

Slaying The Pulse

Dietmar Elflein

The methodological starting point for this paper is the notion of an extensive regular pulse. That means I want to concentrate on the parameter rhythm and its concretion in rhythmic interplay. According to Herbert Bruhn (2000a: 41) rhythm is defined as a structured cognitive representation of a sequence of auditory objects within defined spaces of time. Also according to Bruhn (2000b: 235-241) the temporal organisation within a piece of music is subdivided into pulse, metre and rhythm – all considered as invariants. Pulse is referred to as a regular repetition of an acoustic event. Metre restructures a pulse in heavy (stressed) and light (unstressed) acoustic events, while rhythm is regarded as a specific organisation of the pulse within a given metric framework.

A steady pulse has to be regarded as an impact of the blues on Heavy Metal. In many blues-rock styles the bass provides the pulse, but the widening of the boundaries of the blues in Great Britain in the second half of the 1960s altered the role of the instruments. Especially bass and drums changed roles from pure accompaniment to virtuosic play – something embodied by the ‘supergroup’ Cream for example.

While the bass left the pulse behind, guitar and drums took over. The extension of the roles of the drums leads – amongst other things - to the adoption of the double bass technique from jazz drummers like Ray McKinley or Louie Bellson. But in heavy metal this technique developed from a sign of virtuosity to one of the basic principles of drumming. As a consequence double bass drumming became closely related to heavy metal as a whole.

Regarding the role of the guitar, to play a steady pulse on one pitch is the simplest riff one can think of. This repetition of the pulse gets ‘metallised’ by a combination of the palm mute playing technique and an increasing amount of distortion of the sound. Muting the strings with the palm of the right hand while playing produces a sound, that features the attack while sustain and release are shortened. Harris Berger and Cornelia Fales (2005: 184; 190f) analyse that heavy metal guitar sound minimises the audible attack of the plectrum by increasing the amount of distortion over the years. In general distortion means a flattening of the dynamic envelope of the sound. As a

consequence the muting of the strings can become harder, while still staying tonally defined. The emerging playing aesthetics longs for an exact pulse with a minimum difference between the single impulses. The difference in the sound of the pulse between the original “The Green Manalishi (With The Two-Pronged Crown)” version by Fleetwood Mac (1970) and Judas Priest’s cover version (*Hell Bent For Leather*, 1978) is striking. A similar difference can be heard when comparing the palm muted playing in Led Zeppelin’s “Communication Breakdown” (*Led Zeppelin*, 1969) with Judas Priest’s style of playing. Heavy metal tries to tame distortion by palm muting and to play a defined regular pulse means to really succeed in taming the guitar.

To make such a riff more complex, one can either change rhythm, pitch or both. To continue with rhythmic variation first, there are two easy ways to modify a pulse: one could double or halve the tempo. Therefore there are three basic groups of two respectively four pulses, with two of them being irregular.



The first of these three variations is also known as the ‘Iron Maiden gallop’.

The two variations of the regular pulse have an inherent tension between three and four, respectively odd and even. To work with this tension is one basic principle of heavy metal playing.



Megadeth „She-Wolf“ opening Riff, *Cryptic Writings*, 1994

Megadeth’s opening riff of “She-Wolf” (*Cryptic Writings*, 1994) is such a one-pitch-riff. In the second half of the riff we see the ‘gallop’-variation, while the first half works with groups of six pulses. The drum accompaniment is responsible for the transcription of the first quaver as a single note and not as extending the last group of pulses to a number of six during repetition. Also the drum accompaniment supports the ignorance of common time by not stressing the first pulse of the second half. The basic principle of the riff is the mentioned tension between three, respectively six and four. This tension is supported by the fact, that within the even numbered group of pulses an odd number of notes gets played and vice versa. This tension can also consist between binary and ternary structures like in the following riff of „The Four Horsemen“ by Metallica (*Kill’Em All*, 1983).



Up to now to slay the pulse meant to increase the amount of distortion to strengthen palm muting and opt for a regular pulse with minimum differences between the single impulses. Now we can add a desire to stay rhythmically unique and avoid being in-between. Heavy metal playing is either binary or ternary but not shuffling. The smallest invariant rhythmic unit is not a riff but a group of two pulses. Therefore, of the several possibilities to construe the pulse between the angles of exact binary and ternary playing only a selection is used in metal.



Within heavy metal the rhythmic structure of the first, the second and the last example are commonly used, but rarely the third and almost never the rhythmic structure of the fourth and fifth example. The difference between the blues influenced rhythm of rock and roll and the rhythmic idea of metal can be exemplified by a comparison of Motörhead’s cover version of Metallica’s „Whiplash“ with the original.



