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Biographical notes

Martina Claus-Bachmann holds a PhD and a postdoctoral degree on ethnomusicology and music education and has been lecturer at the universities of Bamberg and Giessen; she has also longterm teaching experience in public schools. Her cognitive interests focus on developing of an observation and description matrix for cultural systems on the background of constructivism and cultural studies or cultural science. Her main areas of fieldwork are Indonesia, Sri Lanka and Westafrica. But also the migrant cultures and the youth subcultures in Europe are main fields of her research interests and efforts.

What does Sound mean? Musicological and Terminological Considerations on a Musical Parameter

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Abstract:

Since the beginning of the discourse on Jazz and later on Rock music in Germany the term sound has become an important factor in the repertoire of musical parameters. It references a sonic visiting card, a holistic sound environment, which is typical either for a style, a music culture, an individual musician or a group.

Sound has developed a trans-structural and transcultural quality insofar as the resulting sound environment in its combined effects seems to range beyond a systematic-physical analysis, because the entity is more than the addition of the single particles.

The recent discourse concerning the term sound¹ is presented from the viewpoint of the main musicological disciplines and is enriched with a perspective from the viewpoint of cultural studies, which is also extended to considerations on music education.

Introduction

Sound is a term of everyday use in Germany¹ and everybody believes they understand its meaning. On the one hand **Sound** can be used as an irreplaceable keyword of young music fans, and on the other hand it is recognised as an Anglicism or Americanism dispensable in the German language and replaceable through the term “Klang” (timbre) or more exact “Klangbild” (literally translated: “sound picture”).

Viewed from the perspective of musicology it is different. Here the term **Sound** has become an additional parameter of structural musical analysis, like harmony, melody, rhythm, volume, pitch, scale, ornamentation, key, articulation etc., and an exemplary possibility to observe the specific cognitive interest of the particular specialisations within the field of musicology. The usage of the term and the research on the parameter **Sound** as an example for the cognitive interest of musicological branches of study and methods are the intentions of the following considerations.

Overview

The musicology in countries with an occidental European background is traditionally divided into three big historically grown² branches of study, the so called historical, the systematic and the ethnomusicological discipline. Alongside there are further, younger ramifications, on the one hand the so called Jazz research, on the other hand the discourse of so called Rock/Pop; neither are methodologically nor in form and content directly affiliated with the three traditional lines, be it purposely or by chance. Furthermore we find the music education (pedagogics and didactics), which references the academic musicology to select and substantiate the contents which should be binding in a certain context of common educational repertoires and methods.

Jazz Research and Sound

In 1977, Joachim-Ernst Behrendt, one of the first known Jazz researchers in Germany, after presenting on an album audio examples of four trumpet players, one

educated in a music academy in Germany and the others representatives of Jazz (Armstrong, Gillespie and Ferguson), points to the term **Sound** as follows:

“As you can hear, the Jazz musician tries to give his instrument his very own sound, much more, I would say more radical than it is usual in the European music. In Europe the sound of most of the instruments is standardised; it exists a certain ideal of aesthetical sound and a person who studies an instrument at a music academy tries to imitate this ideal, to approach it as closed as possible; changes are only accepted to a certain extent. The Jazz musician however satisfies his ambition in bursting the limits of sound standards; a Jazz musician wants to develop his individual sound, not the one which is taught in a music academy...”³.

Except for the fact that Behrendt’s references are lopsided to the canonised classical European music tradition, excluding the rich folk tradition of Europe, it becomes transparent how the term sound is used distinctively, comparing it as a parameter in Jazz research and in the Occidental European opus music research. It becomes apparent that both phenomenons need different perspectives to be analysed and described with a neutral view. Referring to the sound ideal of occidental European opus music culture, the scratching noises or cracking insertions of a Jazz trumpet come across as so called “dirty tones”, a pejorative term in principle, which belongs to the standard repertoire of terms of description in Jazz research. Just as well one could value the standardised sound of European trumpet players as monotonous and boring. These comparisons show nothing other than the aesthetical viewpoint of the observing and describing person and don’t contribute much to new insights concerning the phenomenon of sound in both cultures.

