

Metallica's Tone Colour Characteristics of their Riffs (1983–1986) and the Differences between Slayer and the New Wave of British Heavy Metal

Annotation

The aim of this article is to consider the design of the riffs of *Angel of Death* and other songs from the first three albums by Slayer (*Show No Mercy* 1983, *Hell Awaits* 1985 and *Reign in Blood* 1986) from a music analytical point of view (including tone-colour analysis of the riffs).

If Slayer's riff design (from 1983 to 1986) is considered from an overall perspective, the following results can be observed:

- A rapid tempo and a constant change in the tone-colours of the guitar (palm mute, powerchords and monophonic melodies) characterise the sound of most riffs from the first three albums of this band.
- Although the number of tone colours is limited, exact repetitions of tone colours are avoided.
- Melodies in thirds, sixths and octaves are rare.

At the same time (1983–1986) and in the same geographic area (U.S. West Coast), the band Metallica found their own compositional path within the thrash metal genre. Although the two bands dedicate their songs to very different topics, there are significant proximity points in the section of riff design. The same music-analytical methods (such as the analysis of tone-colours) are used with Metallica again. Thus, on the one hand, correlations can be determined and special features unique with Slayer's music can be highlighted on the other.

Furthermore, in order to determine other similarities and differences, the riffs of Metallica and Slayer will be compared with riffs by bands belonging to the NWoBHM (New Wave of British Heavy Metal) and were active in the years 1983–1986 (including Iron Maiden and Motörhead). The findings are commented in detail by means of clear tables and viewed from an overarching perspective.

Keywords: Heavy metal, Riff, Tone colour analysis, Metallica, Slayer.

Although the New Wave of British Heavy metal (NWoBHM) influenced the worldwide heavy-metal music with bands like Iron Maiden, Motörhead or Saxon around 1980, the music of this genre was only limited to a few large centres such as Los Angeles, San Francisco and New York City in the United States (Christie, pp. 47–66). When Iron Maiden celebrated their successful debut album in England, played in sold-out concert halls and appeared on BBC's Top of the Pops, the U.S. West Coast bands Metallica and Slayer were far from recording an album with any major record label. In 1980 they were still busy recruiting musicians and composing their very first songs.

At that time only a few youngsters listened to the music of NWoBHM on the West Coast of the United States. However, they were loyal fans, searched various music stores for new records of this kind of music, and attended their concerts in the U.S. One of these youngsters was Lars Ulrich, drummer and later cofounder of Metallica. Already at that time his musical experience was ranging from jazz and Deep Purple to NWoBHM.

Lars Ulrich wanted to form a band, not just to play covers, but also to compose their own songs. Those songs should have a new sound, one that no other band had so far (McIver, p. 35).

In 1981 Lars Ulrich began composing the songs *Hit The Lights* and *No Remorse* together with James Hetfield (the second cofounder of the band) and Troy James. Both songs are among the first compositions of the Thrash Metal genre (this specific style of heavy-metal did not exist both compositionally and terminologically up this point of time) and due to the high speed and the aggressiveness of the guitar, fans and reviewers immediately took notice of them. *Hit The Lights* was even selected by the U.S. Blade Records for the very first sampler edition of *Metal Massacre I*.

How can Metallica's popularity be explained? Which musical features characterise this band? Can the music of this group be explored by means of music analysis at all?

The aim of this article is to consider the design of the riffs of *Hit The Lights* and other songs from the first three albums by Metallica (*Kill 'Em All* 1983, *Ride The Lightning* 1984 and *Master of Puppets* 1986) from a music analytical point of view (including tone colour and rhythm analysis of the riffs). Subsequently, the results obtained from the analyses are presented in an overarching perspective to make visible the change of Metallica's sound during the 1980s.

At the same time (1983–1986) and in the same geographic area (U.S. West Coast), the band Slayer found their compositional path within the Thrash Metal genre. Although the two bands dedicate their songs to very different topics, there are significant similarities in the section of riff design. The same music analyti-

cal methods (such as the analysis of tone-colours, rhythm and tempo of the riffs) are used with Slayer again. Thus, correlations can be determined on the one hand and special features unique with Metallica's music can be highlighted on the other.