Metallica “Whiplash” (*Kill’Em All*, 1983), Motörhead “Whiplash” (2005), Amon Amarth “Fate Of Norns” (*Fate Of Norns*, 2004)

If again we think of a continuum with binary and ternary playing as antipodes the exact binary pulse of Metallica gets weakened by Motörhead’s way of playing. It is becoming more rock than metal. The ternary end of the continuum is exemplified by the Amon Amarth example with its unique ternary playing style including the pause on the second quaver of the triplet, which leads not to shuffling. Similar constant ternary playing can often be heard in viking or pagan metal including folk or medieval influenced styles.

One-pitch-riffs can easily be transposed to add another layer of variation. Slayer use the transposition of even numbered groups of pulses with or without rhythmic

variation very often¹ and influenced a lot of extreme metal bands, like for example Emperor in “I Am The Black Wizards“ (*In the Nightside Eclipse*, 1994).

The image shows a musical score for Emperor's "I Am The Black Wizards" from the album *In the Nightside Eclipse* (1994). It features four staves: two for Electric Guitar (E. Gtr.), one for Bass, and one for Drums (Dr.). The top staff has a treble clef and a 3/4 time signature. The second staff has a treble clef and contains a dense, repetitive chordal riff. The bass staff has a bass clef and plays a steady, repetitive eighth-note pulse. The drum staff has a drum set icon and shows a complex, syncopated rhythm with many accents.

Emperor “I Am The Black Wizards” (*In The Nightside Eclipse*, 1994)

Regular groups of four pulses are transposed to create the riff. Because of the high density of pulses more elaborate rhythmic variations and the use of palm muting are hard to play and also very hard to hear. It’s more like play as fast as you can.

Breaks or pauses form another possibility of rhythmic variation. Such riffs are often contrasted with a backbeat to promote a syncopated feel. The bass doubles either the riff of the guitar or lays a steady pulse like in the following example, „Primal Concrete Sledge“ by Pantera (*Cowboys From Hell*, 1990).

The image shows the opening riff of Pantera's "Primal Concrete Sledge" from the album *Cowboys From Hell* (1990). It features three staves: Electric Guitar, Bass Guitar, and Drum Kit. The Electric Guitar staff has a treble clef and shows a series of eighth notes with a slash through them, indicating palm muting. The Bass Guitar staff has a bass clef and plays a steady eighth-note pulse. The Drum Kit staff has a drum set icon and shows a complex, syncopated rhythm with many accents.

Pantera „Primal Concrete Sledge“ opening Riff (*Cowboys From Hell*, 1990)

Pantera promote groups of three pulses in the guitar, with every third pulse paused. Bass guitar and bass drum lay a regular pulse, the toms are grouped in 3+3+3+3+4 pulses, a succession of pulses that has its roots in either the son clave of Afro-Cuban music, the R&B hambone or the Bo Diddley rhythm of early rock and roll. This grouping of 3+3+3+3+4 or 6+6+4 or 3+3+2 pulses is used in many heavy metal riffs throughout the subgenres, prominent representatives being Judas Priest with “Grinder” (*British Steel*, 1980), the title track of *Painkiller* (1990) or Accept with “Fast As A Shark” (*Restless And Wild*, 1982).

¹ E.g. . „Piece By Piece“, „Necrophobic“, „Criminally Insane“, „Raining Blood“, all taken from *Reign in Blood* (1986).

Grinder

Painkiller

Fast As A Shark

Judas Priest, “Grinder” (*British Steel*, 1980), “Painkiller” (*Painkiller*, 1990), Accept “Fast As A Shark” (*Restless And Wild*, 1982) – opening riffs

Hence, the 3+3+2 succession of pulses can be thought of as a major impact of Afro-American music or short the blues on heavy metal.

Besides the already mentioned possibility of transposing groups of pulses there are two ways of changing the pitch of the pulse. One can either change the pitch within groups of pulses like in the “Painkiller” example or change pitches in special parts of the riff, hence contrasting groups of pulses with one pitch with groups of pulses with changing pitches like in the “Fast As A Shark” example.

In classic metal like Judas Priest or Accept both sections often have the same length, while in thrash metal the section with changing pitches often gets shortened like in “Whiplash“. In the following example from the title track of Metallica’s *Master Of Puppets* (1986) the riff is divided in four sections with a steady pulse on the palm muted low E-string in sections one and three and the sequence of 3+3+2 pulses in section two, which changes to 3+2 pulses in section four.

Electric Guitar

Metallica “Master Of Puppets” (*Master Of Puppets*, 1986)

The 3+3+2 grouping recalls the blues influence, which is subsequently denied by the following 3+2 sequence. While styles like the blues work with stable sequences of groups of pulses, which normally add up to the desired length of the metre, heavy metal seems to treat smaller units as independent. A defined group of pulses can be subtracted like in *Master Of Puppets* or added like in the second riff of Judas Priest’s „The Sentinel” (*Defenders Of The Faith*, 1984), which lasts nineteen pulses composed out of combinations of groups of two and three pulses.

