represent the verse/chorus sections in ClubRock before and after the breakdown in the centre. The second verse/chorus is slightly louder on most tracks due to the addition of backing vocals and keyboards for dynamic increment. The main breakdown in the centre starts quietly giving relief to the set before building up to the next verse-chorus. The triangular shapes at the beginning and end of the track represent the mix-breaks that crossfade from the previous and into the next track. As is standard practice in EDM, the songs also contain an additional breakdown section after the first mix-break to help the transition into the new track.

In early attempts at beat-mixing, the tracks were brought to much more similar tempi by combining vari-speed with pitch-lock. This close relationship with tempi coupled with the beat-mix function created a unique sound and injected a sense of excitement. Even though having all the tracks at the same tempo would have added excitement the fact that the songs have a greater variation in tempi than EDM helps preserve the rock aesthetic.

The continuous soundtrack has the tendency to hold the listener's attention until the end. The extended structure of the individual songs also creates another dimension of interest and adds to the listening experience. These two extensions of form create an environment where the listener can be immersed, even lost, in the music without the interruption of the gaps that accompany the traditional album format. If the songs were played individually in a traditional album format there would be a significant difference in the listening experience. Some interviewees preferred the traditional album format because they could distinguish the start and finish of the songs. Practically a continuous set makes playback difficult for the rock radio disc jockey because, except for a special radio edit, the tracks would need to be faded out before the introduction of the next song. However, the addition of mix-breaks allows the situation where recorded or mediated rock music can be reproduced with variation to introduce spontaneity or immediacy through the medium of a DJ.

Conclusion

A conclusion among those engaged in the practice is that beat-mixing as a function extracted from EDM is effective in rock music. It created life and immediacy. It also created an exciting innovation to the traditional rock album format. This ability to create new representations live using different set orders and using different breakdown sections to segué between tracks provides immediacy and new possibilities for the rock genre as a whole. This is unique in a rock context where beatmixing tracks can be difficult. The mix-breaks create the ability for the album to be represented in numerous ways and this was realised through various DJ representations.

Beat-mixing rock music has made a contribution to the exchange between rock music and EDM. Rock music can implement EDM's structural fluidity to create an album in the form of a DJ set in an effectual and exciting way. The use of mix-breaks enabled the compositions to be blended together in a continuous soundscape that holds the listeners' attention throughout. The process of adding mix-breaks created immediacy in recorded or mediated rock music. Rock musicians read the ClubRock set as a differentiated rock album: an album that adds excitement to the standard format but does not detract from the rock experience. Personally, as a practitioner, it also created a framework to explore the extension of the internal structure of the composition.

To revisit Fikentscher's quote above, "mediated music is music reproduced independent of the conditions of its initial production and musical immediacy is music created spontaneously" (2000, 15). Now in rock music, mediated music and musical immediacy can coexist. Recordings can be used as workparts to create creative combination during the playback stage for a continuous soundscape. The research exercise demonstrated how a recording can be manipulated live to make a new spontaneous work and this can be claimed as a new contribution to rock music. Beat-mixing in rock music as a

function extracted from EDM production techniques can provide a new and exciting representation of rock music.

References

Blume, J. 1999. *6 steps to songwriting success: the comprehensive guide to writing and marketing hit songs*. New York: Billboard Books.

Brewster, B. and F. Broughton. 2000. *Last night a DJ saved my life: the history of the disc jockey*. 1st American ed. New York: Grove Press.

Butler, M. J. 2006. *Unlocking the groove: rhythm, meter, and musical design in electronic dance music*. Bloomington: Indiana University Press.

Carroll, A. D. 2013. *Beat-mixing Rock music: Rock and Electronic Dance Music merge to create the Manarays.* Masters by Research by Creative Works, Queensland University of Technology.

Dettmar, K. J. H. and W. Richey. 1999. *Reading rock and roll: authenticity, appropriation, aesthetics*. New York: Columbia University Press.

Durant, A. 1985. Rock Revolution or Time-No-Changes: Visions of Change and Continuity in Rock Music. *Popular Music* 5: 97-121.

Fikentscher, K. 2000. *"You better work!": underground dance music in New York City*. Hanover, NH: University Press of New England.