Furthermore, in order to determine other similarities and differences, the riffs of Metallica and Slayer will be compared with those of bands belonging to the New Wave of British Heavy metal (NWoBHM) in the years 1983–1986 (including Iron Maiden and Motörhead).

Thrash Metal music of the U.S. West Coast in the years 1983–1986 is characterized by a massive increase in tempo compared to the NWoBHM. *Hit The Lights* (the first song in Metallica's debut album in 1983) starts with a frenetic riff at a tempo of 120 qpm and consists mostly of sixteenth notes. Such fast riffs were very rare in the English area but not uncommon in the first three albums by Metallica.

The biggest difference of such riffs compared to typical NWoBHM riffs lies in the different tone colours and their constant switching within the riffs.

Figure 1 gives an overview of the timbral disposition of the introducing riff in *Hit The Lights*. This riff consists of three tone colours:

- Fast repetitions of an open string, damped with the lower part of the hand (palm mute). This results in a muffled sound with very few overtones (section A / square).
- Power chords, not damped. Due to the heavy distortion, the impression that the guitarist plays no double stops is given. The sound is rich and full (section B / grey square).
- Monophonic melody, neither plentiful nor damped in terms of tone colours (section C / black line).

The early version of *Hit The Lights* (*Metal Massacre I*, 1982) is very different from the version of the studio album (1983) with regard to the timbre of the singer. The three tone colours of the introduction riff, however, remain the same in both versions.

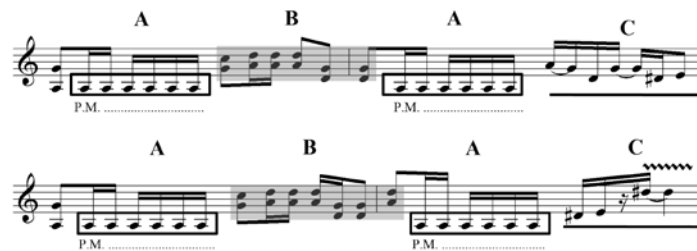


Fig. 1. Introduction riff, b. 1–4 of *Hit The Lights* (*Kill 'Em All*, 1983)

Motorbreath (from the album *Kill 'Em All*) was one of the four songs from the Power Metal-demo that certainly had little to do with the Power Metal style (McIver, p. 49). The same three tone colours are also used here within the song's four riffs (Fig. 2). This time, however, one tone colour per riff dominates (first row: introduction riff, palm mute / second row: main riff, double stops / third row: melody). When the lead guitar plays the solo melody in bar 44, the rhythm guitar constantly changes the tone colours as in *Hit The Lights*. Thus, the solo is highlighted additionally. It is notable that each of the four riffs has a different tone colour set-ups.



Fig. 2. Song riffs of *Motorbreath* (*Kill 'Em All*, 1983)

The riffs of *Metal Militia* (Fig. 3, first row: introduction riff, second row: main riff) and *No Remorse* (Fig. 4, first row: main riff, second row: riff B) are constructed in a similar manner. Within the two songs, one can never find riffs with an identical tone colour change. Even if all riffs of the four songs mentioned so far are placed side by side (Figs. 1–4), it turns out that there is no exact tone colour constellation sequence among all nine riffs.

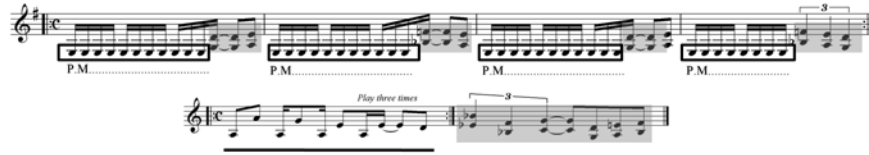


Fig. 3. Song riffs of *Metal Militia* (*Kill 'Em All*, 1983)



Fig. 4. Song riffs of *No Remorse* (*Kill 'Em All*, 1983)

Despite the timbral variety of riffs in *Kill 'Em All*, the melodies and riffs in this album are missing the sounds of acoustic guitars and other interval constellations such as third, octave and tenth, which are typical for NWoBHM (In his treatise on heavy-metal (*Schwermetallanalysen, die musikalische Sprache des Heavy-metal*, 2010) Dietmar Elflein tries to compare interval constellations of NWoBHM-songs to those of thrash-metal). When listening to the beginning of *Fight Fire With Fire* (the first song of Metallica's second album *Ride The Lightning*, 1984), a melody led in thirds and played by an acoustic guitar is the very first acoustic information the listener gets. The differences between the song's introduction and its main part could hardly be greater.