Martin Kunzler mentions in book in 1988 the socio-cultural background of the personalised Jazz sound. According to him it has its roots in slavery and in the intention of the individual slave to preserve his polarisation and unique dignity in a personal

“Cry”; this tendency was later adopted by music groups and developed by Jazz musicians. Martin Pfeleiderer, Jazz researcher from Hamburg, concludes that from observation and description of the role of sound in the Jazz history we can understand that the term sound refers here and also in its later technical development to the same meaning as “style” – personal style, group style, style of the producers and studio owners, arrangement and composer style (Kunzler 1988, 21).

*Rock/Pop research and **Sound***

This extensive understanding of sound as group sound or musical character of a group is also taken up in Rock-/Pop research, e.g. by Tibor Kneif in 1978, and is here especially supplemented by the additional components and sonic options the electronic studio is offering to musicians and producers. Wieland Ziegenrucker and Peter Wicke however describe sound as the „totality of all factors defining the sensuous quality of music” (Ziegenrucker/Wicke 1987, 368). They focus on three aspects:

- the technical side (like the “hardware”, instruments, amplifier etc.);
- the action of the musicians (interpretation, playing technique, phrasing etc.);
- the structural components of the arrangement (musical parameters like volume, harmony, rhythm etc.).

The similarities in the Rock/Pop discourse and the Jazz research concerning the estimation of the significance of the phenomenon sound consist of the observation that sound is a parameter of personalisation and individualisation and offers a possibility of distinction compared to the occidental European opus music culture with the standardisation of the sound for the aesthetic sound ideal of the classical symphonic orchestra and the chamber music.

The differences consist in the fact that observation and description of the phenomenon sound in the Rock / Pop discourse has to focus more and mainly on the electronic possibilities, which have developed since the 1970s concerning the field of studio technology, and since the 1980s in the field of the digital technologies. The following conclusion gives a basic overview with the example of the electric guitar; it originates from a radio program of the Bavarian Broadcasting Service (BR) and basically it offers a description of how much the sound of electronic instruments since the 1970s of the last century was influenced by the possibilities the electronics offered. The program compares the sound of an electric guitar without and with amplifier, different loudspeakers and additional features like flanger, echo, fuzz tone, etc. It presents examples of rock groups who have contributed to the sound development of this period, like Pink Floyd, Tangerine Dream, Emerson, Lake and Palmer and others.

Pfleiderer confirms that an exact and objective description of the phenomenon sound is expected from the measurable aspects of the parameters of the music recordings, but he is sceptical at the same time concerning the psychological effects of sound and asks about the connection between jagged curves and grey tone nuances with the sound of which a human being is fascinated: "What counts at last are not the physical characteristics of acoustic signals, but in fact their correlatives of perception: the sound sensations coming into our consciousness" (Pfleiderer 2003, 23).

With these two research objects, the acoustics and the music psychology or psychoacoustics, we approach the cognitive interests of the systematic musicology.

*Systematic Musicology and **Sound** Research*

Matthias Rieger, whose thesis focuses on the objectifying of tone and hearing through the physiologist Hermann von Helmholtz, sees the point of origin of an era of sound research in Germany in 1863 with the publishing of a research study of Helmholtz about the acoustics „Lehre von den Tonempfindungen als physiologische Grundlage der Theorie der Musik“ (rough translation: Lecture about the tone perceptions as a physiological basis of music theory). In his laboratory in Heidelberg he had set down with all the available equipment at that time and in an experimental way the sonic physiological ground rules of our contemporary knowledge about the physiology of the sonic perception, which is the main basis for the cognitive interests of the systematic musicology. The basic definitions of physical sonic terms give the audio examples originating from an album with an introduction to acoustics and electronic music:

sinus tone	the simplest tone the ear can perceive, no overtones, no special sound characteristics, can only be produced electronically
sound	harmonic combination of single sinus tones, number and volume of the single sinus tones vary, example are the sounds of musical instruments
tone mixture	non harmonic combination of single sinus tones, number and volume of the single sinus tones vary, examples are the sounds of bells or tubes etc.
noise	extremely dense combination of single sinus tones, thoroughgoing example: white noise

Table 1 Definition of physically measurable acoustic terms

After defining the terms in this clear, metrologically verified way, the term sound cannot be used any more instead of all other terms, because it refers exclusively to the harmonic combination of sinus tones. But the public use of the word is definitely different.

