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## **Einstein on the Beat: Transcribing Electronic Dance Music Using Methods of Minimalist Analysis**

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# Einstein on the Beat: Transcribing Electronic Dance Music Using Methods of Minimalist Analysis

## Annotated Bibliography

### Abstract

This paper focuses on the transcription and methods of analysis for the modern musical genre of EDM, or electronic dance music. It takes a historical look at the origins of EDM in the early 1970s and explores how the compositional techniques of 21st century EDM producers are in fact similar to those of minimalist composers from the 1960s and 70s. By first establishing a common vocabulary to discuss the two genres, the paper will then examine compositions from both genres and attempt to provide a useful framework that can be used to analyze future catalogues of EDM.

### Secondary or Tertiary Monographs

- 1) Emmerson, Simon, Ed. *The Language of Electroacoustic Music*. Chur, Switzerland: Harwood Academic Publishers, 1987.

This collection of essays was compiled by Simon Emmerson, a professor of music technology and innovation at De Montfort University. Prior to holding this position, Emmerson served as director of the Electroacoustic Music studios at City University, London for 28 years. The book is divided into three sections - Music and Language; Problems of Language; and The Influence of Computer Technology. Some primary themes that tie this collection together are musical invention, collaboration, and the choosing of artistic materials. In Emmerson's words, "[this book] seeks to lay the foundations for discussion about aesthetic matters by clarifying the central issues". I've chosen this book to provide some context for the genres of minimalism and EDM within electroacoustic music.

- 2) Karkoschka, Erhard. *Notation in New Music*. Translated by Ruth Koenig. New York: Praeger, 1972.

This book does not focus directly on minimalism or EDM, but rather on notation styles and methods in 'new' music (written in 1965, published in New York in 1972). Erhard Karkoschka was a German composer and directed the choir and orchestra from 1948 to 1968 at the University of Hohenheim in Stuttgart. The biggest strength of this work is its documentation of individualized notation styles from different composers. It provides ample evidence for the argument that notation methods will continue to change until composers cease to differentiate themselves from one another. As this paper will attempt to provide a useful framework for the notation of future EDM catalogues, this source will be a trusted reference for traditional and non-traditional styles of notation.

- 3) Manning, Peter. *Electronic and Computer Music*. 2nd ed. Oxford: Clarendon Press, 1993.

One of the more modern sources in this bibliography, this book charts the history of composition and live performance in electronic music. Manning is a professor of music

at the University of Durham and completed his doctorate on electroacoustic music with Australian composer David Lumsdaine. The scope of this book begins as early as the late 1950s, with the first ever live performance aided by tape recorder, and goes beyond the development of MIDI and personal computers. There are many references to John Cage and the inspiring variety of novel instrumentation in his music. This source can be referenced when looking for information about nearly any minimalist composition.

- 4) Mertens, Wim. *American Minimal Music*. New York: Alexander Broude, 1983.

Wim Mertens is a Flemish Belgian composer whose own work is described as post-minimalist or sometimes pop-minimalist. In this book, Mertens attempts, although to some critics' dismay, to trace the origins of minimalist music in terms of its development out of traditional Western music. One review by Karl Kroeger (musicologist, professor, and librarian at CU Boulder) describes the text as "the only work to attempt to deal seriously and at some length with minimal music", but also as a "semantic nightmare" and "greatly in need of an editor's heavy hand". Despite being loaded with relevant information on minimalism, this text is guided by opinions of the author and can be somewhat hard to follow in translated English. However, the book does draw parallels between minimalism, disco music, and other "popular derivatives of repetitive music".

- 5) Schrader, Barry. *Introduction to Electro-Acoustic Music*. Englewood Cliffs, New Jersey: Prentice Hall, 1982.

Barry Schrader is an American electro-acoustic composer and received his Masters in musicology from the University of Pittsburgh. He has taught music at several universities on the west coast, and has written electronic compositions for dance and other live performance. The book's introduction takes some time to offer a robust terminology for electro-acoustic music, which will be a useful reference for my own paper. A later section discusses the history of compositional techniques used by minimalist composers and provides relevant lists of their works. The final section includes interviews with composers and offers insights regarding their specific works.

- 6) Wuorinen, Charles. *Simple Composition*. New York: Longman, 1979.

Charles Wuorinen was a renowned American composer of contemporary classical music. He was the recipient of both a Pulitzer Prize, at only age 31, as well as a MacArthur Fellowship. Like the Karkoshcka book, this text does not focus exclusively on minimalist music or EDM, but rather on contemporary compositions with restricted, or limited musical elements. Wuorinen poses many conjectures and theories of composing, and discusses music fundamentals on their most basic premises. For my research, I think it will be interesting to explore how an internationally acclaimed composer conceives of the simplest musical elements and figures.