While the introduction (Fig. 5, first row) offers many new things in terms of tempo (slow) as well as timbre (Metallica performed a melody in thirds (grey note heads) for the first time), the main part sounds very familiar. The tempo is fast, sixteenth-note figures dominate, and there is a noticeable timbral change. There are riffs with a continuous tone colour change (b. 18–19, second row) and riffs with no timbral changes at all (b. 50–51, fifth row). Only the thirds-figure of the last row (b. 73–76) would not fit into the *Kill 'Em All* song.



Fig. 5. Complete riffs of *Fight Fire with Fire* (*Ride the Lightning*, 1984)

In the performance of power chords Metallica is not limited to double stops on a guitar with heavy distortion in the low register only, but instead the band occasionally use the reverse possibility. This becomes obvious at the beginning of the song *Ride the Lightning* from the album bearing the same name (Fig. 6, b. 1–2). A melody is performed by two instruments without distortion in different intervals (also fifths) and in a relatively high register. Thus, an intense yet clear sound is created that differs completely from the distorted monophonic double stops in the bars 3–4. The doubling of the distorted riffs, played by an additional guitar, amplifies the tone colour differences between the two riffs at the beginning of *Ride the Lightning*.

Fig. 6. Introduction of *Ride the Lightning* (*Ride the Lightning*, 1984)

The song *Master Of Puppets* from the album *Master Of Puppets*, is one of the greatest thrash metal songs in music history. It was highly praised by a number of radio channels (including VH1) and magazines (including *Q* magazine) and regarded as a role model for several newer bands. The song deals with a person who loses control of himself through the use of hard drugs and is thus a slave of his own addiction. The narrator shows no sympathy for drug addicts, which is clearly illustrated through an audible sadistic laugh after the final chord.

The song *Ride The Lightning* raises the question whether murderers actually deserve the death penalty. The opinion of the author of the lyrics is clear: yes. Metallica's songs are often very provocative without having any anti-Christian background. There are even papers that deal with the philosophy in Metallica's lyrics (Irwin, ed., 2007).

No matter what controversy a song causes, if fans and critics praise it enthusiastically, there are almost always music analytical aspects that can explain the success of the song.

Master of Puppets is a hard, musically complex piece, which lasts about eight minutes. It is notable for its many distinctive and extremely varied motifs. Figure 7 provides an overview of the ten motifs in this song. The term "motif" instead of "riff" is used deliberately because "motif" also includes melodies. A riff is usually just a rhythmic figure, while a motif may be of both, rhythmic and melodic nature.

On closer examination of Figure 7 one can observe the following results:

- Three riffs (first three rows) before the first verse: The palm mute melody of the first two lines is a combination of palm mute repetitions and undamped melodies. There are timbral changes within each of all three riffs. Until 1986 the use of various riffs before the first performance of a singer was a rare phenomenon with Metallica, but by far no novelty with other bands at that time.
- The song's instrumental middle section deals with the mental state of a drug addict immediately after the use of a heroin syringe. This section differs from all other parts due to the lyrical character of the motifs (fifth and sixth row) and because of an overall change in the design of the motifs as well. While all motifs up to the middle section (first to fourth row) show a continuous timbral change, the motifs then remain uniform in terms of tone colours (fifth row: monophonic melody, sixth row: melody in thirds).
- The transition from the middle part to the re-emerging verse from the beginning indicates the end of the effect of the heroin (eighth row). In terms of its tone colour design, it is a mixture of the middle and first section. The motif of this transition unites tonal harshness of the beginning with the uniform timbral disposition of the middle part (each melody consists of a single tone colour).
- The last two motifs are taken from the final part of *Master Of Puppets*. The use of a third within the motif's repetition (last line) gives intensity, increases the tension of the music and enriches the overall sound. Although such processes are common within the music of Judas Priest and Iron Maiden (Elflein, pp. 135–241), they remain an exception within the compositional work of Metallica between 1983 and 1986.

