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Rhythm in "Old School" and Contemporary Eurhythmics
Considerations on learning rhythm in the context of movement

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Marianne Steffen-Wittek initially concentrates on theoretical concepts of rhythm with special reference to texts by the founder of eurhythmics Émile Jaques-Dalcroze, and corresponding writings by Henrietta Rosenstrauch. As music educators, their writings provide a deep insight into the analysis of difficulties in the realisation of rhythms and ways to overcome them. The following selection of current theoretical concepts of eurhythmics in Germany shows in particular an intensified view of the connection between perception and movement and its (still to be further researched) effects on pedagogical and artistic activity.
Rhythm theory and research in rock, pop, jazz and groove-based music is a relatively young field. In her remarks on groove and swing in jazz music, Steffen-Wittek refers to Mark Russell Doffman, whose embodied concepts can be important material for jazz-oriented rhythm teaching. She develops practical examples and connects them with the complex theoretical concept of eurhythmics by Holmrike Oesterhelt-Leiser.

Considerations on learning rhythm in the context of movement

Marianne Steffen-Wittek

The artistic-pedagogical field of *Eurhythmics*, founded by Émile Jaques-Dalcroze and further developed by his students worldwide, does carry the term rhythm not only in its name. In addition to the practical work and examination of rhythmic content, in their publications Dalcroze and his successors commented on the subject of rhythm both in terms of life-philosophy and music.

In order to be able to classify and understand the thoughts of the first generation of eurhythmics teachers, a closer look at the rhythmic theories of their time is needed.

The extremely flexible term *rhythm* has been used by a wide variety of disciplines. But even in music-theoretical works on the subject of rhythm, there are different approaches.[1]

Beyond the music-theoretical considerations[2] and in addition to empirical research (Bolton 1894; Meumann 1894), the writings on criticism of civilisation and life-philosophy played a major role in the German rhythm theory of the time when Dalcroze developed eurhythmics.

The national economist and work-sociologically oriented Karl Bücher (1896) and Ludwig Klages (1913), who is assigned to the esoteric camp, were formative to the understanding of rhythm in Germany at the time.[3] Julian Caskel notes:

> The central defining feature of an 'esoteric' speculation on rhythm is that rhythm is conceived as a life force that is archaically prior to rationality. These theories only appear historically in the years after 1900, they reach their peak as part of a critique of civilisation in the 1920s and experience the last journalistic mentions in the first decade after the Second World War. (Caskel 2020, 9; translation from German: M. S.)

[1] "Rhythm theory is a branch of music theory. [...] The history of musical rhythm theories in Europe is multifaceted. Rhythm theories with a universal claim to validity stand alongside crafts that relate to the composition practice of temporarily limited stylistic epochs; systematic considerations stand alongside representations of the rhythmic design of individual personal and epoch styles. Up to modern times, a speculative integration of the musical rhythm into a religious or philosophical worldview and a cosmological interpretation of the world dominated." (Pfleiderer 2006, 113; translation from German: M. S.).

[2] Martin Pfleiderer (2006) gives an overview of the music-related rhythm theories from the 18th century up to the threshold of the 21st century: Rhythm theories of the 18th and 19th centuries - composition teachings and music theories (Kirnberger, Koch, Sulzer, Riemann); rhythm theory of a psychic kinetic energy (Kurth 1917, Becking 1928, Schenker 1956); generative theory of tonal music according to Lehrdahl and Jackendoff (1983); the theory of rhythm layers according to Maury Yeston (1976); the theory of rhythm components according to Peter Petersens (1986, 1999).

[3] "Rhythm theories of the 20th century describe progressive aesthetic spaces of experience, but their roots often point to relatively narrow and reactionary philosophical starting conditions." (Caskel 2020, blurb; translation from German: M. S.).

At the beginning of the 20th century the relation of rhythm and meter is treated as a philosophical question and many authors demand a separation of rhythm and meter (Caskel 2020, 59). In Germany, this could be observed up to extreme forms, to the point of ideological and racist attributions of a population group or nation to one side or the other of these allegedly contradictory concepts.[4] Dalcroze's former student and later adversary Rudolf Bode was influenced by Klages and subscribed to the German National Socialist ideology later.[5]

The key musical terms rhythm, beat and meter have triggered life-spanning interpretations in many authors, which have led to questionable equations. Caskel (2020) subjects the basic categories of the rhythm theories of the 20th century to an examination of media and cultural science expansion. He is guided by the comparison of the analog and the digital (Table 1).

Keywords of the dichotomy in life-philosophical and civilisation-critical writings around 1900 in Germany	
tactus, meter, beat	rhythm
measure, order	flow
machine	life
intellect	body and soul
Julian Caskel (2020): The Theory of Rhythm	
digital	analog
“digital” measurements	“analog” density
“digital” separateness	“analogue” connectivity

Table 1 (Günther 1971, 40)

Four American women have had a strong influence on the German rhythmic flow: Isadora and Elizabeth Duncan, Genevieve Stebbins and Bess Mensendieck. They, in turn, were influenced by Francois Delsarte (1811-1871), who was interested in the relationship between mental and physical movement (Günther 1971, 35). The new German enthusiasm for rhythm

[4] “The anti-intellectual irrationalism got dangerous when it allied itself with the new German nationalism after 1918. The West was now ratio, enlightenment, civilization and mechanization. But as opposed to this, Germany: soul, rhythm, culture and community. Bode enumerated all the opposites in the foreword to 'Rhythm and physical education': 'The organic in contrast to the machine, the soul in contrast to the spirit, the individual in contrast to the I, nature in contrast to the law ... the people in contrast to the state, the eros in contrast to the blogos [sic! M. S.]. Soul and life are now identified as German, geist - the adversary of the soul - with the West. According to Bode, sport arose from the English training of the will, soullessness and arrhythmia" (Günther 1971, 55; translation from German: M. S.).

[5] “The central figure of the German rhythm movement after 1918 was undoubtedly Rudolf Bode. He has had an impact on all of modern physical exercises like no other. [...] His basic ideas found their way into the vocabulary and movement collective of the entire modern physical culture. Even Dalcroze rushed to separate meter and rhythm in his book *Rhythm, Music and Education*. After 1918, his German students no longer started with music alone, but also with their bodies.” (Günther 1971, 53; translation from German: M. S.).

had a major impact on the physical culture of that time. Dalcroze's music pedagogy, based on movement, found fertile soil in Germany (Günther 1971, 40).

Rhythm in 'Old School' Eurhythmics

In the following excursion, two representatives of the "Old School" eurhythmics will have their say: Émile Jaques Dalcroze (1865-1950), the founder of eurhythmics and Henrietta Rosenstrauch[6] (1887-1982), a student of Dalcroze. In Dalcroze and Rosenstrauch we have to distinguish between life-philosophical and music-related statements on the subject of rhythm. First, some life-philosophical statements by these two protagonists of eurhythmics will be presented as examples, which the musicologist Caskel classifies under the category "esoteric rhythm theory" (Caskel 2020).[7]

The following quotations from Dalcroze show the proximity to the esoteric rhythm theory of the time. In accordance with the trend of the theories of his contemporaries, Dalcroze also separates meter and rhythm on different levels. In doing so, he frequently alternates between life-philosophical and music-related statements.

Émile Jaques-Dalcroze (1865-1950)

"The tactus is an intellectual principle. It regulates the sequence and the connection of the elements of life in a mechanical way; whereas in the rhythm, life is expressed in its very own shape and fullness. The beat is calculated intellectually, the rhythm is grasped intuitively. It is important that the metrical regulation of the continuous movements, that make up the rhythm, do not endanger their peculiar nature and quality." (Dalcroze 1919, 200)
"A wonderfully regulated machine has no rhythm, its gait is utterly like the beat. Arranging the movements, that the worker makes while exercising his job, does not yet mean securing the rhythm of his work." (Ibid., 200)
"Consciously keeping the pace ensures regularity; and there are cases where this regularity is essential. - However with this constant mechanical endeavor there is a danger that the peculiarity of the original expression of life will be distorted." (Ibid., 201)
"I see the time coming when our body - thanks to the fully regained muscular sense - will be so independent of all inhibiting influences that our wills and actions will coincide for the rest of the time. But this means the healing of neurasthenia and the formation of a perfect person, whose expressions of life will bear a double stamp: originality and wholeness of expression,

[6] Henrietta Rosenstrauch: Piano-study in Germany and Switzerland (1903-1905); 1912 eurhythmics-study in Hellerau with Jaques-Dalcroze; eurhythmics diploma later in Geneva (because of 1. world war), 1921 opening of a Dalcroze-School in Frankfurt am Main, which Dalcroze frequented; 1933 emigration (like many other Jewish people) to England; teacher at private schools and at the London Dalcroze-School; 1937 lecturer at the Carnegie Institute in Pittsburgh (Carnegie Mellon University) USA; 1955-1957 lecturer at the Dalcroze-Institute in Geneva; 1957-1964 lecturer at the Carnegie Institute; 1964 teacher at the University in Madison; specialist in the use of percussion instruments in eurhythmics; several publications (rhythm – movement – percussion) in German, English, French (Ring & Steinmann 1997, 239-240).

