

solaris

communication with abstract material in music
by Klaus Janek, Berlin, April 2013

preface

Years ago I came across the novel Solaris written by the polish philosopher and scifi writer Stansislaw Lem. I consider it being a good book. It had the effect on me of triggering thoughts and generating questions and gave answers, but not too many, through phantasy and imagination.

I would like to give a short overview of the story:

it is about the ultimate inadequacy of communication between human and non-human species.

In probing and examining the oceanic surface of the planet Solaris from a hovering research station the human scientists are, in turn, being studied by the sentient planet itself, which probes for and examines the thoughts of the human beings who are analyzing it. Solaris has the ability to manifest their secret, guilty concerns in human form, for each scientist to personally confront.

What happened to me reading the book was that it directed my focus towards very general and basic topics in music:

there is a handful of basic forms of dealing with content:

- narration or program music;
- communication (between instruments, melodies ecc.);
- ambient music (Eno) / musique d'ameublement (Satie) / soundscape; and
- functional music. Music which evoces a certain effect. (dance, calmness, relaxation ecc)

In Solaris you can notice a blurry zone between communication, narration, soundscape and functionality. In trying to perceive and understand it, the main character, and also the reader, is constantly examining and with it, shifting between the four possibilities in order to detect the information stream. The one more possibility which Solaris displays in the novel is the manipulation of the subconscious which becomes a fifth element of setting or passing on information. For my opinion Solaris is an unique setting and creation of new possibility of designing arts.

At this point there is already so much named to agree or disagree on.

If I try to analyze the starting phrase

,communication with abstract material in music',

there is a lot to define, and in fact it took me time to go through it. The starting point would be to examine the word communication

communication

is a ping pong game between sending out and receiving information. It would be almost impossible to read all thoughts, books or theories in order to get empirical with the definition. I tried to research the topic till I was satisfied for my own purpose, but know there is loads more.

In music the fact of sending out information no matter if as composer, instrumentalist or in personal union is a discussed topic which leads into the question: is music a language or not? One of the first books I read starting the research period was Albrecht Wellmers „Versuch über Musik und Sprache“ where he examines in a very detailed way points of view, opinions and statements from musicians and musicologists. I would like to quote statements I found to be important for the subject:

John Cage postulates the fact that sound shouldn't talk, shouldn't say any thing, it should stay just for itself and should be listened just for what it is and not as a content vehicle for more or less hidden informations to discover.

Eduard Hanslicks during the 2nd half of the nineteens century defenses instrumental music as sounding moving forms (being) alone content and object of the music.

For Dieter Schnebel the music/sound should arrive to an absolute state of abstraction, in order to avoid any preset information or association to be triggered on. So music should be listened and should allow to be platform for creative activity in perception.

Th. W. Adornos opinion is that there should be a minimum of language similarity and meaning in music in order to not degenerate to a senseless kaleidoscope of sounds.

Ferneyhough talks about the minefield of music/language analogies, which precisely deals more about the question if music can be defined as a language or not.

Romanticism can be considered as one of the mainstreams for the appreciation of music as being a higher and honest form of language:

Victor Hugo reckons Music expresses that which cannot be put into words and that which cannot remain silent

For Wagner music is the language of the passion.

G.W.F. Hegel writes in his Vorlesungen über die Ästhetik III: Such music (instrumental music) also fulfills the aim of art by expressing the movements of the soul and moving the soul in turn to “emotions in sympathy with it”

H. H. Eggebrecht explains that the movement of Sturm und Drang uses music for expressing oneself, while the baroque era according to Johann Mattheson means music as a sound speech (Klangrede) to excite and satisfy the emotion, to move the soul, to agitate the heart.

For me, the result of researching and analyzing my own music output, gives me the feeling to send out information on many different levels. As a listener I am dragged into an information stream which includes the

aural sense

What we are sending out is a picture created by melody, harmony and rhythm as basic music elements and composed to a more or less familiar sound amalgama. The information interests us because of its more or less predictability and by creating and solving tension in a known or - and here we feel pleasure as receivers - unknown way. This is when the wow effect comes up. By writing this I notice that I switched into the 'receiving' part of the communication, but lets stay which sending.