If Metallica's riff design (from 1983 to 1986) is considered from an overall perspective, the following results can be observed:

- A rapid tempo and a constant change of different tone colours of the guitar (palm mute, power chords and monophonic melodies) characterise the sound of most riffs from the album *Kill 'Em All* (1983).
- Although the number of tone colours is limited, exact repetitions of tone colour sequences are avoided.
- Melodies in thirds, sixths and octaves are rare within *Kill 'Em All*.
- All above mentioned musical features (melody in thirds, sixths and octaves) appear for the first time in the second album *Ride The Lightning* (1984). From then on, they are fixed components in the riff design until the *Black Album* (1991).
- The songs tend to be longer and more complex after *Ride The Lightning*. The number of riffs rises. Exact repetitions of tone colour sequences within the song riff design are very rare (as in *Kill 'Em All*).
- Metallica avoid using multiple juxtaposed riffs before the first verse of the singer.
- The tempo of the riffs is extremely high, in contrast to the NWoBHM songs of the same period (1983–1986).

Fig. 7. Complete motifs of *Master Of Puppets* (*Master Of Puppets*, 1986)

At the same time (1983–1986), in the same geographical area (U.S. West Coast), another band significantly influenced the process of heavy-metal. Slayer was formed at the beginning of the 80s as well and immediately after their first gigs they gained the reputation of being an uncompromising loud and fast playing band.

If one compares *Kill 'Em All* with Slayer's first album (*Show No Mercy*, 1983) similarities in terms of riff sound and structure are very striking. Despite intensive research by the biographers of the two bands (see: McIver, and Szubrycht) and a number of interviews with several band members, only little evidence of an intensive contact between the two bands (in the years 1981–1986) has been found so far. It seems pretty unlikely that there have been longer conversations between the guitarist Kerry King (Slayer) and James Hetfield (Metallica) about the instrumental subtleties of heavy-metal music.

In fact, the artists of the two bands had hardly any contact on a personal level. Slayer developed a compositional language which, at first glance, appears very similar to that of Metallica. In some points however, the two differ greatly from each other. The unique anti-Christian and partly satanic verses of Slayer's first three albums are perhaps the biggest non-musical difference between the two groups.

On closer inspection of Figure 8, both similarities and differences of the two bands with regard to the design of their riffs become clear. As with Metallica, the tone colour change takes place in a very high tempo. The introduction of *Black Magic* (from *Show No Mercy*, 1983) could be mistaken for the beginning of a Metallica song written in the years 1983–1986. However, there are a number of significant differences refuting that: The juxtaposition of four riffs before the performance of the singer is extremely unusual for an early compositional work by Metallica. The very fact that the beginning/introducing riff is repeated 18 times shows how different the two groups have dealt with the same material.

Fig. 8. Slayer: introduction of *Black Magic*, *Show No Mercy* (1983)

In *Black Magic* Slayer used a striking low number of tone colours in designing all four riffs. A similar picture can be found within the riffs of Metallica's first album. But while the sound in Slayer's first and the second album (*Hell Awaits*, 1985) shows hardly any timbral differences, Lars Ulrich and his band strongly developed their riff design within the next three albums (e.g. blend of acoustic and electric guitars, introducing melodies in thirds and octaves).

The frenetic tempo and the numerous riffs within a song from the album *Show No Mercy* are driven to the extreme in *Hell Awaits*. The construction of the introduction of the song *Hell Awaits* from this album demonstrates the high levels of compositional maturity the group already had at the very beginning of their career (Fig. 9). The beginning part of this song consists of seven riffs. Up to this point of time, there have hardly been other heavy-metal songs, which have had such a large number of riffs.

The complexity of this song is not only limited to the choice and disposition of the riffs (all structured differently). The different tempi of the various riffs and their skilful use add extra tension to the music and are perhaps the most brilliant aspect of this composition.