[7] In his monograph on 20th century theories of rhythm, Caskel (2020) identifies four ideal-typical theoretical positions: Individual scientific rhythm theory, empirical rhythm theory, esoteric rhythm theory, critical rhythm theory (Caskel 2020, 8-9).

realisation of the ideal and the idealisation of physical possibilities.” (Ibid., 199)

Translations from German: M. S.

It can be stated that the esoteric theory of rhythm continued to have an effect on Dalcroze´s students until the 1970s as can be read in Rosenstrauch´s statements and publications. However, it should be noted that Rosenstrauch stays close to the music in her writings.

Henrietta Rosenstrauch (1887-1982)

“The most obvious features in rhythm are: change, variety and contrast ordered and balanced. Balance and order hold the universe together; balance is indispensable in the arts; balance and order do, or should, regulate our life in its physical as well as in its spiritual actions.” Rosenstrauch 1973, 4).
“So, as I observed, two, diagonally opposite directions have been separated out, one of which emphasises almost exclusively the metrical intellectual rhythm, while the other cultivates the lyrical, even pacing of musical phrases and almost completely avoids performing foot rhythms. Both directions do not do justice to the idea [of Dalcroze, M. S.] and only represent a small part of the big picture.” (Rosenstrauch 1957, 35)
"The musical rhythm is not the result of intellectual speculation, but has its justification in life itself. The musical rhythm is a sublimated rhythm of life around us and in us, it is an elementary law of movement." (Ibid., 35)
“The change in length of time, the organic course of the rhythmic phrase, syncopation, accents - dynamically varied - has its origin in us itself and that is why it has such a profound effect on us. Whereas the musical rhythm enlivens, tires and paralyses a continuous stride. Can we imagine a poem that is only recited in metrical uniformity, or music that is composed in equal note values? And yet I have seen lessons in which the regular, albeit phrased, walking was not interrupted and enlivened by any foot rhythms. How is this to be understood?" (Ibid., 36)
“With what justification can one neglect the main element, the musical rhythm, in 'eurhythmics'? How is this deliberate impoverishment of rhythmic study and experience to be explained? Is it just a reaction, a protest against the overemphasis on the metric-intellectual rhythm of the other direction? Here [meaning the realisation of rhythms with the feet, M. S.], on the contrary, the mathematical training is often increased to acrobatics and is hardly physically practicable.” (Ibid., 36-37)
“The measurement of lengths of time could also be practiced without piano improvisation. The constant repetition of a metric problem, that is not designed dynamically, is inherently unmusical. Movement without music and percussion instruments serve the purpose far better. As the music is added, there is no longer a pure metric, it has to be subordinate to the free flow of the musical rhythm. If you try to hold on to it anyway, the music becomes mechanical, metronomic.” (Ibid., 37)
“Unfortunately, metrics and rhythms are so often confused, and it would be interesting to go into more detail elsewhere. The overemphasis on the metric gave educators and musicians the reason to reject the Dalcrose [sic!] rhythm as intellectual, complicated and incorporeal.” (Ibid ., 37)

Translations of Rosenstrauch 1957 from German: M. S.

For further research, it might be of interest to connect such statements with the prevailing rhythm theories at the time and to examine them for their lobbying and conforming

ideological side.[8] It is also necessary to ask to what extent today's statements on eurythmics are adapted to the educational policy requirements of the respective governments through lobbying and/or through ideological misjudgments by the state and society.

Today, when we look at the more musically relevant statements, notes and exercises of Dalcroze and Rosenstrauch, we can still draw inspiration from their pragmatic exploration of rhythm in the context of movement. The various exercise categories in the "Dalcroze Method", in which the rhythm was repeatedly the subject of discussion, are well known:

Dalcroze-Method

- Realisations
- Inhibition exercises
- Incitation exercises
- Plastique animeé
- Body training / physical exercises
- Improvisation exercises
- Conducting exercises
- Solfège

Dalcroze's observations on rhythm learning are still of great interest today. They make it clear how precisely he tried to analyse the problems which can occur in different individuals when learning rhythm.[9] In a 1919 paper he listed 17 characteristics, each describing a specific problem in learning rhythm:

„At the same time, the various rhythmic faculties also appear in the most varied of forms. Some children find it:

1. easy to grasp musical rhythms inwardly or to hold on to in the mind, but difficult to carry them out.
2. easy to perform rhythms with certain limbs (e.g. with the arms), but difficult to execute them with others (e.g. walking or dancing in time).
3. easy, to realise rhythms with their voice, difficult with the whole body, or vice versa.
4. easy to carry out the rhythms with any part of the body alone, but difficult to execute them with several organs at the same time (arms and legs, arms and voice, voice and legs, etc.).
5. easy to perform rhythms known to them; difficult to recognise or imprint on memory.

[8] Caskel points out that the various gymnastic directions, which were also in competition with one another, rather advertised in their writings than created theoretical foundations (Caskel 2020, 193).

[9] On the other hand, some statements about allegedly innate musical abilities and his national attributions of rhythmic skills, which he published in the same article, should be viewed critically (Jaques-Dalcroze 1919, 198-215).

6. difficult to grasp, distinguish, and carry out rhythms, but easy to go on with the realisation, once they have recognised and assimilated them, and smoothed their limbs through exercises adapted to the particular nature of the rhythms.
7. difficult to flawlessly continue a rhythm for a long time, which they at first performed flawlessly.
8. difficult to forego constant control of body movements by the mind. (In this case either the movements lack ease and calm, or the rhythms are unconsciously changed.)
9. difficult to keep a rhythm unchanged in the mind without resorting to physical sensation every moment.
10. difficult to teach the limbs certain movement habits.
11. difficult to break exercise habits that they have acquired with more or less effort.
12. easy to create movement habits for certain limbs; difficult to connect them to other body parts.
13. easy to conceive and realise self-invented rhythms; difficult to reproduce prescribed rhythms and vice versa.
14. easy to memorise the most complex rhythms; hard to recognise the simplest polyrhythm.
15. easy to execute the rhythms in a given amount of time; difficult to give at a different pace.
16. easy to realise a rhythm without dynamic shading; difficult to add any emphasis or nuance of pathetic nature to it without altering its structure.
17. easy to nuance a rhythm, but at the expense of metric accuracy, etc. etc."

(Jaques-Dalcroze 1919, 208-209; translation from German: M. S.)

Jaques-Dalcroze, as an inquiring music educator, was interested to discover the causes of the problems at hand:

„The causes of all these difficulties are:

- Muscle laxity, lack of nervous resilience
- Muscle stiffness
- Excessive nerve sensitivity
- Nerve disharmony
- Lack of balance due to insufficient sense of space
- Excessive intervention of the dissecting mind, which continually gives rise to intellectual resistance
- Lack of focus
- Sluggishness in the analysis
- Lack of muscle memory
- Lack of brain memory
- Lack of general will
- Excessive energy
- Insufficient sense of continuous rhythms (FN 1: Dalcroze is thinking here of people who, for example, execute a rhythmic movement flawlessly for a minute, but fail if it continues for a longer period of time.)
- Excessive Confidence - Lack of Confidence, etc."

(Jaques-Dalcroze 1919, 209; translation from German and reformatted with bullet points by M. S.)

It is an interesting task to assign these observations by Dalcroze to the various core elements of Oesterhelt-Leiser and to consider them in connection with Franz Mechsner's findings on the subject of "perception and movement" (see p. 10-11 and p. 12).

If we look at the rhythmic notations of various exercises by Dalcroze, we can see the elementary and complex rhythmic phenomena he dealt with in the context of rhythm learning. Time signatures like 5, 7, 8, 9, 10, 11 and 15 can be found. Numerous exercises are dedicated to the syncopation realised through movement in connection with time and space. There are also interesting exercises for time-shifting[10] and suggestions for dealing creatively with rhythmic material (Jaques-Dalcroze 1915: 93-106).

Not only Dalcroze, but also Rosenstrauch was interested in the causes of rhythmic problems in music lessons and music learning. In her own studies to become a piano teacher, before she met Jaques-Dalcroze, she missed the rhythmic training. “Like many other students, I had to struggle with the mathematical part of musical rhythm and its application to melody and harmony. The more subtle part of rhythmic playing was left to my instinct, my temperament, and my emotions – a rather arbitrary and dangerous procedure. In our music study, ‘rhythm’ was not taught. While much time was given to melodic and harmonic studies, rhythm, the main force, the most vital and also the most difficult element in music, was passed over as if non-existent. This is still the case in most music schools and colleges; only very few training centers offer the study of rhythm – a deplorable and inexplicable neglect.” (Rosenstrauch 1973, 1).