#### Essays in Collections

- 7) Reich, Steve. "Music as a Gradual Process (1968)." In *Writings on Music: 1965-2000*. Edited by Paul Hillier. New York: Oxford University Press, 2004.

This is one of the select primary sources I've included in this bibliography. Steve Reich, born October 3, 1936, is an American composer who is included in every list of

musical pioneers in minimalism. In this 1968 essay, Reich describes a new style of composition that laid the foundation for works that have now become known as minimalist music. He discusses the kinds of auditory and psychoacoustic effects this type of music is designed to have for the listener. I've included this source to explore the motivations and mentality of a classic minimalist composer, and to ensure I capture all the intended nuance of a minimalist composition in its transcription.

#### Dissertations and Theses

- 8) Butler, Mark J. "Unlocking the Groove: Rhythm, Meter, and Musical Design in Electronic Dance Music." PhD diss., University of Indiana, 2003.

This doctoral dissertation is an in-depth examination of EDM and its musical elements. The author received his PhD from the Jacobs School of Music at University of Indiana, and his paper was published in the *Journal of the Society for American Music* in 2008. Butler's research includes many rhythmic transcriptions of EDM excerpts, as well as reinterpretations for further insights and understanding. He discusses the symmetries and "deep structures" of dance music, and the perceived effects by the listener. I will use this source for its scholarly analysis of contemporary EDM, and for its multitude of transcriptions and written musical figures.

- 9) Franz, Joshua Tyler. "Rhythmic and Formal Analysis of Electronic Dance Music: House and Drum 'n' Bass." M.A. thesis, SUNY Buffalo, 2019.

This masters thesis was published only two years ago, and is thus more recent than Butler's, although they both focus on many of the same themes. Franz has not yet made much of a name for himself as a music scholar, but his research in this thesis is comprehensive and coherent. His paper discusses beat patterns, repeated rhythms, perceived structural form, and compositional techniques in EDM. One strength of this essay is in the author's attention to detail with regard to song structure and transitions between sections of song. Franz includes rhythmic transcriptions, as well as original diagrams of the extended forms in select EDM tracks.

#### Journal Articles

- 10) Schwarz, K. Robert. "Steve Reich: Music as a Gradual Process." *Perspectives of New Music* 19 (1980-81), 373-392; 20 (1981-82), 225-286.

This essay is a response to Reich's 1968 essay which is also included in this bibliography. The author received a Masters from the Jacobs School of Music at University of Indiana, and wrote his thesis on the work of Steve Reich. Schwarz's father was also professor of violin at Queen's college and a renowned musicologist. In this response essay, Schwarz discusses Reich's compositional process and engages quotes of Reich from outside Reich's essay. Schwarz pays particular attention to the driving rhythmic pulse of Reich's works, and explains how this made his music accessible and appealing to audiences across many genres, including rock, jazz, and world music.

#### Music Scores

- 11) Reich, Steve. *Music for Pieces of Wood*. Vienna: Universal Edition, 1980.

This piece was chosen to fit the profile of an archetypal minimalist composition with a central rhythmic figure and uncomplicated melodic content. *Music for Pieces of Wood* is one of Reich's more well-known works, and is closely related to a previous work of his, *Clapping Music*, that uses the same rhythmic figure as a primary theme. The score includes some subjective instruction for live performance, which will be discussed in the paper as a shared aspect of live EDM performance. This will not be the only minimalist composition examined in this paper, but I thought it pertinent to include one such piece with relatively simple melodic content, and void of any electronic modulation as well. As my research continues, I will refer to published formal analyses of this piece.

### Sound and Video Recordings

- 12) Bergling, Tim [Avicii]. "Levels - Radio Edit", track 1 on *Levels*, Universal Music Group, 2011, Spotify streaming audio, <https://open.spotify.com/track/5UqCQaDshqblk3pkhy4Pjg?si=e178d1070a5c4c8d>, 320kbps.

I've chosen this song to fit the profile of a hugely popular EDM track that was released during the worldwide surge of EDM in the early 2010s. Tim Bergling, known by his DJ stage name Avicii, was one of the first EDM producers to reach international acclaim, and produced a number of radio hits before his tragic death in 2018. This track, *Levels*, incorporates many musical themes that can be commonly identified in minimalist music. One of these themes is the use of audio sampling from the 1962 recording of Etta James' *Something's Got a Hold on Me*. Some Avicii fans have published piano cover sheet music for *Levels* and other harmonic reductions online, but I have yet to find a transcription that outlines the processes of electronic modulation in any amount of detail, or a formal analysis to illustrate the repetition and variation of musical figures. In coming up with an analytical framework for EDM, I will likely use this track for one of the framework's first applications.