

HEAVY METAL MUSIC ANALYSIS FOR *NON-MUSOS*

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Why analysis of musical structures should be important in heavy metal studies? How those who are interested in the technical side of music would be able to communicate with those who are not, and vice versa?

Heavy metal studies are dominated by socio-cultural paradigms. The same goes with popular music studies in general, because of the history of the field of study: popular music studies have mainly developed within and from the disciplines of sociology and cultural studies rather than within musicology or music theory. Also, a common academic distinction within music studies has been made between the so-called classical and popular music. To be able to communicate with scholars emerging from various disciplines and backgrounds in the heavy metal academia and music studies in general, it would be useful to share at least some amount of common language. I will try and contribute to this matter from a musicological perspective.

This presentation addresses:

- 1) definitions of *muso* and *non-muso*,
- 2) rationale of music analysis in heavy metal,
- 3) some key concepts I believe to be central for understanding musical structures of heavy metal.

In my presentation all the points will be accompanied with musical examples.

Muso and non-muso

Muso means “someone who devotes a lot of time and energy to making music or talking about it, especially its technical aspects. A muso is in other words someone with either formal training in music, or who makes music on a professional or semi-professional basis, or who just sees him/herself as a musician or musicologist rather than as a sociologist or cultural studies scholar. *Non-musos* are simply those who don’t exhibit the traits just described...” (Tagg 2013: 3.) For a non-muso reader to better understand my position and the reasons that lead me to choose this paradigm, I will start with a very brief muso autobiography.

I was born in a muso family in the early 1970s. My father used to be (and still is) a performing guitar player and a music teacher, including both classical and popular music. As long as I can remember, and supposedly also before that, I constantly and equally heard J. S. Bach and the Beatles at home. Subsequently I learned to make no difference between the so-called classical and popular music. They both were constructed of interesting and exiting sounds, which I learned to call *music*. Regardless of why, how, when, or by whoever it had been made, for me it was only music. And I liked it. At the age of six I began my formal musical training with the cello, which was soon followed with the clarinet. However, I always wanted to be a drummer. After building a drum set out from tin cans my father finally agreed to buy me a proper set. At the age of about fourteen I formed my first own band. I had recently become a heavy

metal fan, so we started by playing Black Sabbath, Judas Priest etc. Very soon I wanted to write my own music, so I needed to learn some guitar and bass to be able to teach them for my bandmates. All this time my main interest was to find out first-hand, just how music works. My attitude even as a teenager was rigorous enough not to let beer or teenage fan girls in the rehearsal room. As you can imagine, the other guys in the band did not appreciate this very much. To keep the story short, after finishing high school and having done a lot of gigs, I spent several years at classical and popular music conservatories studying drum set and other percussions, and most importantly music theory to improve my musical reading and writing skills. At the same time I studied musicology at the University of Helsinki, which really opened my mind to the many possibilities of music analysis. Among other things I learned about Riemannian and Schenkerian theories, acoustics, and most importantly the fact that there is no single truth in music analysis. Meanwhile I continued writing and performing my music, including e.g. heavy metal recordings and an honorary prize in a national compositional contest for a full classical orchestra. I also worked as a music theory teacher, which has continued for almost twenty years up to date.

In the late 1990s I needed a topic for a seminar paper in musicology. At the time there were two things I was mainly interested in: music theory and heavy metal. I thought why not to try and combine the two for the assignment. Rather naïvely I thought there must be loads of previous research on the topic. Obviously there was vast amount of literature on music theory written since around 500 BCE, but to my great surprise, only three book-length academic studies on heavy metal: Robert Walser's *Running with the Devil* (1993), Deena Weinstein's *Heavy Metal: A Cultural Sociology* (1991), and Harris M. Berger's *Metal, Rock and Jazz* (1999). Of the three only Walser dealt with musical structure in detail, although in one chapter only. In the lack of more sufficient study on heavy metal's musical structure I had to start my research mostly from scratch. During the next ten or so years I ended up writing my master's, licentiate and finally PhD on musical analysis of heavy metal, and publishing the outcomes in a book called *Theory and Analysis of Classic Heavy Metal Harmony* (Lilja 2009).

Why is music analysis important?

Since most heavy metal scholars come outside the musicological paradigm, there might be a need for explaining as to why it is important for a musicologist to look closely at musical structures. For a musicologist, musical tradition is ultimately tied to musical structures. Thus, it may be said that music theory and analysis make it possible to 1) know tradition, 2) maintain tradition, and 3) develop tradition (Padilla 1997: 6).

From another perspective, there are four interrelated uses for music theory and analysis:

1) *To understand why music sounds as it sounds* (cf. Moore 2003: 6). Personally it has always been the main thing for me to try and find out what it is in the music that has so profound emotional meaning for me.

2) *To understand people making the music*. Most heavy metal composers and musicians usually have a clear idea about what they are musically doing, whether they can verbally explicate it or not. Musically coherent style of many bands suggests this as well as the known fact that many heavy metal musicians

have been either formally or otherwise seriously educated (see, Lilja 2009, Walser 1993).