Later Rosenstrauch distinguished in her writings between peripheral and fundamental, central problems:

“Problems which are Peripheral
- are easy to find and correct
- can be studied and solved in direct connection with a given music piece such as: quick coordination between eye, ear, hand or voice; sight reading and memorising

Problems which are Basic and Central,
- rooted deeply within the whole organism which can only be treated apart from the instrument.
- Having to deal with the whole personality, we have to train the rhythmic sense as such within the personality.”

(Rosenstrauch 1973, 25; reformatted with bullet points by M. S.)

[10] In Dalcroze's time shifting etudes, the corresponding notation doubles and triples the speed or slows down the original beat tempo accordingly (see Dalcroze 1915, 101).

As a specialist for percussion instruments, she enriched the eurhythmics publications with differentiated practical suggestions for the use of percussion instruments in the context of movement:

"(…) **Themes for Playing and Conducting a Percussion Orchestra** (…)
- **Creating sound effects and color schemes**, (…).
- **Dynamic studies** (…).
- **Different tempi and change of tempo** with suitable rhythms.
- **Fusion of several rhythms**: polyrhythms, counterrhythms [sic!], rhythmic counterpoint.
- **Change of measure and unequal beats.**
- **Different forms:** A-B-A, canon, rondo, dance forms.
- **Percussion in connection with speech, with voice and other melodic instruments.**
- **Creating an atmosphere, a certain mood, accompanying a dramatic action.**
- **The conducting of the orchestra by a soloist who moves freely in space.**"

(Rosenstrauch 1973, 40-41; bold text as in the original; reformatted with bullet points by M. S.)

In Rosenstrauch's writing from 1973 one also finds suggestions on the subjects of writing and sight-reading of rhythm, counting beats and pulses, conducting measure and realising rhythms with the feet (Rosenstrauch 1973: 37). She composed percussion pieces with odd time signatures ("melody with uneven beat"), melodies with change of measure and Basso Ostinato (Lorenz 1983, 14).

It is striking in both Dalcroze and Rosenstrauch that rhythm is primarily considered in connection with melody. Although Dalcroze's birth year (1865) is also credited with being the year in which the development of jazz music and jazz drums was accelerated by the end of the US Civil War[11] and the opening of the first Vaudeville Theater in Manhattan,[12] little is known of Dalcroze's connection to jazz music.[13]

Although Rosenstrauch lived in the USA after the Second World War, neither references to the Afro-American rhythm and movement culture nor comments on Latin-American percussion music and its rhythm concepts can be found in her later writings (Rosenstrauch 1957; 1960; 1964; 1973).

[11] Instruments of the military marching bands were available for Afro-American people after the civil war.

[12] Engagement of (jazz) musicians in Vaudeville Theaters; use of several percussion instruments by one musician, which contributed to the development of the modern drum set.

[13] An indication that Dalcroze was involved with jazz music later can be found in the program for the eurhythmics performance in Frankfurt am Main in 1932, directed by Henrietta Rosenstrauch in Dalcroze's presence: "6. 'Our little jazz' by J. Dalcroze. Instrumented, conducted and performed by young and old students." (Lorenz 1983, 13; translation from German: M. S.).

And although Rosenstrauch's percussion compositions include pulse groupings like the 3-3-2 model (see *tresillo*, Figure 5, p. 20) or polyrhythms, we don't find references to

- Afro-American, Afro-Cuban, Afro-Latin music and percussion instruments (swing, shuffle, groove, backbeat, offbeat, timeline-patterns, circular rhythmic-melodic patterns)
- groove playing percussion techniques (like single strokes hand-to-hand, double strokes, paradiddles; slap, open stroke, bass stroke, tap stroke) and groove concepts of percussion instruments (timeline patterns, "diatonic" rhythm patterns, nested looping structures, and so on)

in Rosenstrauch´s texts (Rosenstrauch 1957, 1960, 1964, 1973).

It is true that the works of Dalcroze and Rosenstrauch also contain odd time signatures, different groupings like 3-3-2 (Figure 5) and polyrhythms, but they are not related to Afro-American or Latin-American music cultures and their special rhythm concepts.
It would be interesting for further research in the field of eurhythmics to find out which layers of rhythm were embodied by Dalcroze and his successors and which were neglected.
In her criticism of some German rhythmic lessons, Rosenstrauch gives some hints. On the one hand, she describes the classic exercise category of eurhythmics, in which the beat was implemented by conducting with the arms whereas the feet carried out the rhythm while moving. On the other hand, she mentions a less frequently described set of exercises in which the students realise the basic beat in locomotion and the arms implement the rhythmic figures as lyrical, legato-like gestures (Rosenstrauch 1957, 35-39). In both cases two layers are embodied: the rhythmic figure and the beat/measure, with its implicit meter of western art music. It is little known whether and to what extent the (sometimes only virtual, sometimes actually existing) subdivision layers of the beat were taken into account and embodied.[14]

Further research on the pragmatic treatment of rhythm embodiments within historical eurhythmics is recommended. A look at some theoretical building blocks of today´s German eurhythmics will follow.

Theoretical framing of contemporary eurhythmics in Germany

Since about the second half of the 20th century, the so-called body turn has taken up a lot of space in science. Pioneering among others were Maurice Merleau-Ponty with his writing *Phenomenology of Perception* (1962) and Francisco J. Varela, Evan Thompson, & Eleanor

[14] See a small reference to this in Jaques-Dalcroze 1907, 55.

Rosch with *Embodied Mind. Cognitive science and human experience* (1991). The keywords *Embodied Cognition* and *Embodied Mind* are part of the parlance of many sciences today and belong to their research field. The contemporary eurhythmics can benefit from this and, in contrast to Dalcroze's times, can fall back on more knowledge in the scientific field and conduct research based on it.[15]

First, theoretical considerations on the subject of eurhythmics, which were developed at German music universities, will be briefly presented.

Dorothea Weise (2013) names the following differentiations in the intermedial reference field of music and movement for Eurhythmics:

- Synchronisation
  Subform: maximally, partially, energetic
- Counterpoint
  Subform: Opposite voice (strictly polyphonic), varying, confrontational
- Aleatoric
  Subform: with / without prior knowledge of the course in the other medium of expression

(Weise 2013, 12).

In reviewing the theories of rhythm which address the separation of rhythm and meter, it is interesting to read Weise's article *Rhythm and Artistic Production* (2019). She goes beyond the standpoint of the dichotomy of the analogue and digital in the field of rhythm and deals with flowing and cutting as elements to be integrated into the rhythmic design.
Since Weise is known to all participants in this project, I refer to the theoretical building blocks of Holmrike Oesterhelt-Leiser as an example of contemporary Eurhythmics in Germany. Since the 1980s she dealt extensively with gestalt theory (Oesterhelt-Leiser 2014, 260-261), which can also be applied to rhythmic phenomena. In addition, she has developed six core elements which represent a good guide for the work in the field of music and movement:
Six Core Elements of Eurhythmics
Four aspects, ten forms of activities, four modes of appropriation, four ways of processing, social forms, technique of wandering attention (Oesterhelt-Leiser 2019, 102-104).

[15] See for example Schroedter 2017.

1. Four aspects

- Anthropological Aspect
- Morphological Aspect
- Neurophysiological Aspect
- Communicative-interactive Aspect

2. Ten forms of activities

- exploration
- experiment
- game
- exercise
- observation
- conversation
- Inner imagination / mental technique
- reflection
- improvisation
- composition

3. Four modes of appropriation

- Body movement
- Emotional experience
- Intuitive, illustrative thinking
- Discursive / rational-conceptual thinking

4. Four ways of processing

- Understanding (emotional and rational)
- Skills
- Knowledge
- Creation
  (Transformation into own aesthetic activities and design tools of music and movement)

5. Social forms

- Solo
- Partner
- Group

6. Technique of wandering attention

"The technique of ‘wandering attention’, particularly refers to the change between the first five core elements and all areas of perception that is suitable for processing music and movement as a reference system in its complexity.“ (Ibid., 104)

Oesterhelt-Leiser 2019, 102-104; translation from German: M. S.

In retrospect, these six core elements can be taken up again in relation to Dalcroze's and Rosenstrauch´s observations on the various rhythm problems and skills.

Which of the points mentioned by Dalcroze and Rosenstrauch can be assigned to the four aspects? Which relate to one or more of the four paths of appropriation, which relate to one or more of the four ways of processing?

Later, the four aspects of Oesterhelt-Leisers' core elements will be taken up again and transferred to the rhythm work in the eurhythmics fields.