We talked about the basic music elements, sent out. I would like to go deeper into music-information-sending in a more specific point of view: we are dealing constantly which **timbre**, what ever instruments we play, every instrument is creating timbre, which we can distinguish as different instruments being played: lets say the difference between recorder and guitar, the timbre of the recorder is airy and light and very close to the body because of the way the tone is created, by breathing out in a controlled way. The timbre of the acoustic guitar can be - in general is - kind of filigree and when you plug it gives a relatively short tone which more or less sustain in the tone length. Till here everything is known. By deciding to use the combination of a recorder and a guitar, the combination of the two timbres as information carrier, the carrier it self has a character on its own and also the information which is sent. Imagine the same music not played by recorder and guitar but by bass clarinet and organ. The timbre changes completely and which this also the information you are sending out. Now, in developing more and more the sensibility in sending out a clear and dense information structure, we (musicians, producers) use timbre as a main element of designing or intensifying information.

An other aural element of sending information is **space**. Here I consider not only the space in which the music happens, which again is carrying auditive information and therefore manipulating/intensifying music, but also the space inside music. We talk about the architecture in the relation between the melody and the harmony. As an example I would like you to imagine a 4 bars melody of the piccolo flute immersed in a Ligetian cloud of percussion. Or lets have a cello melody placed inside a texture of pp doublebass layers, a mf soprano accompanied by an entire orchestra playing a pp dissonant chord. It is about placing a leading melody inside the accompaniment or vice versa. In music it is all about tonal and sound relationships and the space it is creating. The leading voice depends on the terrain where it is placed, and for the terrain it is vital to be recognized and rated through the beauty and density of information of the leading voice. Trough foreground and background a space is created. And as I announced before, the aural space of the room or hall or even outside a building where music is sounding is subject of a great part of the general information.

sound aesthetic is an important carrier of information:

We live in a period where the music is influenced by technology. But not only in the means of computer versus acoustic instruments, but engineering of acoustic, electroacoustic and electronic instruments and instrument parts - lets say strings for violins. And sure the part of the reproduction of music for mediastorage, which becomes an art form on its own: producing an ‚album‘ is as format as closed and finished as creating a composition (on paper). The album goes even further because of exact reproduction of timbre without interpretation - an album always sounds the same. So, the important and still aural effect of technology can be the production of brilliant sounding strings or lets say drum skins. The more brilliant it gets the more musicians are confronted with the decisionmaking whether more or less brilliant is better or makes more sense. And they have to decide in base of which aural and artistic information they want the audience to receive. This is the one aspect of sound aesthetics but sure when we talk about storing sound events by recording concerts, or create music in the studio, sound aesthetics is a big parameter to be concerned to. A more personal approach on sound aesthetics was for me the desire and with this the challenge to create a production/live set consisting of an acoustic doublebass and a computer. It took me a couple of years to understand how to combine homogeneously acoustics and electronics in order to function into a same direction. Even sound informationwise it had to be created a clear voice and music instrument in order to densify the music information I am transmitting.

Lets go into the subject of aesthetics of recording: There are many different ways to record, and I would say the ‚normal‘ listener wouldn't be able to distinguish or analyze verbally. But ways and techniques of recording are major elements of perceiving music as good and coherent or not. There is communities of believer in digital technique as in analog technique. Digital means microphone signal goes into the interface which converts the analog, electromagnetic signal into digital signal and vice versa. The computer is used for editing, mastering and finalizing. In the analog world we have microphone mixing desk and tape machine, plus lots of specialized engines for improving the end result, like compressors, equalizers ecc. Just not to leave this unmentioned: there is a wide zone in between the two worlds, and all different kind of mixtures of engines and opinions.

A general and basic topic is music **style**. In the beginning of the last century there was still an amount of different styles which was not easy but possible to overview: there was the so called classical music, folkloristic music, ethnic music, jazz at some point Rock'n Roll and a few others. All of these different forms are auditive very clear to distinguish. Is it because of the instrumentation, the phrasing, compositional elements, like forms, tempo, measure, melody structure, dynamics. The package of „style“ contents a fairly amount of aural information, to be aware of and to be able to read and distinguish. The development of today is that there is a commonly sensed mainstream and an almost incontrollable variety of sub styles to general styles. But every jet so little style is able to be distinguished because of the informations it consists of. Lets just name the enormous amount of different styles in house/techno or in songwriting. The listeners ‚untrained‘ ear in effect is amazingly trained and specialized in order to distinguish, but we still call somebody trained in sight-reading as highly musical and an artist.

visual sense

I don't want to go too deep into aspects like packaging design, product design. I am more concerned about aesthetics of presentation, like behaviors on stage between performers and to audience, fashion, performance (in the true sense of the word).