3) *In order to make sense of musical meanings*, it is helpful to be aware of musical structures. Some wonder whether the technical details tell us anything about the listener's experience (Frith 1996: 64). Even though musical structures are tied to the surrounding frameworks (sociological, cultural etc.), it's useful to investigate the music as such, too. For example, if one wants to study listener's experience, it's beneficial to know in detail what is being listened to (cf. Moore 2001: 6).

4) *To make (write or perform) music yourself*. This, of course, is essential for a composer/songwriter. Some bands claim they have not taken any influences from any other bands or any other music. This claim for authenticity is either a lie or plain ignorance; in any case, a reminiscence of a divine mastermind composer myth developed during the 19th century.

Some basic and useful concepts for heavy metal music analysis

There may be occasions when it might be useful for a non-muso heavy metal scholar to be able to discuss intelligibly about musical sound. Musical sound can be roughly divided in three parameters: time, tonality and timbre. In the following I draw attention mainly to tonal issues that I believe are the most central to heavy metal music, and to some terminology that may sometimes be confusing even for a musicologist.

Pitch refers to the frequency rate of vibrations producing a sound. Sound wave cycles are usually measured with Hertz (Hz), i.e. cycles per second. For instance, an open A-string played on the guitar has a fundamental pitch of 110 Hz. Percussion instruments, such as hi-hat, produce pitches as well, but usually not *tones*.

Note can refer to at least four things: 1) a single sound in a broad sense inside a musical piece (e.g., a drum note, flute note, etc.), 2) a sound with recognizable fundamental pitch (i.e. *Tone*, see below), 3) duration of a sound (relative to an underlying pulse of a piece of music; e.g. "quarter note"), 4) graphic presentation of any of the previous categories in music notation. I tend to use the term in the sense described in points 1 and 4.

Tone refers to a note with recognizable fundamental pitch. In other words, a tone is a sound with a recognizable pitch, but it can include other frequencies as well (e.g. 110 Hz + 220 Hz + 330 Hz etc.). For instance, an excerpt from Deep Purple's "Smoke on the Water" contains 88 notes in total (64 on hi-hat + 12 x 2 on guitar). However, only the notes on the guitar have recognizable fundamental pitches. Thus notes on the guitar are also tones, whereas notes on the hi-hat are not. The term tone gives rise to many other common musical terms, such as:

- **Tonal** i.e. something having the properties of a tone, or a musical passage constructed of tones;
- **Tonality** i.e. any system, according to which tones are organized (e.g., key of C-major is one such system);
- **Tonic** i.e. musical keynote or tonal reference point (e.g., a tone C in the key of C-major);
- **Tonical** i.e. a tonal system having a tonic.

(Terminology is much based on Philip Tagg's (2013: 273–276) definitions.)

The distance between tones is measured with **intervals**, which in turn consist of **whole-tones** and **semitones**. A semitone corresponds to one fret on the guitar (or adjacent keys on the keyboard; e.g. tones *e-f*), two frets corresponds to a whole-tone (e.g. tones *a-b*).

Modes are specific tonal systems according to which tones are organized around a certain tonic. For instance, major and minor scales are different modes. Most heavy metal tends to be constructed on minor modes, which is many times linked to “darker” meanings than major modes. However, major modes, which are sometimes linked with “cheerful” properties, are not uncommon. Counting from tonic, minor modes include a minor third interval (corresponding to 3 semitones), whereas major modes include a major third (4 semitones). To get the idea, compare, e.g., the distance between the first two chords in “Smoke on the Water” to the first two sung notes in Iron Maiden’s “The Number of the Beast”. The first has a minor third, the second a major third.

One especially important interval in heavy metal is the **tritone**, which is sometimes called “the devil in music”. The distance between the two tones in a tritone corresponds to 6 semitones (i.e. 3 whole-tones; the interval name comes from this). A classic example is found in the opening riff to Black Sabbath’s “Black Sabbath”.

Chord is a simultaneous sounding of two or more tones with different note names. *Dyads* include two tones, *triads* three, *tetrads* four, etc.

Power chord is an essential part of musical vocabulary in nearly all heavy metal. It is constructed of two tones that form an interval of the fifth (corresponding to 7 semitones) and played with distortion. Because of the distortion the structure of the power chord is particularly interesting. I will explain this briefly. In every musical tone there is not only the fundamental pitch, but infinite number of other pitches as well – even if you do not actually play them. These pitches are called *overtones* and are integer multiples of the fundamental pitch. For instance, open guitar’s A string consists of the fundamental pitch (110 Hz) and overtones that correspond to a (220 Hz), e (330 Hz), a (440 Hz), and so on. To make a long story short, the structure of a power chord is such that certain overtones sound very clearly; most interestingly the one that corresponds to a major third. Thus, a power chord is inevitably a major chord. (For a more elaborate explanation, see Lilja 2009.)

This might come as a surprise to especially those extreme metal-heads, who favor minor modes for their allegedly “dark” properties. Want it or not, they are anyway playing “cheerful” major chords.

Conclusion

I hope that the vast amount of special musical terminology used here does not scare off all of the non-muso audience. Everything becomes much clearer in my presentation; I will use musical examples drawn from canonic heavy metal to clarify all the points presented above for everyone to understand.

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