From a scientific point of view, the human biologist Franz Mechsner, who has worked with eurhythmic-teachers and is in exchange with them, has strengthened the practice of eurhythmics in relation to the connections between perception and movement. Mechsner et al. showed in their experiments that "people can also carry out highly complex, even normally 'impossible' movements if the perceptible result of the movement is simple." (Mechsner 2005, 43; translation from German: M. S.) Since Mechsner's statements and findings are extremely enlightening for the understanding of movement-oriented rhythm learning and can be confirmed from practical experience, further helpful statements from him are presented here:

"For the sake of simple effects, people can carry out extremely complicated, even 'impossible' movements, provided that they pay particular attention to the desired effects, but not to the precise body movement. This seems to be possible because we control movement directly via perceptions and ideas, but not indirectly via coordination processes in the motor system." (Mechsner 2005, 44)
"People can perform highly complicated, even 'impossible', movements for the sake of simple effects if they pay attention primarily to the desired effects and not to the precise movement of the body. This seems to be possible because we base movements directly on perception and ideas, indirectly controlled via coordination processes in the motor system. Ultimately, the necessary muscles seem to be activated in a simple manner in the service of the desired effects. Their formally highly complex pattern of activity emerges, so to speak, automatically and by itself, without it having to be organised as an integrated whole." (Ibid.)
"Mental movement control includes integrated perception of body and environment" (Mechsner 2019, 187).
"A direct mental movement control embeds the moving person 'immersively' in the perceived scenery. It enables actions to be planned and controlled directly as perceptions, which not only include the body, but also the body and environment in an integrated, interrelated form. In other words: movement is genuinely scenic, not just related to the body." (Ibid., 187)

Translation from German: M. S.

If we look back again at the observations that Dalcroze made when his students were learning rhythm (especially points 8-12, p. 6), we find helpful explanations for the advantageous consideration of perceptual movement processes in Mechsner.

Rhythm and Groove in Popular Music

Today's rhythm research has received a major boost in the field of popular music, jazz and groove-based music in recent decades, which is particularly evident in English-language publications.

In contrast to Dalcroze and Rosenstrauch, we now have much better access to diverse musical cultures. Nevertheless, there are only few references to jazz and popular music in the eurhythmics literature[16] and in the artistic productions in Germany.

When we look at the diversity of rhythm concepts worldwide, it becomes clear that we are very limited if we only consider the rhythm concept of Western, notated and composed music in our field. A few keywords should suffice to make this clear:

Rhythm concepts worldwide

- Southeast Asian music (structure of the chronological sequence through the instrumentation)
- Indian music (metric-rhythmic basic schemes, which are combined into a rhythmic framework, the tâla)
- Additive rhythmic formulas of Balkans, Turkish and Arabic music (wazn and mizân)
- Metric measure and divisive rhythm of Central European-Western music
- Timeline patterns, rhythmic interlocking techniques and polyrhythms of African music
- Timeline patterns, offbeat phrasing of Latin American music
- Swing and ternary offbeat phrasing in jazz music
- Backbeat-Model in R&B, Hip-Hop, Techno, Rock and Pop music.

In the following, some elements of the rhythm concepts of Afro-American music will be discussed as examples. Music genres such as gospel, blues, rhythm & blues, rock, reggae, hip-hop and jazz have emerged from the Afro-American music tradition (Black Atlantic Diaspora). These in turn had and still have a major influence on popular music worldwide. An important phenomenon in Afro-American music is the groove.

Groove is the designation "for an intense rhythmic feeling of one or more musicians, which brings about a special musical vitality and pulls the listener along and lets them experience the music more consciously and with more tension, [...]." (Ziegenrücker/Wicke 1987, 161; translation from German: M. S.). Groove-based Music contains elements of “African” Music,

[16] Krepcik 2012; Steffen-Wittek 2019, 2017, 2014; Zaiser 2011.

where the relationship between music and movement is central. The organisation of movement in African music and dance cultures plays a major role in understanding the concept of rhythm and timing. Different terms than in Western art music are needed to describe and analyse groove-based rhythms, or they have to be interpreted differently:[17]

- pulse, basic pulse
- beat, onbeat, downbeat, backbeat, offbeat (cutbeat, upbeat)[18]
- cross rhythm
- pattern
- time line[19]
- cycle, nested loops

In the context of eurhythmics, it is of interest to develop exercises and settings that do justice to the specifics of Latin-American groove patterns but also to the rich field of Afro-American groove and swing elements in jazz music. Mark Russel Doffman's studies offer an introspection to the latter.

Groove/Swing in Jazz Music

Doffman studied jazz musicians grooving together and notes: "While for many the word 'groove' may carry cartoon-like connotations of finger-snapping beatniks, for jazz musicians, being groovy is a serious business. The meanings and feelings that arise from playing good, shared time are palpable and achieving groove is a center part of jazz aesthetic." (Doffman 2008, 1).[20] The author researched musical time as an embodied activity and as a social process. He wanted to "understand microtiming and in particular groove, not only through the analyses of timing patterns themselves but also through the way in which musicians experience such patterns." (Ibid., 3) In his thesis Doffman refers "to the shared, discursively available, temporal structures of jazz as cultural models; …" (Ibid., 73) He notes, that the "musical knowledge within this model is taken to be something broader than declarative

[17] In popular music the term "beat" means a reliable reference point (no tactus-like substructure as in European music with "strong" and "weak" parts) (see Klingmann 2010, 184).

[18] In connection with a (for example 16th) quaternary rhythm formation, Klingmann calls the second 16th "cutbeat" and the fourth 16th "upbeat", provided they are played as an offbeat (see ibid., 187).

[19] A short but persistent rhythm, which serves as a constant reference point (see Nketia 1974).

[20] Elsewhere, Doffman is even more explicit about the superficial assessment of Afro-American music practice in society and the media: "For example, the relationship in usage between musician and non-musician of terms such as 'groove' and 'swing' is rather similar to the technical use of the finger click to bring a band in and its comic 'that´s cool, man' usage with broader society. While 'groove' and 'swing' have a significant place within the working language of the music, it is fair to say that they enjoy this rather different, perhaps humorous resonance in the wider world, especially in the portrayal of jazz by the media." (Doffman 2008, 14).

knowledge. Musical knowledge also includes tacit proprioceptive inf*ormation as well as more conventional notions of music-theoretic understanding."* (Ibid., 15) The author discusses entrainment; on the one hand "in terms of internal cognitive processes that guide perception and action, from which structural coherence can emerge in collective action like music." (Ibid, 65) On the other hand he wants "to develop the idea of entrainment as a foundational principle for social interaction; in other words, how entrainment principles may contribute not only to our engagement with a musical surface but how such principles may be envoked as musicians take the stage together as socially aware beings." (Ibid., 65)

Doffman has produced a helpful taxonomy of temporal models in jazz to examine and understand how jazz musicians share time and generate groove together. In doing so, he assumes an average tactus/hypertactus, a timeline which, according to psychological research, represents the zone of maximum entrainment. He calls it a basic level category which "has an embodied psychological reality for us." (Ibid., 230) From there he derives culturally influenced time models, which he differentiates in terms of proximity and distance to the generated beat. He describes jazz-typical time models as proximal, such as the *walking bass* (Figure 1, B), *the ten to ten* Pattern[21] of the ride cymbal (Figure 2 and 3), the *2 and 4* of the hi-hat (or the *backbeat* in funk). Doffman names time models such as dotted quarters (Figure 1, A) and the "abakwa" pattern (Figure 4), which generate a polyrhythm time-overlay as distal.

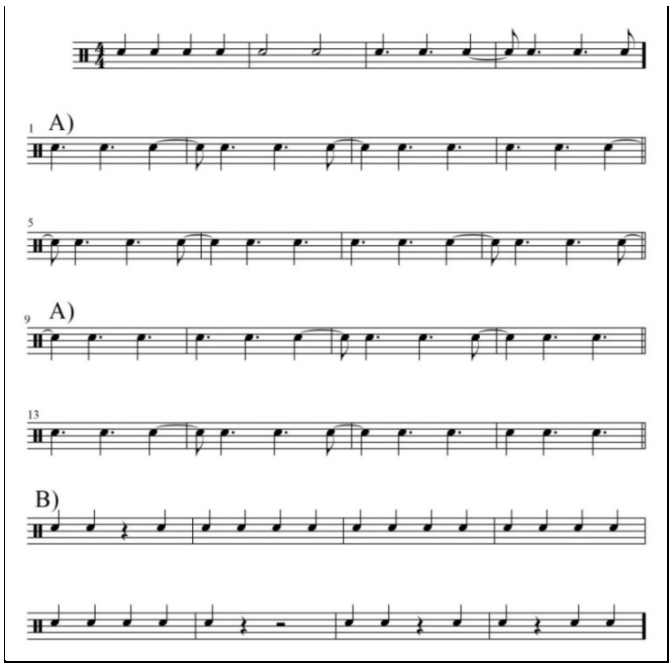


Figure 1 Rhythmic transcription of the walking bass (chorus part B) and dotted quarter notes as a new metric layer (chorus parts A – A) by Doffman (2008, 214).