Therefore, the basic principle in the construction of heavy metal riffs seems to be the more or less free arrangement of groups of two and three pulses. The metre is the result of this combination and not the condition.

Within rhythmic interplay the parallel existence of different subdivisions of the pulse can imply rhythmic structures that resemble polyrhythmic elements within the musical language of heavy metal.

Such an example is the opening riff of the title track of *The Number Of The Beast* (1982), which adds up to twenty pulses and emphasizes once again the importance of the combination of groups of two or three pulses.

The image shows a musical score for the opening riff of 'The Number Of The Beast' by Iron Maiden. It consists of four staves: Voice, Electric Guitars, Bass Guitar, and Drum Kit. The Voice staff has a treble clef and shows the lyrics 'I'm co - ming back' and 'I will re - turn' over a melodic line. The Electric Guitars and Bass Guitar staves show a complex, polyrhythmic riff. The Drum Kit staff shows a pattern of five groups of four pulses, starting two pulses later than the vocals.

Iron Maiden "The Number Of The Beast" (*The Number Of The Beast*, 1982)

The vocal part divides the twenty pulses into two units of six and fourteen pulses. This arrangement is translated into the whole transcription despite the guitar and bass parts add seven and thirteen pulses and start one pulse before the vocals. The difference is clarified in the transcription by an anacrusis. The drums add a third level to the rhythmic interplay by simply arranging five groups of four pulses, while starting two pulses later than the vocals. Therefore the transcription of the drums reads 2+4+4+4+4+2 pulses. Because of the implied polyrhythmic elements of this riff published transcriptions of the song tend to be unsure, how to display the metre or time of the track. For example in two editions of the German Guitar magazine the riff is notated in 5/4 time in the first transcription and as a combination of 4/4 and 6/4 time in the second.²

The underlying organising principle of arranging groups of pulses is therefore not exclusive to the guitar parts, but dominates the rhythmic interplay as a whole in a more or less elaborate way.

² Guitar Special Sonderheft Nr.1 – 50 Jahre Fender Startocaster (2004: 121-130) and Guitar Nr. 80, (2007: 64)

A comparison of the drum parts accompanying the first and the third guitar riff of „The Number Of The Beast“ shows that drum parts are also glued together from small groups of pulses.

Iron Maiden “The Number Of The Beast” (*The Number Of The Beast*, 1982)

During the first riff a group of four pulses is repeated four times before a different group of four pulses adds up to the total of twenty pulses. The accompaniment to the third riff repeats the same group of four pulses as in the first riff only three times and ends at a length of sixteen pulses by adding another different group of four pulses.

„The Number Of The Beast“ shows how different structures of arranging the pulse can coexist in rhythmic interplay and create uncommon resemblances to polyrhythmic feel, while it is more common in heavy metal playing to layer different subdivisions of a pulse by constantly doubling and halving it.

Within „Raining Blood“ by Slayer (*Reign In Blood*, 1986) the development of layering different subdivisions of a pulse beginning with a slow mosh part and ending with a fast blast beat can be shown archetypically.

Slayer „Raining Blood“ (*Reign In Blood* 1986)

The transcription shows the rhythmic interplay of guitar and drums starting with sixth riff of the track ('f'), moving on to two variations of the riff ('f-2', 'f-3') and one interlude before introducing the next riff ('g'). The bass is playing parallel to the guitars, vocals are only heard during variation 'f-3' starting with a long scream on the words 'raining blooooood'. Starting with the basic pulse in riff 'f', which is interrupted by breaks, first the guitars ('f-2'), then the drums ('f-3') double the density of the pulse ('f-2'). This quadruple variant of the basic pulse is taken over again by the guitar in the interlude and answered with a blast beat of the drums during riff 'g'. This way of layering the pulse showcases a basic element of the musical language of heavy metal on the border to extreme metal.

Therefore, slaying the pulse means to glue groups of (multiples of) two and three pulses to riffs. To emphasize the inherent tension between odd and even means to constantly work with the blues influence on the genre. But unlike in blues-based playing styles this rhythmic tension is not resolved. Heavy metal playing is either binary or ternary but not shuffling. The basic principle is a regular pulse with minimum differences between the single impulses, which are achieved sound-wise by palm muting and an increasing amount of distortion. Metre is the product and not the condition of this way of playing. On the contrary to emphasize even numbered groups of pulses means to lower the blues influence. Within rhythmic interplay different subdivisions of the basic pulse are layered.

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