Lets remember we are talking about information carriers, first in aural sense now in visual sense combined to aural. We distinguish

active and passive listening.

Active means that our perception is working to decode music events and bringing it to making sense by creating association chains. This is what we do perceiving, but we will talk about all this later. The passive listening is the situation when you listen to music while watching its visualisation. Best example: you listen/watch to a snoop (dog) lion video. What happens is that everything is given. Everything means: the individual ,making-sense'and creating-pictures creative engine. Your association and fantasy is not flying free and searching for images solicitated by the music, because the images are given and all there - no need to make effort and put energy in decoding and associating, the music information is visually under control. No alternative or maybe contradicting informations around. The visual and the aural informations are put in place and positioned, if well planned and executed, exactly where the artist or producer wants it.

An other carrier of information is the performance **behavior** towards the audience and the colleagues on stage. I make a few examples: the Berlin singer-songwriter-folk band 17 Hippies embody the image of friends who just met occasionally for a spontaneous session. The orchestra world often seem very distinguished, with a certain stiffness. German 60ies Improvised music ensembles „acted“ amongst them as rough left wing working class members. In American Jazz it was and is important to be cool, no expressed enthusiasm.

An aspect to consider is the **presentation** of the work itself: I can think of different ways of presentations working as medium. The first which comes to my mind is the polarity in the presentation of Pink Floyds live concert, lets say kind of opulent and full of colors, synesthetic input for the audience together with lights and video and laser show, full of richness, versus the presentation of a piece of electroacoustic composition at the ,box', Podewil, Berlin. The artist, which name I wasn't able to find out, recorded the piece in the empty space, and presented it the next day by hitting the play button of a CD player placed in the middle of the stage. Again this is just two very extreme examples for how a presentation could be done.

receiving information

is as important as sending. It is the twin relation in communication functioning for transmission and sensing. The perception is commonly considered as a passive activity. Many experts in the subject are completely of an opposed opinion. Like Alva Noe writes in his book „action in perception“: Perception is not something that happen to us, or in us, it is something we do“. And I think even further that we as receptors create a surface of understanding and preparation to informations we are going to perceive. In a way we create the terrain, almost the soil on which the semen which we allow to land on, starts to grow. And it it growing and creates a whole biotope in our brains. This might sound detached from reality and visionary. I would like to confront you with a statement Stockhausen did during a lecture given at the Oxford University on May 6th 1972.

New means change the method. New methods change the experience and new experiences change man, in particular in the field of music because the sound waves penetrate very deep into the molecular and atomic layers of ourselves.

Whenever we hear sounds, we are changed, we are no longer the same after having heard certain sounds, and this is more the case when we hear organized sound, organized by another human being - music.

This statement gives an imagination how the process could function:

we receive (in this case an aural art product)

we rate and evaluate. Do I like it or not. If yes: why, if no: why. I have to pass the recommendation on, which a friend of mine being a wine expert gave me, years and years ago. When you drink wine, write about it and the experience you had by drinking it. It has the result, that you build up sensibility on your tongue, you build a vocabulary of description and you develop a precise taste what you like and what you don't and why. Same mechanism is happening when you rate any kind of arts. And it does build up sensibility, taste and vocabulary to verbalize.

we select more specific the terrain we are interested in. With this we build up more and more precise fields of interests, in which we become more and more experts in, and immerse our selfs. The more we know, the more complex, fulfilling and deep the reception and transformation can work, and finally the more we search for this experience.

we become mature and responsible

recipients, who are able to communicate very precisely why or why not. At this point we are in no need to follow critics or general opinions, which tells us what is good and what is not good. We can trust our own perception, rating and opinion and we can go on the hunt of artistic expression and discover unknown or at least not majorly advertised creatives. One example, it is a truism that Mozart was a genius. We know the melodies, where they go, how they develop but there is so much more good music to discover out there besides Mozart.

To step back a moment, we talked about the fact that receiving is as important as transmitting. Transmission without reception is senseless. The transmitted information comes to reality only if it is received and perceived. You don't have to rate the information, good, bad, needed, not needed, important, obsolete, is not what I am talking about. It is literally about the nature of reception.