[21] This „… is the repeated pattern played on the ride cymbal, which is affectionately referred to by many jazz musicians *ten to ten*, a mnemonic which has a strong onomatopoeic quality if repeated quickly." (Ibid., 204). Other English-speaking musicians also use the onomatopoeic (*spang*) *spang-a-lang* for this pattern.

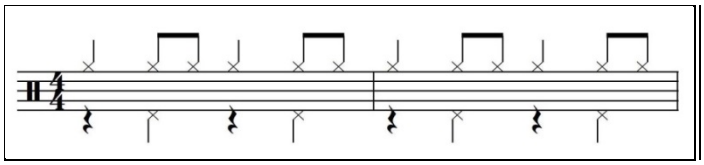


Figure 2 *Ten to ten* Pattern written, hi-hat *2 and 4*

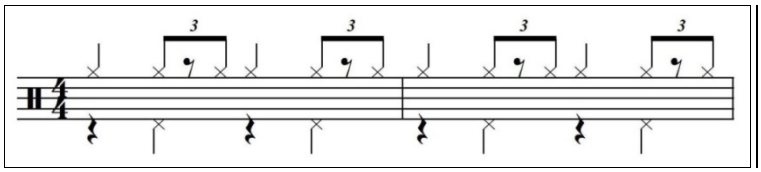


Figure 3 *Ten to ten* Pattern played, hi-hat *2 and 4*

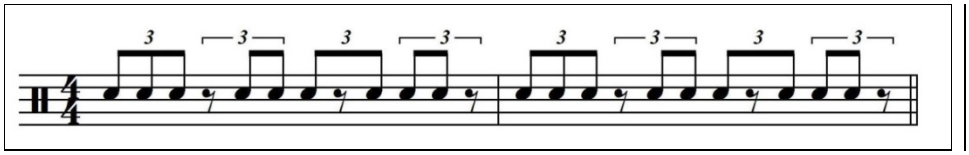


Figure 4 Abakwa Pattern

In addition, the author introduces the categories "more known than felt" (superordinate category) and "more felt than known" (subordinate category). In the superordinate category he places the hypermeter (e.g. AABA form or 2-bar pattern) and meter (e.g. 4/4 time). To the subordinate category he names the beat divisions (e.g. binary eights/even or ternary eighths/swung) and the micro timing (ahead/behind, loose/tight) (ibid., 226). Finally, Doffman also distinguishes between open and covert models, with the proximal and distal time models belonging to the former (Doffman 2008, 200). Under the covert models, Doffmann incorporates metric and hypermetric structures used by jazz musicians when improvising (ibid., 221). Doffman's findings cannot be pursued further here. In the context of music and movement, some of his insights are taken up again. His study offers excellent starting material for pragmatic research in the field of eurythmics on embodied jazz music and improvisation.

Groove and Movement

The jazz pianist and musicologist Vijay Iyer refers to the following categories when analysing body movements in the context of music and rhythm perception:

- a phrasal/body-sway component (breath-based)
- a tactus/foot-tap component (limb-based)
- a rapid multiple-finger-tap component (speech- or digit-based) (Iyer 2002, 396).

The relationship between groove-based music and body movement has been scientifically deepened in recent decades. A key term has emerged in music and movement science that

characterises an important aspect of the processes involved in the interaction of music and movement, the term *entrainment*, mentioned earlier. This term, borrowed from physics, means in the musical context the patterning of body processes and movements to the rhythm of music. “Entrainment can be observed in the coordination of action between participants in musical events. (…) Although entrainment occurs spontaneously, in most musical situation participants recognise ideal levels or forms of entrainment, from none at all through to very tight synchronisation. Perfect 1:1 in-phase synchronisation is not found in practice, unless machine-generated (…).” (Clayton 2013, 22)

Martin Clayton assumes three levels of entrainment

Level 1:

Intra-Individual Musical Entrainment

Level 2:

Inter-Individual Musical Entrainment - Intra-Group Musical Entrainment

Level 3:

Inter-Group Musical Entrainment (see Clayton 2013, 30-36)

In Germany, various monographs on the subject of rhythm in popular music have raised awareness of the connections between groove-based music and movement (Pfleiderer 2006, Fischinger 2009, Klingmann 2010). Timo Fischinger, who has scientifically examined the precision and synchronisation of drummers, states:

> The perception or experience of rhythm apparently has a very strong (and possibly more direct) influence on the sense of movement. The rhythm of music directly stimulates sensorimotor schemes, which can automatically trigger spontaneous physical reactions. Particularly captivating rhythms create a particularly strong coupling between auditory perception and action or between sensory input and motor output, which can set the entire body in motion. This phenomenon is often referred to in English as 'Motor entrainment', 'Audiomotor entrainment' or simply 'Entrainment'. (Fischinger 2009, 46-47; translation from German M. S.)

When Justin London regards “meter as a kind of entrainment, and a consideration of what psychological research can tell us about it,” he asks: “How can we best represent meter and then use those representations to talk about its various formal and perceptual properties, and (…)” what “constitutes a well-formed meter in light of the wide-ranging rhythmic practices of both Western and non-Western music?” (London 2012, 191) The author examines both

isochronous and non-isochronous meters for their nature of maximal evenness and well-formedness, which are critical to the listener's physical and mental entrainment (ibid., 7). In his study, he succeeds in uncovering similarities between the metric phenomena of different musical cultures, which are also helpful in the field of eurhythmics.

Doffman speaks about entrainment between jazz musicians of para-musical movements and the embodying of temporal models (Doffman 2008, 258). The knowledge about music is grounded in conceptual and embodied understanding (ibid., 97). The author even refers to Jaques-Dalcroze (1921/1980) in his reflections on the subject of musical body movements (ibid., 259). He notes that “the sense of motion in live music is not only metaphoric or virtual but is real when reinforced by the body moves of the players.” In his research, Doffman found different types of movement in the context of playing groove in a jazz band. On the musicians' side, they are presumably designed in order

- to intensify the groove for the player themselve
- to help communicate with other players (more demonstrative moves)
- to help communicate with the audience
- to fulfill all levels simultaneously (Doffman 2008, 259).

On the side of music listeners in the context of techno grooves, Hans T. Zeiner-Henriksen found the following movements

- head movements
- bounce movements
- step-touch movements
- up and down movements – different directions
- expressive arm movements
- movements in place or in locomotion (Zeiner-Henriksen 2010)

These and other groove-based body movements have hardly been considered so far in the eurhythmics literature. In dance studies, more has already happened in the German-language literature on this topic. The dancer and choreographer Sebastian Matthias dealt in his monography with the movements triggered by groove-based music or the group members dancing along. He examined the qualities of bounce movements in the context of electro club dance on the one hand, and synchronisation processes in contemporary stage dance art on the other hand (Matthias 2016).

Groove in Contemporary Eurhythmics

Far removed from ideologically tinged, life-philosophical exaggerations or obsequious affirmation of the prescribed educational policy, I see very pragmatic possibilities in the field of eurhythmics to encounter the diversity of rhythmic music creation.
According to my observations, idiomatic material from Afro-American or Latin-American music and movement cultures is rarely used creatively in teaching eurhythmics. When it is used, it is often on a trivialised surface and, in Doffman's note, cartoon-like reduced and flattened. It takes a deeper experience and engagement with groove-based music to adequately capture and convey the core of this aesthetic. The selection of high-quality music examples and recordings plays an important role, as well as the generation of appropriate settings when learning rhythm and dealing with movement and music in the context of groove. Pfleiderer distinguishes between four dimensions of groove:

- the structural-cognitive dimension
- the movement dimension
- the emotional dimension
- the social dimension (Pfleiderer 2010, 2-3).

This approach overlaps with the four aspects and four modes of appropriation developed by Oesterhelt-Leiser on the subject of music and movement in eurhythmics (see p. 10-11 of this article). These aspects and modes of appropriation can therefore be used in a differentiated way in rhythm lessons in the context of groove-based music and movement. The creative, artistic approach and the constant development of skills and knowledge should definitely be combined with the aesthetics of jazz music and other popular music in the field of 21st century eurhythmics. In Germany the concepts of Oesterhelt-Leiser (six core elements), Weise (intermedia reference) and Mechsner (movement in the context of perception) are helpful for this.

Generating study material of rhythm in the context of groove

When working with groove in the context of music and movement, it is important to note the difference between rhythmic notation and execution.[22] The notation of the *ten to ten* pattern

[22] "The composition of a simple bar meter and a complex rhythm as a notation between different numerical values is fairly easy in both cases; the difference also finally collapses with the pre-programming of the rhythms on the computer. The composition of a complex chord progression or a demanding counterpoint movement, on the other hand, is actually more complex in itself. Therefore, musical rhythm is not a training subject in music theory, because no clear errors can be corrected and a challenge to set septuplets against quintuplets actually only arises when the notated music is to be implemented into the performance.