The recent sound “archaeology” like the method of holographic interferometry, enables the researcher to reconstruct the sound of historical instruments as well as the sound from eras without sonic recordings. Here we approach the field of the historical musicology and its cognitive interests in sound research.

*Historical Musicology and **Sound** Research*

As an active musician and member of a regularly performing music group for ancient music and historical instruments under the leadership of a musicologist, the way of performance of this group and others in the 1970s directly demonstrates the effect the research results of the historical musicology can have for the artistic practical application. Starting in the 1960s in several places in Germany and neighbouring countries, groups for ancient music were founded with the target of sonically revitalising the music of the Middle Ages and Renaissance. Preliminary work was in historical musicology, starting with Arnold Schering in the first quarter of the 20th century, who focused on the study of sources concerning the praxis of instrumentation and the playing technique, rediscovery and rescoring of historical scripts and transcription of ancient guitar and lute notations and the analysis of musical instruments in museums. All of these efforts make clear, which conditions of performance were existent in certain eras. Relating to the sound, the reconstruction of historical instruments was important and the knowledge of their combination in instrumental groups as well as

the possibilities of registration in groups concerning the performance of certain music notations, of sound-mixtures, which were categorised as homogenous or heterogeneous. The process of reconstruction of the sound of the pre-baroque eras stood also for the ability of the researcher and the audience to give up own auditory expectations to be able of enjoying the incomparable sound aesthetics of different eras.

Contemporary reactions of musicians on performance practice related to ancient music can be divided into three parts:

- The performers who stay in a so called “unbroken” functional tradition and who have followed the changes of the sound characteristics in the sense of a historical flow;
- The performers who are mainly interested in the reconstruction process of the authentic sound characteristics of a certain era with a maximum of academic background; and
- The performers who combine the historical sound characteristics syncretistically with modern electronic sounds or instruments from different cultures.

These differences can become evident whilst listening to three different examples of liturgical plain chant from recently available CDs, composed by Hildegard from Bingen, a German abbess, who lived from 1098-1179 CE.

- The first group is represented by the *schola cantorum* of the Benedictine nuns in the still existing monastery of Eibingen, where Hildegard from Bingen lived as an abbess. The chant group practices the liturgical compositions of Hildegard and has adapted the practice of performance to the sound ideal of the particular era. The recording of the chosen example shows an orientation on the classical-romantic taste (19th century): the single notes are performed in an equal length and the nuns sing *a cappella*.

- The second recording of the ensemble Sequentia from Cologne uses authentic reconstructions of instruments of the Middle Ages with which they stylistically ornament the vocal lines, intone intros and bridges and hold the last tone (*Finalis*) as *bourdon*.
- The third interpretation is coined by the ensemble Estampie, who realises a syncretistic mixture of authenticist elements like the vocal technique and the melismatic ornamentation with contemporary minimalist-electronical sound particles, which leads to a nearly vanguard sound result.

Competence to deconstruct and to challenge beloved patterns, in our case auditive expectations, is a link to the abilities which ethnomusicology requires and teaches.

*Ethnomusicology and **Sound** Research*

What makes the difference between approaching a completely unfamiliar sound environment of a historical period and approaching an unfamiliar culture? Above all the difference consists of nothing else than of diachrony or synchrony. A requirement for ethnomusicological research was the availability of the Edison-phonograph, which is testified since the year 1888. It rendered possible the collection of recorded materials, which made the sound environment of unfamiliar cultures repeatedly recallable and also available for the process of analysing from different perspectives.