As musician you can play the best possible and ever created music. If nobody is listening to it nobody can rate it as such. Although as a musician we function in wired double and more function. We are sending, we are receiving, and our sending is influenced by the information we self sent. By so doing we manipulate our selves. I will talk about this later.

So: the information is sent. Who sent the information has an opinion towards what he sent. In arts context it is information generated from

- accumulated art knowledge,
- self conception about the being-an-artist (politic, social, environmental, aesthetic)
- the specific piece of art itself (aesthetic, conceptional, intuitive, composed),
- the state of the process of the overall development of the artist and
- the self manipulation of the artist during the process of creation. Basically the bubble which the artist created for him self to be in.

This all gives the artist the secureness, that what he sent out is arts. Now the existence of an art piece has its base on the conviction not only by the artist, but also by the spectator that: the art piece is an art piece. Conviction is generated by trust and believe but also by critics or strong credibility because of biographical facts (good universities, exhibitions or concerts in 'important' places ecc) and by presence, aura of the artist him/herself. But still: the artist has to believe, what he sent out is artistic information, he has to be convincing to who presents it (producer, curator), and the audience has to define it as piece of art. If one of the chain is not believing, the whole concept of communication collapses. In order to amplify the sense of believe in arts, we learned from historical „believe amplifiers“ like churches, who established:

big buildings, procedures precisely staged and orchestrated, hierarchies expressed through dress, tradition, (aged) mystical books and recognizability through use of logo (a good example is the cross). This all is guiding and leading us towards trust and believe. A very similar important example is money: look at bank buildings or money bills or coins. They all are designed to implicate importance and trust and control, but try to imagine if nobody would believe in this system anymore. It would collapse as it did in Argentina between 1998 and 2002. Ok, now a similar situation happens with art: if we claim an abstract sound or noise to be an artistic expression we as senders have to be sure, as above described and the receivers have to trust that what they hear is arts. In order to „convince“ them, the market set up many different strategies of amplifying:

buildings of presentation

are always an important issue: Guggenheim (both buildings), Neue National Galerie, Berlin, Carnegie Hall, NYC, opera houses almost in general. Every city has arts palaces where you enter and a mechanism of elevated levels of presentation matching with the feeling of personal inferiority of the single spectator creates a mind setting, that whatever you are confronted with is undoubtedly arts and you shouldn't mistrust.

information stream about artists is a good vehicle to create interest and believe: it starts from pictures and images of the artist, into more biographical facts, package (products, websites ecc).

artistic output: an other source of credibility seems to be the quantity of output of the artist, between reality and sometimes in order to increase trust, fiction, including tales of the amount of work which is done by the artist. We are at this specific moment not talking about the quality inside the amount but really the mass: a visual artist having painted an inhuman amount of paintings, a musician which rehearses 15 hours a day. Another thing which I find sweet and amusing is the use of claiming the artists

famous or even world famous - which is a nonsense and works in general with very little artist. The adjective anticipates the possibility of a almost objective common sense of culture rating, which is not at all the case. I think we all should be happy about it, the world would get less and less interesting if we all agree to one thing. I read this article in the „Zeit“ when Michael Jackson died, that he probably was the last world famous artist, where big parts of the „world“ would agree on his being world famous. Anyway, at this point I dare to put a personal annotation: if we would be more in the condition of mature selectors and receptors we wouldn't need the tales to recognize good from less good work.

recognizability: is an important factor. The development of such individual vocabulary, that you can distinguish it from other work, creates an effect on the spectator which Leonard B. Meyer postulates in his book ‚Emotion and meaning in music‘: expectation and resolution. I detect certain styles and work methods adopted and associate it to this artist, composer ecc, and I am right. This creates the effect of familiarity to the work and victory because of the ear/eye and expertise of recognizing.

virtuosity: distinguishes the „artist“ from the non artist. As a spectator you are confronted with an ability you may never achieve: a dancer executing Pirouettes, the Flight of the Bumblebee by Rimsky-Korsakov played on a tuba and many other things, studied, rehearsed and elaborated in many hours of trainings and with specific movement or other donations and talents. I notice every now and then, that virtuosity is commonly considered as arts, and that a good virtuoso gets automatically a recognition as being an artist. Virtuosity builds trust in the work but doesn't necessarily have to do with an art product. Although lots of art products request virtuosity. But it is two separate things.

speech/intelligence: a big ‚trust and believe‘ factor comes when listening to the artist talking about his work or about general topics.