(Figure 2-3), the Afro-Cuban *tresillo* (Figure 5), the *son clave* (Figure 11) and the *6/8 guideline* (Figure 16), for example, does not reveal the complexity of their various executions in musical practice. A simple-looking notation does not mean that the execution is simple and lacks complexity.[23] London assumes that meters and rhythms do not in themselves require complex execution, but only prove to be complex or less complex in relation to one another: "(…) just as meters do not exist apart from rhythmic surfaces that initiate and sustain them, so too with metric complexity. Whereas we can speak in some ways of the complexity of various tempo-metrical types, the more relevant complexity is that which emerges from the interaction between a metric framework and a rhythmic surface." (London 2012, 196)

Depending on the musical context, the rhythm in Figure 5 requires a different execution (West-European rhythm in 4/4 measure with divisive subdivisions or additive rhythm of 3 – 3 – 2 groupings or swing-rhythm with ternary phrasing, or Afro-Cuban Timeline *tresillo*).

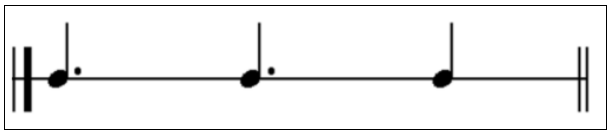


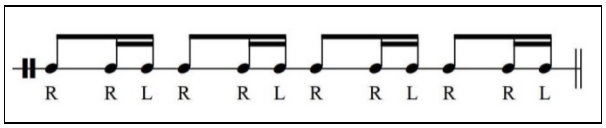
Figure 5 Afro-Cuban Tresillo (3-3-2 pattern)

If we look at the following simple rhythm notation, it is not immediately apparent which different interpretation options are available through different percussive executions (Figure 6). To explore the question of physicality in percussion playing, Claus Raab proposes an experimental arrangement with this rhythm pattern. Although the typeface always suggests one and the same rhythm (Figure 6-10), there is no question for the performer "that these are different rhythms." (Raabe 1991, 116) The author has examined and differentiated the effects of the different hand techniques when executing the patterns of Figure 8 on various parameters: weight perception, grouping by right-left sideness (pendulum), reference unit for the sense of tempo, meter.

Depending on the execution of the hands, the repetition of the same pattern can be understood as a grouping of four (Figure 6) or as another grouping (Figure 7). (See Raab 1991, 121-122)

At this level, the difference in parameters is reversed, because a complex rhythm can exceed the limits of human performance and require mechanical reproduction, while a complex harmonic structure does not necessarily have to be more difficult to play." (Caskel 2020, 342; translation from German: M. S.)

[23] "A simple pattern composed of but a few layers of activity, at an extremely fast or extremely slow tempo, will probably prove harder to establish and maintain than a richer and more variegated metrical hierarchy at a moderate tempo. Likewise, maintaining a rich metric hierarchy, even one involving a non-isochronous meter, may be unproblematic if the musical texture articulates each metric level and its organization. By contrast, maintaining a simple isochronous meter, where one needs to constantly interpolate missing beats and discount various kinds of rhythmic noise such as trills or grace notes, may prove far more challenging." (London 2012, 196).



R = right hand, L = left hand

Figure 6 Grouping of four similar patterns

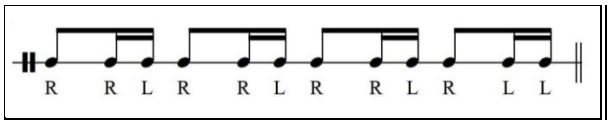


Figure 7 Grouping of three similar patterns and one different pattern

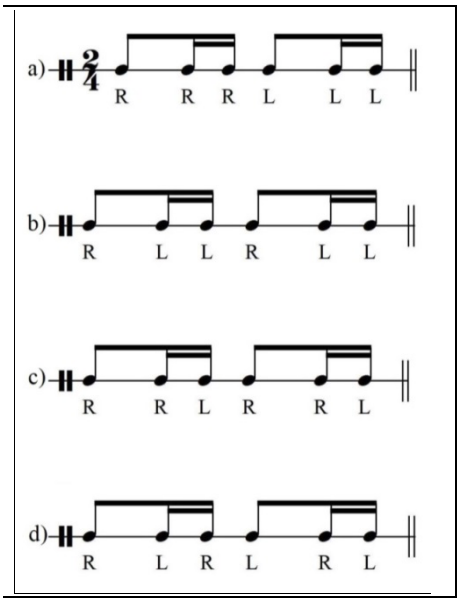


Figure 8 a-d Different hand techniques produce different musical results.

What we don't immediately see in the notated pattern (Figure 8d) is the cross-modal nesting, which also becomes apparent in the perceptual execution of movement (Figure 9-10).

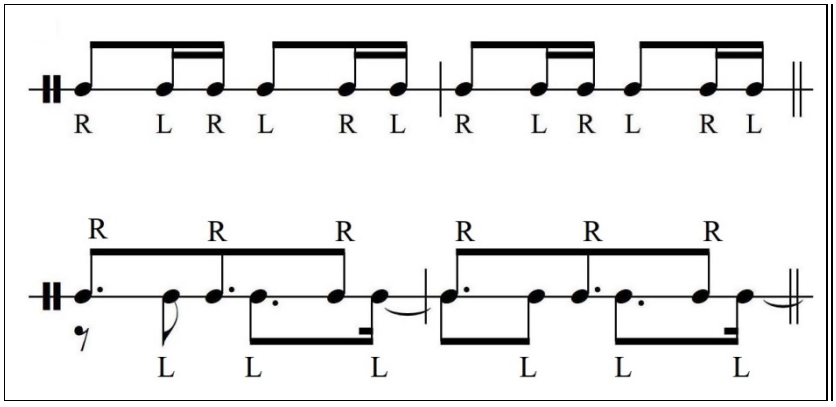


Figure 9 Nested patterns between right and left hand

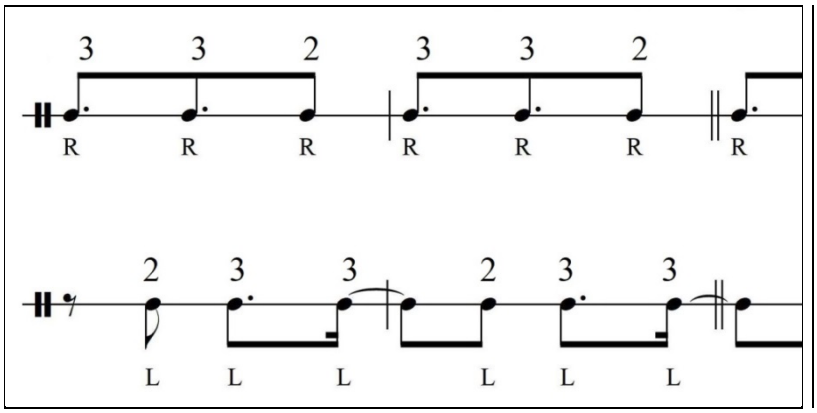


Figure 10 Right hand = 3-3-2 pattern, Left hand = 2-3-3 pattern

Jesse Stewart uses circular diagrams "as a means of discussing both the structural logic and cultural implications of African diaspora rhythmic concepts which have shaped modes of music making the world over." (Stewart 2010, 171)[24] The author also examines the Afro-Cuban 3-3-2 pattern (*tresillo*) and recognises the patterns nested within it like *cinquillo*. The circle diagrams of *son clave* and *rumba clave* also allow for a view of different nesting with the c*áscara* and the *mozambique* rhythm (ibid., 176).

The aforementioned Afro-Cuban son clave has a different sound, function, phrasing, etc. in different music genres. „In the rock-and-roll period of the 1950s and 1960s in the United States, there was one rhythm that was used by so many musicians in so many songs that it stuck out from among all others. It was called the *Bo Diddley Beat*, named after the singer and song-writer." (Toussaint 2020, 308-309)

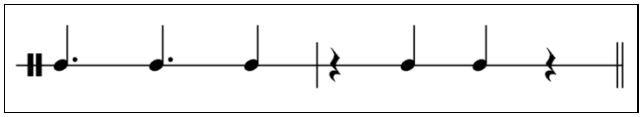


Figure 11 Son Clave (3-2 direction)

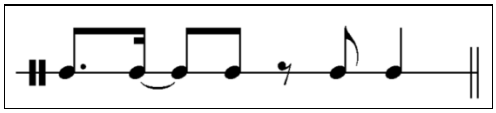


Figure 12 Bo Diddley Beat

Toussaint notes that of the 4368 possible pattern combinations with sixteen pulses and five onsets (**Figure 13-14**), only about six combinations are recognized worldwide as interesting "good" [25] rhythmic patterns (**Figure 15**). (Toussaint 2020, 27-30)

[24] Stewart notes that he does not want to minimize the complexities of the African diaspora music or to reduce the music to these diagrams (see Stewart 2012, 171).