Without referencing the history of the discipline in-depth, we can consider the cognitive interests on sound research for a contemporary ethnomusicology and at the same time we can find out the differences to the already mentioned disciplines of musicology.

In this regard the question seems interesting, why from the viewpoint of an experienced recipient it is possible to identify the sound of cultural groups either regional or in the system of a society in an instant, comparable to a sonic visiting card, which commits in a compressed form the most important sound data of a person or group to the recipient. Basically this question refers to the main task of ethnomusicology, the ethnographic demarcation and mapping of cultural forms of expression, in this case with a view on the parameter sound.

Relating to this question I have compared two groups with whom I had personal experience of field research and/or practical experience and who had made the sound of drumming their individual visiting card: the preference of the drum sound of the Sinhalese in Sri Lanka and of female drum groups in western occidental societies. On the background of a theory of cultural studies, which sees the cultural identity as a process of construction of an individual or a group the result was to compare and contrast the different socio-cultural conditions and interests, which were the macro-environmental reasons for the particular preference. Symbol, affect and trauma are described as memory strategies by the German cultural scientist Aleida Assmann in her publication in 1999; this concept is transferable to the postcolonial and contemporary preference of the drum sound of the Sinhalese as a strategy of reconstruction of a pre-colonial-symbolic, gloriously affect-laden, non-colonial and not traumatically harmed restorative return. The preference of the drum sound of female and/or feminist groups in a western European, Anglo-American context can be seen as a feminist shaped strategy of revitalisation of a lost and never handed down and written history of a female culture. According to the enquiries of the female percussionist and music researcher Layne Redmond, published in 1997, the preferred usage of membranophones can be retraced iconographically to the 2nd century before Christ. The rediscovering of membranophones as a medium of bodily self-awareness is associ-

ated with the second period of formation of female groups in the ecological, peace and feminist movement in western countries, coming along with a back-to-nature philosophy in the 1970s. In this context the preference can also be seen as an anti-strategy against tendencies of the patriarchal oriented opus music culture in Europe, whose protagonists condemned the drum sound, like in the example of the Sinhalese culture too, as archaic and primitive. This preference is a possibly unconscious strategy of solidarity with marginalised cultures.

Ethnomusicological research today, besides just containing ethnographic description and archival collection, includes a wide spectrum of interests in cultural studies and the need to open up new and larger socio-cultural contexts, e.g. to the aspects of gender related research, in this case based on the study of the phenomenon of sound. This cognitive interest is attached to the so called anthropological concept, which according to Arthur Simon referencing the American ethnomusicologist Alan Merriam in 1964 defines music culture as integral part of the way of living of a group of humans and is focusing methodologically on the music related ways of behaviour and thinking.

It remains unclear to what extent this interest sets oneself apart from the one of the Jazz and Rock/Pop research, taking into account that the methods are the same and the point of origin, for example the synchrony, is similar. The typical separation in the German academic landscape seems irrational and could be erased under the general roof or framework of cultural studies unifying all the musicological disciplines. In my eyes, only the entirety of the perspectives guarantees a holistic perception.

Contribution to Music Education

The latter holistic perspective I also want to apply to educational considerations. The music-educational conceptions in Germany since 1945 have changed between object- and subject-orientation in a nearly dialectical way. Without referring to the particular names and publications, it can be concluded that there exists a controversial discussion between an access to something measurable and empirically provable, be it either the opus, the physically measurable sonic wave or tests with a universal claim concerning talent, and the other side, which focuses on the subject, the human being, who is at last target of the music-educational efforts. This subject handles music as functional in his daily life and uses music often subconsciously and intuitively for the creation and construction of his own living environment and his own individual identity. Sound is social and cultural event and a permanent process of discussion, not fixed in the notation of an opus or its reconstructing interpretation.