If the artist seems smart, clever, and entertains on a high level being humorous, engaging and charming, or in all means convincing, automatically his arts creation gets out the benefit being noticed as to consider. Try to imagine Josef Beuys' work with out considering his intellectual and verbal abilities, same with John Cage, K H Stockhausen, Damien Hirst, Marina Abramovic and many others. The art pieces becomes an art pieces only if the recipient perceives it as pieces of art.

All in all, the creative act is not performed by the artist alone; the spectator brings the work in contact with the external world by deciphering and interpreting its inner qualifications and thus adds his contribution to the creative act.

Marcel Duchamp, Houston 1957

We are dealing with the subject ,communication‘:

- sending artistic content from the point of view of the artist
- what is the artistic content
- trust and believe in the art piece being an piece of art.

Now I would like to talk about the

perception of aural art

before I was mentioning the various factors of creating an artsunderstanding in perceiving, rating, choosing and deepening arts, almost as a gardener preparing the soil for the semen. The existence of the soil and the quality and character of it is as important as the existence of the semen itself and of the fact that the semen is provided by someone. In arts the soils equivalent could be the preparation in as above described perceiving, rating, choosing and deepening. The creation of an neurological arts department. The semen is the equivalent of the art input, created by artistic content. From here now I want to go into a more specific acoustic material processing of aural events. I would like to postulate the existence of a neurological

acoustic decoding engine. When we are dealing with aural events, there is a multilayered activity of organizing and sorting the incoming information according to what is preset in our brains. For giving a picture of how the acoustic event is sorted forehand, I will quote a chapter from Philip Balls book „music instinct“:

As soon as the primary auditory cortex receives a musical signal, our „primitive“ subcortical brain kicks in at once: the cerebellum's timing circuits fire up to pick out the puls and rhythm, and the thalamus takes a „quick look“ at the signal, apparently to check for danger signals that require any immediate action before more complex processing occurs. The thalamus then communicates with the amygdala to produce an emotional response - which, if danger is detected, might be fear. Only after this primeval scan to warn of hazards does the detailed dissection of the sound signal begin. We call on the hippocampus to supply memories, both of the immediate past course of the music and the more distant associations and similarities it evokes. The prefrontal cortex does some sophisticated work on anticipation and expectation, while Broca's area itself, associated as I say with language processing, seems to be enlisted to deal with high-level „syntactic“ aspects of the music. A performer might require the visual cortex to read music and to watch the conductor or colleagues, while the sensory cortex enables them to feel the insures beneath their fingertips. And our rhythm-processing circuits seem to fire up motor functions not only to produce rhythm but also as part of simply hearing it - which might go a long way to explaining why it is hard to sit still when listening to James Brown. (...) The brain's initial aim is to identify the basic acoustic building blocks, such as fundamental pitch, frequencies and harmonics, note durations, and loudness. These must then be separated out into individual instruments or melodies. The result are then compared with stored musical memories and experience - for example, our implicit and explicit knowledge of harmonic relationships and cadences, of genre and style. Typically this emerging musical landscape is informed by information from other cognitive domains, for example if we are listening to lyrics with semantic content. At the same time, each of these aspects of analysis and synthesis is engaging our emotions, and eventually the emotional, associative and syntactic information is combined to stimulate some kind for behavioral response: we are aroused, soothed, moved, annoyed. (Ph. Ball, „music instinct“ page 244/245, vintage books)

To go into the subject of

physiological sound processing

in a more detailed way: the acoustic event enters the ear and finally the Cochlea. The Basilar membrane based in there, transforms frequencies into nerve signals, basically sound into electrical signals, like a microphone. Different parts of the Cochlea are sensitive to different frequencies. So the outside, or lets say „entrance“ of the snail house formed Cochlea is the high frequency sensitive starting at around 20 kHz and the more we go into the inner part of the snailhouse the sensibility goes towards low frequencies. The different parts of the Basilar membrane have a one to one mapping of neurons in the primary auditory cortex. So if one frequency sounds, a very specific part of the brain works.