[25] "When a rhythm is described as 'good' in this book, the word is intended to denote that it is effective as a timeline, as judged by cultural traditions in some parts of the world and the test of time." (Toussaint 2020, 27).

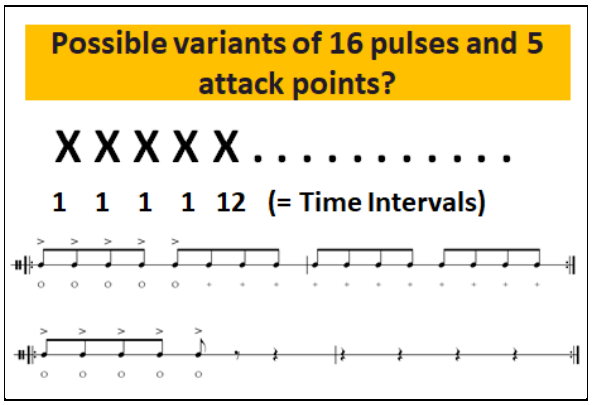


Figure 13 Time intervals

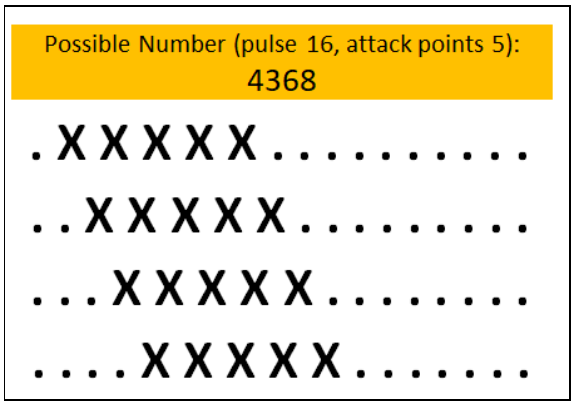


Figure 14 Permutation of time intervals

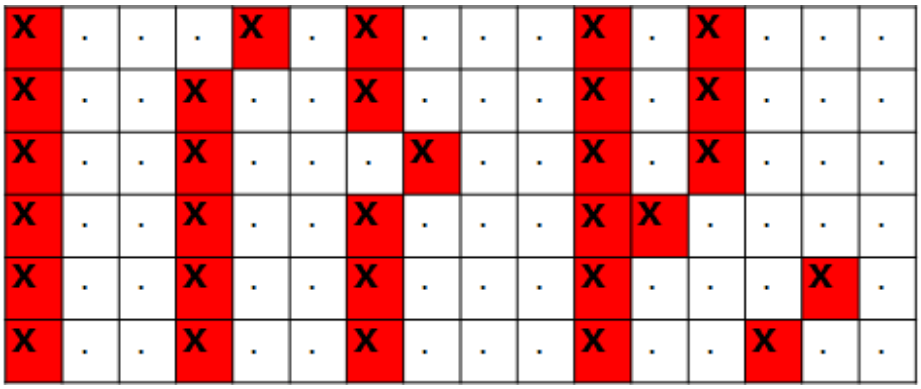


Figure 15 Six distinguished timelines ("good" rhythms) with five onsets and 16 pulses (Shiko, Son Clave, Rumba Clave, Soukous, Gahu, Bossa-Nova Clave)[26] (see Toussaint 2020, 27-40)

The so called *six-eight guideline* or *Ewe beat* (Figure 16-19) and "its perception is peculiar to Anlo Ewe of Ghana and used in musical types such as agbadza, adzogbo, etc. The schematic analyses (…) demonstrate that the same Ewe rhythm [2212221] would be perceived differently by the Yoruba of Nigeria and the Bemba of Central Afrika." (Anku 2000). This pattern has been established in jazz and popular music worldwide. Willie Anku proposes five indicators for analysing such a pattern:

1. Set type (whether 12, 16 or cross-set).
2. Number of *attack points* in the set (7 in the Ewe rhythm).
3. Definite *beginning and ending* of the set rhythm (Ewe rhythm: 2212221).
4. Definition of the *set rotation* derived from the prime form[27] (in this case *rotation 1* = R1)
5. The *Regulative Time Point* (RTP)[28]

[26] "…, what is called the *clave son* in Cuba is called *kpanlogó bell pattern* in Ghana (…). All these rhythms have different names in disparate parts of the world where they are used." (Ibid.).

[27] „To describe a specific set rhythm considering its embedded rotational possibilities, we will need to establish an arbitrary standard as the *prime form* (normal form). By definition the prime form is the set rotation with the least time interval arrangement at the beginning in 'unordered' form – thus, from the fastest to the slowest arrangement of the rotation. In this case the prime form of [2212221] is [1221222]." (Anku 2000).

[28] „Since the composite set rhythms of the ensemble establish definite orientations with the regulative beat, it is a good indicator to establish set relationships. And since the regulative beat occurs on one of the time points of each set rhythm, it is expedient to label it *Regulative Time Point* (*RTP*) instead of regulative beat." (Ibid.).

In addition to the seven rotations (Figure 17-18) four different metric structures are often used within patterns like the 6/8 guideline in jazz as polyrhythmic time layers (Figure 19).

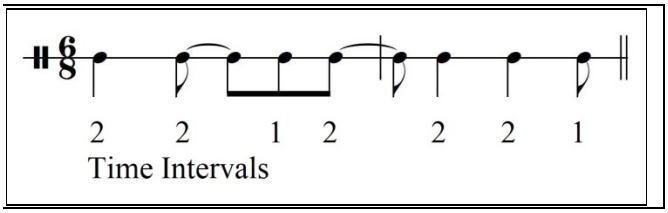


Figure 16 Six-eight Guideline (Ewe Beat) (see Anku 2000)

1	2	2	1	2	2	2	*prime form*
|	|	|	|	|	|	|	
0	1	2	3	4	5	6	*rotation*

Figure 17 Prime form of set type 12, attack points 7 (see Anku 2000)

Rotation	
Prime Form	1221222 - **R0**
Original Ewe Beat	2212221 - **R1**
	2122212 - **R2**
	1222122 - **R3**
	2221221 - **R4**
	2122121 - **R5**

Figure 18 Set Rotations by Time Intervals (see Anku 2000)

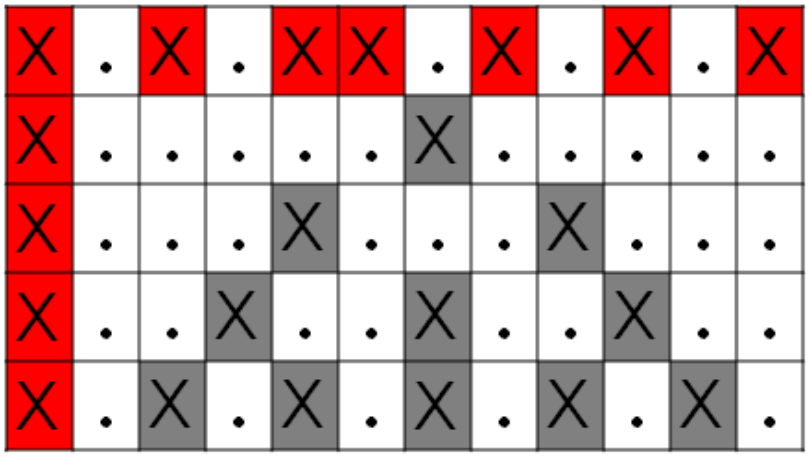


Figure 19 Six-eight-guideline within 12:2, 12:3, 12:4, 12:6

Beyond the rhythm patterns and time models of Afro-American, Latin-American and Popular Music we can generate idiomatic dance moves from tap dance, jazz dance, street dance, Cuban and Brazilian dance and so on.

For example: Movement motifs of jazz steps and jazz dance can be realised by their corresponding to the swing cymbal-pattern *ten to ten*, the *2 and 4* time model (hi-hat) and ternary offbeat-phrasing:

- Bounce Steps
- Step-Touch / Touch-Step
- Brush Movements
- Jumping Jack
- Shim Sham
- Charleston

(see Steffen-Wittek 2019).

In addition to the historical jazz it would be interesting and desirable to work with contemporary jazz concepts and improvisation too.[29]

Rhythmic experiments and settings in the context of groove

Experiment 1

In eurhythmics we can give the notated rhythm an embodied reference.

First let´s have a look on onset and duration (the audience is asked to clap the notated rhythms in Figure 20 and 22 first, then Figure 21 and 23).