The latter mentions Dietrich Helms in his complex analysis "Vom System Ton zum System Sound" (From the System Tone to the System Sound) in 2003. He uses the term system here because he wants to clarify a complex structure of relationships.

These look like on the following picture:

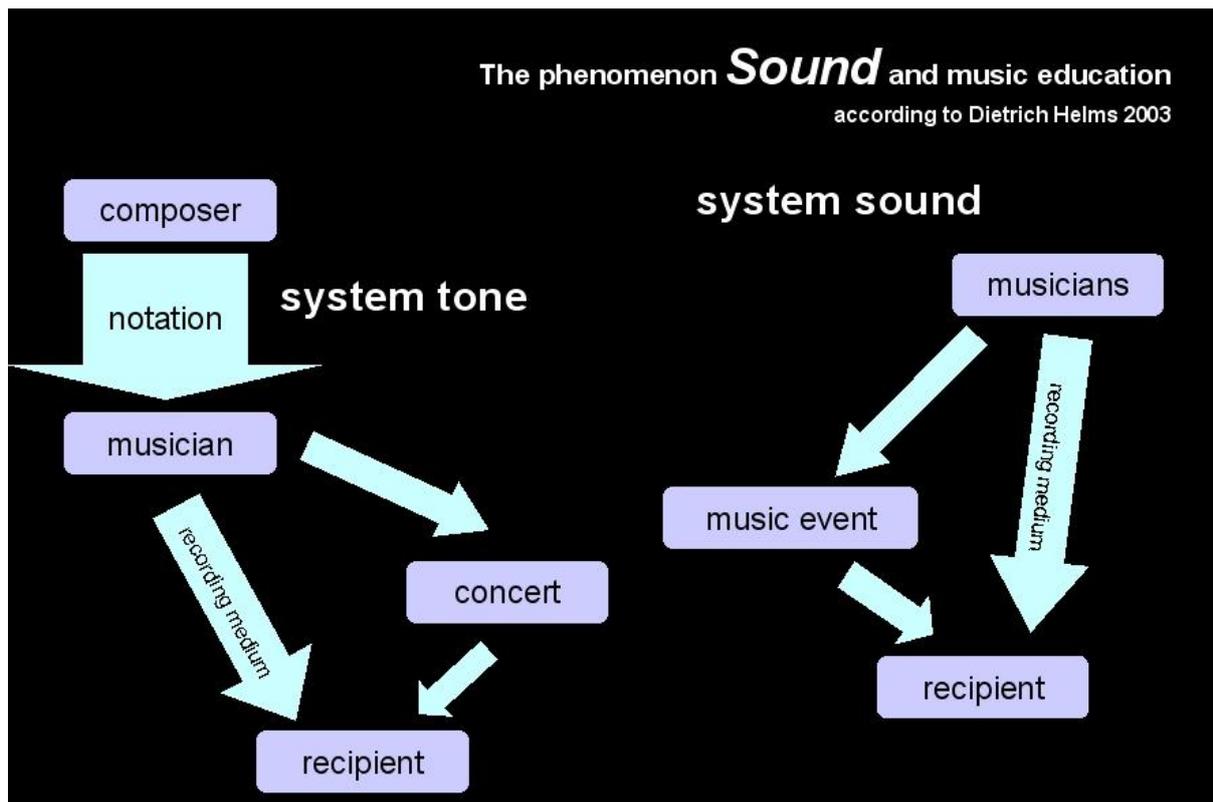


Figure 1 The complex matrix of relationships in the system tone compared with the system sound according to Helms in 2003

He refers here to the social relations of the psychical systems composer, musician, and listener.

In the system tone these depend on the message of the notation, which is transferred by the composer to the musicians, challenging their interpretation. This interpretation is perceived by the listeners and particularly discussed, commentated or discarded. The system tone experiences an objectifying, a provable, material shape projected into time and space.

The system sound exists at last only as a symbolic generalisation of perception and communication. The sound of a music group is not the characteristics of the band or of a recording medium, but of an observer and of the social system, in which he describes his observations. Only in a multiple exchange with other psychical systems

this symbolic generalisation can be stabilised and produces then certain auditive expectations.