Gracyk, T. 1996. *Rhythm and noise: an aesthetics of rock*. Durham, NC: Duke University Press.

Kronengold, C. 2008. Exchange Theories in Disco, New Wave, and Album-Orientated Rock. *Criticism* (50): 43-82 (accessed April 30, 2010).

Levitin, D. J. 2006. *This is your brain on music: the science of a human obsession*. New York, N.Y.: Dutton.

Shapiro, P. and I. Lee. 2000. *Modulations: a history of electronic music: throbbing words on sound*. New York: Caipirinha Productions.

Snoman, R. 2004. *The dance music manual: tools, toys and techniques*. Burlington, MA.: Focal Press.

General Bibliography

Chanan, M. 1995. *Repeated takes: a short history of recording and its effects on music*. London: Verso.

Csikszentmihalyi, M. 2002. *Flow: the classic work on how to achieve happiness*. Rev. ed. London: Rider.

Douglass, B. G. and C. Moustakas. 1985. Heuristic Inquiry - the Internal Search to Know. *Journal of Humanistic Psychology* 25 (3): 39-55.

Eshelman, R. 2009. *Performatism, or, the end of postmodernism*. Aurora, CO: Davies Group.

Howlett, M. 2009. *The record producer as nexus: creative inspiration, technology and the recording industry*, Doctoral dissertation. University of Glamorgan, Wales.

Levitin, D. J. 2006. *This is your brain on music: the science of a human obsession*. New York, N.Y.: Dutton.

Santi, M. 2010. *Improvisation: between technique and spontaneity*. Newcastle upon Tyne: Cambridge Scholars.

Mezirow, J. 2000. *Learning as transformation: critical perspectives on a theory in progress*. 1st ed. San Francisco: Jossey-Bass.

Sawyer, R. K. 2003. *Group creativity: music, theater, collaboration*. Mahwah, N.J.: L. Erlbaum Associates.

Zak III, A. 2001. *The poetics of rock: cutting tracks, making records*. Berkeley: University of California Press.

Glossary

Beatmatching
The adjustment of "the speeds of two different records so they match and their beats are synchronized" (Broughton and Brewster 2003, 280).

Beat-mixing
The process of cross-fading to blend one track to the next while DJing.

BPM
The tempo of a particular song measured in beats per minute.

Break
"… part of a song that features a thinning of the musical texture, with strong emphasis on the rhythmic elements. Breaks are often chosen by DJs to mix with a second record or to peak a dance floor. Also referred to as *breakdown*" (Fikentscher 2000, 135).

Electronic Dance Music
"The term 'Electronic Dance Music,' or 'EDM,' encompasses a broad range of music produced during the last two decades, including styles such as techno, house, drum 'n' bass, and trance. Although fans of EDM are very much aware of the differences between these types of music, they still view them as belonging to the same overall category" (Butler 2006, 6).

Mix-break
The mix-break entails the inclusion of long intros and outros of percussion to give the DJ time to beatmatch and segué into the next track.

Loop
A musical phrase either sampled or played repeatedly.

Pitch-lock
Is digital processing that enables the change of tempo or BPM of a track while retaining the original pitch.

Rock Music
Rock music in this study is derived from classic rock exemplified by bands such as AC/DC, Cream, Led Zeppelin, The Who, The Easybeats and Zoot. Later examples include bands from the Punk and the Grunge scenes.

Traktor
Traktor is a DJ software programme that allows the manipulation of music with third party controllers and to store the music on a hard drive.

Figures
Figure 1 Visual representation of a typical structure of a ClubRock track

Adrian Carroll works in the media training sector, in Brisbane, as a specialist instructor in the field of contemporary music production and innovation. He has extensive experience in record production both contemporary and classic, radio, and video post-production both in Australia and the United Kingdom, with an extended discography, international artistes including: Tom Baker, Penelope Keith, Nigel Planer, Whoopi Goldberg, Richard O'Brien, the Australian operatic soprano Lisa Gasteen, Pianist David Helfgot and Chris Morrow. As a researcher Adrian is interested in the connection between performance and technology. His Master of Arts (Research) degree at Queensland University of Technology (2013) focused on beat-mixing original rock compositions as an alternative album format.