As we learned above the first sortation is the check if the sound anticipates danger or not. As next step following parameters will be extracted: pitch, color of the tone, timbre, intensity and roughness. This happens in between 12 and 100 milliseconds after the impact of the sound. The fascination is how quick the system analyzes and recognizes. It is fascinating but also fundamental, because survival. In many situation the quick analysis of the sound can save you for accidents or any danger coming up in general. With this step now the decoding engine starts to get into action: after the section of pitch, color, timbre, intensity and roughness, the system mirrors the auditorial and sensorial memory (100 - 200 ms), at the next stage the melodic and rhythmical shaping is checked, next is the interval analysis and the structural formation, then there is a structural reanalysis (600 - 900 ms), after this there are two more stages: the vitalisation which means the associating process and strange enough at last stage the immune system. All this is accompanied by the search of meaning and the emotion (250 - 550ms). And this is also where a musical understanding happens. My theory is that there is a learning and setting mode from earliest childhood on: music psychologist Carol Krumhansl found out that by age five or six without any musical training, children are able to deduce a tonal center from just a few moments of listening to a piece of music, by age 7 they can detect a key change, means a harmonic or melodic modulation to an other tonal center. The psychologists Laurel Trainor and Sandra Trehub found out that children by age 5 are generally able to distinguish tones inside the harmonic structure and outside of it. So, what happens is, that we build up structural knowledge of music, probably learned by singing or at least listening to very simply harmonic and melodic structured children song, which mostly deal with very clear intervals and therefore with a simplified music syntax. I would go as far as to compare it with the building up of the language in the five steps of: phoneme - creating the sound, morpheme - semantic development, expressing significance, Syntax - learning rules of combination of words, and pragmatics - learning the use of the language (Sprache, Siegler, R., DeLoache, J., & Eisenberg, N. (2005). *Entwicklungspsychologie des Kindes- und Jugendalters* (S.295 - 328). Heidelberg: Spektrum Akad. Verlag.)

I believe that there is a similar process in the recognition of music meaning, although not so much is known and researched in the field. So, we learn music syntax and semantics almost intuitively. Before entering the subject, it is important to know that the content, rules and understanding are depending heavily on the music history and culture one is living in. As we know for example, Indian classical music has a completely different history, practice and naturally also reception as Western music. In our cultural region we receive music content distinguishing interval hierarchies. Most of the children songs and also folkloristic, ethnic music is based on a pentatonic scale (5 tone scale) formed by the first step, the second, the third, the fifth, the sixth and the eighth (which is not anymore included because is the first note of the next higher scale but important for us because of its „meaning“).

music syntax

deals with the structure of the path the intervals are taking. As a very simple example we can try out the path from the first to the third step by taking the second step as transitory. So, we start from the first tone, which becomes our tonal center. With this a basic part is put into effect. We know, because we learned and set it culturally, the hierarchical relationships of the intervals. The strongest relationships measured is the eighth step, the next is the fifth which in the first polyphony was considered the only existing consonant step. The third step is very often a ‚meaning‘ carrier, for example the ‚blue note‘ which shifts from major to minor. Western ‚ethnic‘ music, blues, tango, polka, flamenco, fado, tarantella, sirtaki, celtic, waltz, and others are still pretty much based on pentatonic and as a syntax on the leading function of the major scale. Music theorists Fred Lerdahl and Ray Jackendoff created a system called ‚generative theory of tonal music‘ (GTTM) which analyzes and displays the structure of a piece as a tree structure with the main and side branches. So getting into the example of before, my leading plot of the melody is first step, third and lets add the fifth step, I jump from first to third to fifth, so I would have main branches on first (starting point) and fifth (arriving point), having used the third as side branch (transitory). If I use on the same path the second and the fourth as transitory, automatically the third gains an almost main branch status, or at least a hierarchical higher meaning as the transitory positions, or side branches. All this is a knowledge which everyone in the cultural region we are talking about, has achieved, most of the musical non trained people, unconsciously. But it is there. And in fact, simply listening to music, relaxing, for our brains it is not relaxation at all: it is an incredible work of sorting, analyzing, putting in place, mirroring, searching through the music memory. Just the detection of the tonal center and the measures lays out the basic for understanding harmonic, melodic and rhythmic relations, tensions, solutions, terminations and plot. But this is just one element of recognition. The others are the recognition of timbre in instrument detection. Rhythmical reading: as a basics for understanding you need to detect the first count of the bar in order to understand rhythm. Also here there is different hierarchies. Lets say marching music with the heavy count on one and three (by a measure of 4), swing with the heavy parts on two and four and so on. Starting from the music syntax, we already got through this chapter in some semantic fields.