Riff 1 ♩ = 109 → 55 half feel time	
Riff 2 ♩ = 109	
Riff 3 ♩ = 109	
Riff 4 ♩ = 109	
Riff 5 ♩ = 132 P.M.-----	
Riff a+6b ♩ = 192	
Riff a+6b ♩ = 192 → 384 double feel time	
Riff 7 ♩ = 192 → 384 double feel time	

Fig. 9. Introduction of *Hell Awaits* (*Hell Awaits*, 1985)

The drummer's role in the performance of the riffs was not mentioned so far. Slayer use the drums to alter the actual perception of the pace e.g. to reduce it by half (half time feel) or to increase it twice (double time feel). Such subtleties are notated accurately in the band's authorized score. Especially in this song the real tempo perception is changed from 55 bpm to incredible 384 bpm. A possible answer to the question of why this band uses so many riffs could thus be the development of tempo. In order to continuously move from a slow tempo at a very fast one, a lot of time is required. Thus, the use of several riffs serves both, the avoidance of rhythmic monotony and on the other hand to achieve a high degree of tone colour diversity.

In a nutshell, one can highlight the following basic points about Metallica and Slayer:

- A fast tempo and use of the same tone colours are the similarities between the two bands in terms of riff design around 1983.
- After 1984 Slayer does not show any timbral development in the construction of their riffs any more.
- In the years 1984–1986 Metallica introduced new sounds and tone colours. Their tempo remains high.
- At the same time, Slayer accelerated the already fast tempo even further and increased the number of riffs.

In the years 1983–1986 Iron Maiden and Motörhead were the most famous NWoBHM bands. Both were compositionally active and enjoyed a high degree of fame and credit outside the U.K. Despite numerous differences in the compositional language of the two American bands, the following figures (Figs. 10–12) demonstrate their riff design in 1983.

Around 1983, Iron Maiden experienced their international breakthrough. At that time they had already produced albums like *Iron Maiden* and *Killers*. The release of the third album *The Number Of The Beast* (1982) evoked tensions with conservative Catholic circles. Steve Harris and his band were already the most famous heavy-metal group in England.

Iron Maiden's fourth album (*Piece of Mind*, 1983) includes a number of songs which can be thought of as “classics” today, e.g. *The Trooper* or *Revelations*. *Revelations* is a song with profound lyrics and striking for its distinctive and powerful introducing riff (Fig. 10), which already shows Iron Maiden's typical rhythmic motifs. This riff is of a completely different structure compared to those by Metallica and Slayer. *Revelations* shows a riff with only one tone colour at a steady pace. While Bruce Dickinson sings the first verse, the guitars play the same riff. There is only tone colour during this riff. The vast majority of the riffs belonging to main tracks on this album is structured in a similar manner.

Fig. 10. Iron Maiden: introduction riff of *Revelations* (*Piece of Mind*, 1983)

Even when Iron Maiden wrote several riffs before the first verse, those were composed completely differently compared to similar passages in a Metallica or Slayer song, e.g. *Invaders* (Fig. 11) from *The Number of the Beast* (1982). Until 1982 there were only few Iron Maiden songs with several riffs before the singer's entrance. Even in *Invaders* differences become visible.

Fig. 11. Introduction and beginning of the 1st verse of *Invaders* (*The Number of the Beast*, 1982)

Although the first two riffs (riff 1a and 1b) have a different tone colour than riff 2 and a fourth riff (riff 3) is heard with the entering of Bruce Dickinson, there is no diversity or change of tone colours within one of the four riffs. The degree of complexity certainly is not a criterion for the quality of the songs.

At that time Motörhead was not less famous than Iron Maiden. The former is considered one of the earliest heavy-metal bands and has been active as composers before the vast majority of the NWoBHM groups. In 1983 the band had already composed their greatest hits such as *Motörhead*, *Overkill*, or *Ace of Spades*.

Iron Fist (*Iron Fist*, 1982) builds on the successes of the band's first phase. The introduction to this song is of a similar structure like many other songs by Motörhead (Fig. 12).