Helms sees in the observation of the behaviour of musicians and listeners and the reciprocal orientation of behaviour a possible new method for the research on popular music, which focuses from the first moment on the interest in the meaning of a piece of music for the recipient and not in the expression of the opus (Helms 2003, 225).

Systemic terminology of description according to Niklas Luhmann, is a younger branch. Helms has applied the systemic terminology of description to the musicology recently and because of the short time, its effectiveness is still not discussed in the academic discourse .

My personal preference is for the concepts and terminological suggestions for descriptions of Jan and Aleida Assmann, oriented in cultural studies, to whom I have referenced in my postdoctoral thesis trying to develop an educational framework with this background.

A music education, which is oriented in an academic concept with a focus on the sound recipient and which develops contents and methods from this perspective, is still in the beginning. The music education in Germany has developed too much from the perspective of the opus and its objectified interpretation. And the picture of a music teacher is too much shaped by the role of an instrumental artist, who would have nearly become professional stage performer or historically from the role model of the cantor as an all-round genius, who composes beside his weekly church service huge ecclesiastic compositions, rehearses and performs them with a professional orchestra and has also to cover the unavoidable lectures in school. Here has to happen a professionalisation in the direction of a subject- and human-oriented and interested socio-cultural education, which preserves, opens and unfolds also for non profes-

sionals the joy and fun with music, even if they will never be able to read musical notation, that means, if they never will participate in the system tone.

That does not mean to give up the system tone completely, but the system sound has to be emancipated and insofar also the direct contact to music related mimetic fields – a step, which would equate the holistic bodily and sensual quality and effects of music, altogether the mimetic holistic experience with the reflective sequential one. This would be an emancipatory pretension with a focus on the human being.

Conclusion

The view on the variety of the perspectives concerning the phenomenon sound should be concluded with a statement of the famous cognition scientist Francisco Varela, who mentions that all sensory perceptions are not a kind of passive picture of the characteristics of the outside world, but a creative dimensioning of meaning on the basis of a life-story. The brain functions as a continuous creator of worlds in the process of viable stories of humans; the brain is an organ, which creates and constitutes worlds and is not a mirror of them (Varela 1993, 109).

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2. Parts of a broadcasting program of the BR/Bayerischer Rundfunk with the topic: Stations of Rockmusic, without year
3. Parts of the Responsorium „O clarissima mater“ originating from the CDs:
 - Schola der Benediktinerinnenabtei St. Hildegard: Hildegard-Liederbuch, Produktion des Klosters 1995
 - Sequentia: Hildegard von Bingen/Symphoniae. Deutsche Harmonia Mundi 1989
 - Estampie: Materia Mystica. Christophorus 1998
4. The observations on the sound examples of Sri Lankan drum groups refer to field recordings of the author (All-Island-Competition 2001 in Colombo/group of students) and to the CD *Frauen trommeln* as addition to the book of Redmond 1997
5. Web source:
Frank Grotelüschen in: <http://www.berlinonline.de/berliner-zeitung/archiv/.bin/dump.fcgi/2000/0802/wissenschaft/0003/>

¹ The situation discussed here is maybe a specific problem within the German language, where the excessive usage of Anglo-American loanwords or foreign words is regularly criticised in the public discussion and press. It would be interesting to compare these observations with the situation in other languages and cultures.

² The development of the so called occidental European musicology started at the end of the 19th century with the general development of the research into the so called “Geisteswissenschaften” (in English insufficiently expressed with “Humanities”). The inadequacy of the terminology delivers generally a small insight into the transfer problems of the academic system from an Anglo-American context to the historically grown context of the German speaking countries in Europe and can be seen as one indicator of the decline of some of the fields of music research at relevant institutions.

³ The original German texts were translated by the author as literally as possible. All thanks for native speaker assistance and proof reading to Michele Langston!