music semantic

deals a lot with the fine tuned meaning. It is about shaping the tonal relations and shaping the timbre of the orchestration, painting images with sounds by creating not only tonal but also timbric hierarchy. Important is the creation of a multi leveled stimulus of music decoding of melody. I would like to compare it with cooking, when creating an ‚intelligente pleasure‘ to the tongue. How does this happen: the tongue’s surface is sensitive to different tastes on different parts. The tip of the tongue is sweet, the bigger part of the tip is salt sensitive, lateral left and right is sour and the end of the tongue is bitter sensitive. By preparing food, you carefully choose which part you want to satisfy, and which part not. So you create a differing stimulus on preferable each meal. This happens with smart composed melodies and probably in general in music similar. For example music/melody shaping, I would like to talk about an experience I made: Years ago I was commissioned to compose an opera. For me it was an amazing to experience, how precise you can psychologically draw a character of a given text and in consequence of the singing role by music composition: if the text displays the transition of the role from one status to another, with music you shape it. Is the transition fast, the character could be instable, fast changing moods, hysterical, impulsive. Shape the instability by putting the melody line on extremes, jumping between high and low register. Fast changing moods, maybe change registers - let develop the register before changing it in order to display the mood before changing it to another. Hysterical, put octave or more distant intervals randomly in the melody line and so on. Jumping a moment back to the comparison of food and music, one difference is that on the tongue, because it is relatively simple, we know exactly, where and which sensitive spots have to be amused, because it is a physiological fact with a scientific proof. With music recognition it is very different. There is a relatively short history of physical researching of the music and sound recognition. Since not too long ago we focused our ability to hear exclusively on the ear. But lots of other parts and elements of our body hear: bones, skin, skull. And we still not entirely know how the music meaning decoding works. We know that the whole brain is working, when listening to music. We have specific areas for specific skills. But the brain is entirely working when listening to music. We know there is, like mentioned above, skills we learn until a certain age, tonal center, metric, groove recognition and others, but the rest is the knowledge that we develop feelings, emotions and phantasies while exposed to music and we know that listening to music makes some kind of sense and it provides us multilayered pleasures.

But what is it that evokes the pleasures: association - the ‚darling, they are playing our tune‘ effect. You hear a song and a whole scenography and story build by images in combination with feelings, maybe smells plays your cognition. The effect of recognition - „ah I know the song“ and singing it a long. The effect of being intrigued by the song in general, because it falls into a category or fulfills parameters we previously defined as good, what ever the definition good means for us.

John Sloboda and Patrik Justlin point out: *The interplay of tension, release, surprise, and confirmation does not amount yet to a full-blown emotion. It is better characterized as proto-emotion.* From there the brain adds „own“ emotions, feelings, in general content and it becomes then an entire picture. According to Leonard B. Meyer, music semantics are mainly about creating expectations and their violations and finally solutions. I have to admit when I was introduced to this theory I deeply couldn't believe that it is just about this and not so much else. It seems way too simple to base all music understanding on creating an expectation, according to what we preset in our music understanding, as explained above (tonality, rhythm ecc) and play with the violation and the resolution in a more or less intelligent way. But in fact it is a big field of action. His theory was published in 1956, since then the perception of music changed as the music production changed, as artistic expression changed. Now I would like to go into the subject of

abstract music

First of all we have to define the term of abstraction. I created in the first period of research a questionnaire about different aspects in between also the personal definition of the term abstraction. I send the questionnaire out to friend, family and colleagues. I found out that although almost everybody, at least in arts, talks about abstraction, not many had a definition ready. Maybe a parallel to music decoding, which everybody does and nobody really knows how it works. What came out was that some colleagues artists didn't want to talk about, maybe because it would touch the core of arts making, and others just took the vocabulary and send me the definition of abstraction being ‚generalization‘. An example: The abstraction of a VW Golf would be a VW car, and from a VW car in general a car. I was unhappy with this definition, I admit. I didn't feel that this is the definition I am talking about when I use the term. So at some point I found the Immanuel Kant definition which then matched: abstraction is to not show IT, but the possibility of existence of IT. Probably it is a very dialectic interpretation of Kants theories, never the less, I have the feeling that this definition matched with the use of the term.

Talking of ‚abstract‘ music is complicated and controversial discussed. As Albrecht Wellmer in his book: Versuch über ‚Musik und Sprache‘, finds out, music in general can't be defined as language because its function is a non immediate, it has no ‚please pass me the sugar‘ communication, and music itself is abstract. So how can somebody speak about the existence of abstract music?