The image shows a musical score for the introduction and beginning of the first verse of the song 'Iron Fist' by Motörhead. It consists of two systems of staves. The first system has a vocal staff (Voc) and a guitar staff (G). The vocal staff has a whole rest followed by a quarter note 'D', a quarter note 'a', a quarter note 'r', a quarter note 'k', a quarter note 'n', a quarter note 'i', a quarter note 'g', a quarter note 't', a quarter note 'o', a quarter note 's', a quarter note 'e', and a quarter rest. The guitar staff has a complex, distorted riff. Above the guitar staff, there is a 'Play 4 times' instruction. The second system also has a vocal staff and a guitar staff. The vocal staff has a whole rest followed by a quarter note 'I', a quarter note 'n', a quarter note 'v', a quarter note 'i', a quarter note 's', a quarter note 'i', a quarter note 'b', a quarter note 'l', a quarter note 'e', a quarter note 'h', a quarter note 'a', a quarter note 'n', a quarter note 'd', a quarter note 'i', a quarter note 'n', a quarter note 'f', a quarter note 'r', a quarter note 'o', a quarter note 'n', a quarter note 't', a quarter note 'o', a quarter note 'f', a quarter note 'm', and a quarter rest. The guitar staff continues the riff.

Fig. 12. *Motörhead*: introduction and beginning of the 1st verse of *Iron Fist* (*Iron Fist*, 1982)

Motörhead's riff structuring has elements of both bands from the U.S. West Coast and Iron Maiden. On the one hand, there are tone colour changes within a riff, the pace is relatively fast and the distortion of the guitars is heavier than with Iron Maiden (similarity with Metallica and Slayer), while on the other hand, there are big differences. Motörhead has a strong preference for chords which include the third (Metallica and Slayer mostly use chords without the third) and the number of tone colours is limited so far that it is hard to find similarities between songs of Motörhead and Metallica in this respect.

In 1980 NWoBMH established itself as the world's fastest, hardest and most aggressive kind of heavy metal. A few years later a gradual hardening of the sound was noticeable in the U.S. West Coast. Unquestionably, thrash metal was already established as early as 1983 (with the debut albums by Metallica and Slayer). The sound of that genre fascinated a whole generation of musicians and fans. Some important musical aspects of this music include a fast tempo, a constant change of different tone colours within a riff and the principle of hardly/never repeating the very same tone colour sequence within a song. Such characteristics hardly existed in heavy metal composed in Great Britain at that time (1983–1986).

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„Metallica“ rifų (1983–1986) tembrinės charakteristikos ir jų ypatumai lyginant su „Slayer“ ir Naujosios britų sunkiojo metalo bangos (NWoBHM) grupėmis

Santrauka

Straipsnio tikslas – aptarti dainos „Hit the Lights“ ir kitų dainų iš pirmųjų trijų sunkiojo metalo grupės „Metallica“ albumų (*Kill 'Em All*, 1983; *Ride the Lightning*, 1984; *Master of Puppets*, 1986) rifų sandarą muzikos analizės požiūriu (t. y. analizuojant rifų skambesio spalvą ir ritmą). Tyrimo pabaigoje analizės rezultatai pateikiami ilgalaikėje perspektyvoje, norint išryškinti „Metallica“ skambesio kaitą praėjusio amžiaus 9 dešimtmetyje.

Tuo pačiu metu (1983–1986) ir toje pačioje geografinėje zonoje (JAV vakarinė pakrantė), trunkiojo metalo scenoje (*trash metal*) iškilo ir savitą skambesį atrado grupė „Slayer“. Nors abi grupės kūrė dainas labai skirtingomis temomis, jų rifų sandara gana panaši. Tie patys analitiniai įrankiai (tembro, ritmo, tempo charakteristikos) buvo pritaikyti ir „Slayer“ rifų analizei. Viena vertus, tokiu būdu buvo atskleistos sąsajos tarp abiejų grupių rifų, o antra vertus – išskirti unikalūs „Metallica“ rifų bruožai.

Tešiant panašumų ir skirtumų virtinę, „Metallica“ ir „Slayer“ dainų rifai lyginami su to paties laikotarpio Naujosios britų sunkiojo metalo bangos (NWoBHM) grupių muzika (įtraukiant tokias grupes kaip „Iron Maiden“ ir „Motörhead“).

Reikšminiai žodžiai: sunkusis metalas, rifai, tembrinė analizė, grupės „Metallica“ ir „Slayer“.