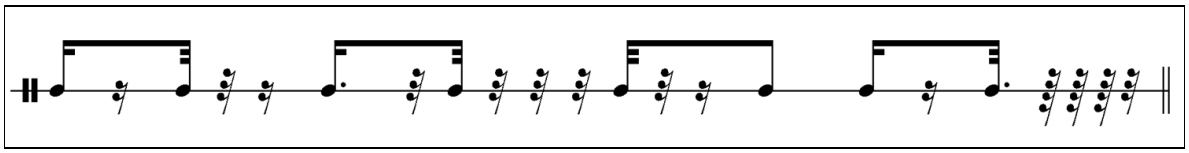


Figure 20 “Please clap!”

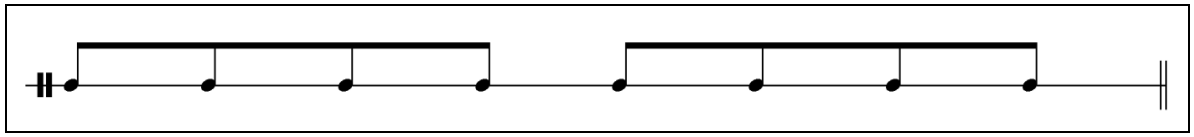


Figure 21 “Please clap!”

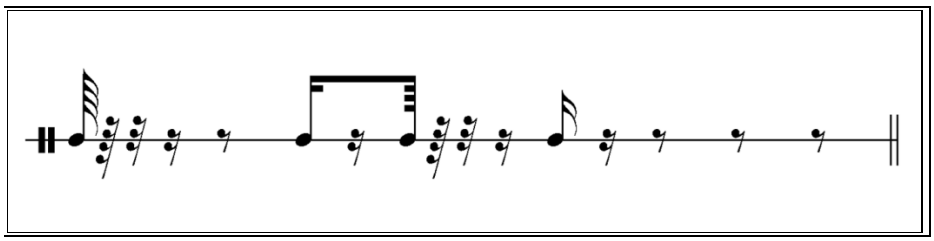
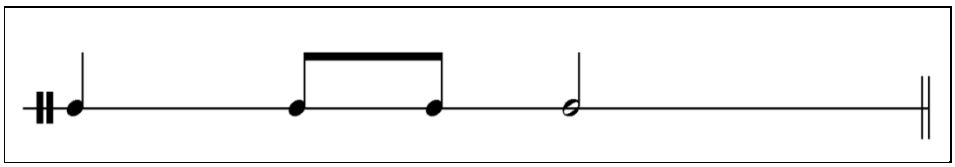


Figure 22 “Please clap!”



[29] See for example the improvisation concepts of Steve Coleman (2022) or Christopher Dell (2020).

Figure 23 “Please clap!”

The interonset intervals of Figures 20 and 21 are identical, as are those of Figures 22 and 23. In the spirit of Oesterhelt-Leiser, it needs to be clarified who intends to use the notations, why and how. From an *anthropological* point of view, it must be considered whether a beginner wants to learn how to read music, or whether a professional musician wants to play a piece in which the exact duration of the sound plays a decisive role. *Morphologically*, it should be noted that no durations can be heard when clapping. A notation in which the onsets are clearly visible is sufficient in this case. However, should the exact durations of Figures 20 and 22 be played by a wind or string instrument, the notations should better indicate where the onsets are located. In addition, the necessary subdivisions should be clearly marked. From the *neurophysiological* point of view, it is necessary to practice the skills of eye-hand coordination in beginners in order to be able to play the simple notes (Figure 21 and 23), whereas advanced users have to understand subdivision layers internally on a more complex level in order to feel the subdivisions and durations and to implement this accurately in motor terms (Figure 20 and 22). The *interactive-communicative* aspect plays a role in the mediation when dealing with sight-reading, playing and moving together.[30]

Experiment 2

The participants are asked to do the *jumping jack* in a paradiddle mode with a partner and to be aware of entrainment processes (music: *Essaywhuman*, album: Do you want more? The Roots, 1995) (see Steffen-Wittek 2019, 151-153).

To experience and learn Rhythms in different settings

Anthropological Aspect

- Music selection (rhythm concept, rhythm components)
- Listen to music (active-passive mode) / inviting settings
- Express music spontaneously in body movements
- Appropriate exercises, improvisations and creative designs in music and movement
- Creative exploration of different rhythm concepts in music and movement
- Artistic implementation of rhythmic topics

Morphological Aspect

[30] See also Eva Nivbrant Wedin, who dealt with reading and notating music in the context of eurhythmics. She has presented this in various publications (2015, 77/109/157-167; 2013; 2016). The author will soon publish a book named “Reading Music with your Whole Body” (by Gehrmans Musikförlag).

- Visualise and analyse rhythmic structures.
- Experience beat, subdivisions and multiplications of the beat through the voice, through movement.
- Experience the beat, subdivisions and multiplications of the beat through symmetrical hand movements or hand-to-hand play and other hand combinations.
- Establish beat and basic pulse with steps or hands and implement rhythmic figures / patterns musically with the voice.
- Reproduce pulse-based rhythms and time models of classical and popular music (different measures and divisive note values; beat, downbeat, backbeat, offbeat, cutbeat, upbeat; ternary swing phrasing, additive patterns and odd meters; cross rhythms) with the voice (while the regulative beat and basic pulse are embodied). Vocal reproduction should be sonically, not semantically.
- Realise "irregular" rhythms of old and contemporary music with the voice, transfer them into gestures and body movements.

Neurophysiological Aspect

- Movement anticipation.
- Coordination (eye-hand coordination, hand motor skills, foot motor skills, hand-foot combinations, whole-body motor skills).
- Appropriate consideration of the phases of movement learning (coarse coordination, fine coordination and finest coordination) with regard to musical timing.
- Appropriate consideration of the components of neurophysiological movement learning corresponding to the age and disposition.
- Experiments and settings where simplified perception leads complex rhythmic movements; no external activism but sensitive perception.

Communicative-interactive Aspect

- Experiments and settings that focus on the perception of entrainment with the music and the movements of other participants.
- Creation of interactive improvisations with groove-based rhythms and movements.
- Experiments and settings that focus on energy, space and time in a group / with partners in the context of groove-based music.

Outlook

Whereas "Old School Eurhythmics" referred mainly to rhythm in conjunction with melody, harmony and European tactus, contemporary eurhythmics should relate to different rhythm

concepts and must change their settings and exercises accordingly. So, it remains exciting to see how the field of eurhythmics develops here. In the bachelor's and master's degree courses in eurhythmics, not only the history and theory of classical and contemporary Western music should be taken into account, but also the field of jazz and other music genres from all over the world. Interesting rhythmic concepts could be considered more systematically in eurhythmics in the future. Information on this can be found in musicology and in contemporary improvisers and composers. Apart from the 'tonal rhythm' in classical music the composer Claus-Steffen Mahnkopf presents the following three prominent rhythm models as different types of musical thought in the 20th century:

- irregular pulse (e.g. Strawinsky: *Sacre du Printempss, Histoire du Soldat*)
- thinking in pure durations/additive thinking (e.g. Messiaen: *Mode de valeurs et d´intensités*)
- advanced mensural proportional notation (e.g. Mahnkopf: *La terreur d´ange nouveau*) (Mahnkopf 2014).

Very interesting are the rhythm concepts of Afro-American musicians like Anthony Braxton, who unreservedly combine improvisational and compositional jazz idioms with European contemporary music. Among many others Elliot Carter's concept of 'Long-Range Polyrhythm'[31], Milton Babitt's nonmetric music[32] and Barbara Heller´s compositions, in which she is searching for the essence of music[33] also offer rich rhythmic material for educational and artistic purposes. On the compositional and improvisational side of percussion music, the collaboration of artists such as Robyn Schulkowsky (percussion set-up as in contemporary New Music) and Joey Baron (jazz drumset) is of great interest.

With Julian Caskel´s *Expanded metric conception of rhythm* in mind (Caskel 2020, 10), we are able to integrate groove-based rhythms and many other rhythm concepts in the field of educational and artistic eurhythmics.

I wish all students and teachers of eurhythmics in Sweden, Poland, Austria and Germany, who are involved in this project, a lot of curiosity and experimental joy of rhythm discovery.

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[31] See Aylward 2009.
[32] See London 2012, 22-23.
[33] See Levens 2006 and Mohrs 2015.

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Marianne Steffen-Wittek won the first international competition for music education. As a jazz drummer, she won the Langener Jazz Prize with the women's jazz quintet "F" and she received the Badge of Honor from the Thuringian State Music Council for special services to musical culture in Thuringia. Along with five other authors, she won the 2016 Media Prize of the BMU (Federal Association for Music Education) for the publication TIMPANO.

She participated in various (theater) orchestras and improvisation groups, organised solo projects, performed at jazz festivals in Germany and abroad and recorded LPs and CDs. She currently plays vibraphone and drumset in the jazz quartet "Bridge The Gap" and composes

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