My observations in the topic go around the fact, that there is a kind of „figurative“ use of music making and approaching audience: it is about music forms which deal with tonality in contrast to atonality. Tradition based music forms, where all characteristics we talked about before are ruling: tonal center, relation between tones, intervals, a regular and repetitive rhythm, composition forms like songwriting, dance suites, classical concert forms ecc.

It seems to include everything, but there is else for my reception. „Abstract“ music for me defines all vocabulary and composition forms which deal with atonality and non tonality (fieldrecording, noise) in material and deal with new composition techniques. The phenomena Zeitgeist made our ancestors searching for and trying to expand the material and concepts towards a new music-making and reception. We talk about Serialism, music concrete, stochastic music, chance operation in composition, noise music, the use of fieldrecordings as music material and others.

Here now starts a chapter of assumptions, observations and studies of the

reception of abstract music.

We have knowledge on the reception, putting in place and mirroring of tonal material as I mentioned above. Again the attributes of rhythm and tonality detection, the mirroring in the memory, and the making-sense ‚function‘. We talked about Leonard B. Meyers theory of creating tension, release, surprise and confirmation, by encoding music you hear for the first time. Now all this is based on tonality and traditional composition forms. What happens if there is no melody, rhythm or harmony? What happens if we are confronted with just sound?

I start with my own story and development towards: because of an eye and therefore sight problem I was forced into trusting my ears more than my eyes. Said this unconsciously I was more and more drawn into improvising, which I did a lot by playing along my fathers records with the guitar, flute, trumpet and drums. Score reading had to be done in order to fulfill the needs of the music education but didn't feel like being a pleasure. At teenage years I started to compose and was mostly interested in the timbric development of long tones, being crossfaded in a long time span between different instruments and other sound development situations. After this - I felt never proud of scores but of sound results - I started to believe more and more in the instant music making and excluded the possibility of reproduction or interpretation of music. The building up of vocabulary and composition tools was what interested me most and without deciding it, I was drawn more and more into non tonal fields of music. So first, instant composed concerts happen, for sure ingenious but energetic and happy, and I tapped into traps which you can find: running out of energy during the concert way before it finished; processing „tricks and gimmicks“ of playing techniques on the doublebass and forgetting about music content; celebrating physical virtuosity; and last but not least I very often overwhelmed the audience.

I could study on the behavior and feedback of the audience the reception. What I found out was, if the audience „allows“ the brain to process, then sounds, noise, hums and so one become music. When I say ‚allow‘ I mean: if the brain is occupied by other processing work, like worries, fear, anger, love or own brought-in thoughts, no music processing will happening and sooner or later a feeling of stress and being bothered will rise. In the other case the brain starts this extreme work of pathfinding through the acoustic events in order to finally discover the musicality. It takes around 5 to 7 minutes to be aware of musical expression, after this time it starts to make sense. It helps if there is a minimum of soil, as I said at the beginning, prepared, but it is not absolutely needed, also a pure interest awoken by any kind of facts can make the effect: beauty, aura, strangeness of the performer/s, the instrumental setting or the observation of the playing, the space setting, lights, or maybe having read about the event, or often being introduced to someone you trust. My initiation and almost awakening event happened listening to composers like Peter Kowald, Gyorgy Ligeti, Bach later on Satie. I remember being present at a solo concert by Kowald and finding myself exposed to an almost disturbing and creepy soundscape acoustically produced by the doublebass and its player. I remember the feeling of slowly discovering the musicality inside the sound, almost as if you lost something very small in the sandbox and you slowly start to remember in which part you could have possibly lost it and you come closer and finally you find it. Similar experiences with the other listed composers and many many more works.

Coming back to the topic of reception of abstraction in music and the sense-making I am sure the detection of music elements is much more developed as we can scientifically display or proof. It is a matter of fact, that more and more conventional music producers/composer put into structures and vocabulary abstract material in order to spice up the production. With this the effect comes up, that the „mainstream“ oriented listener more and more gets used to an expanded vocabulary and without knowing it gets the soil prepared for less mainstream listening and discovery.

A big issue in our listening is the existence and function of the

Gestalt Principles:

The principle of similarity

The principle of good continuation

The principle of common fate.

I would like to go to the effect it does in decoding sound and music. First of all the Gestalt is a part of what I mentioned before, sound sorting, processing and it is definitive functioning towards „making sense“ by assembling or grouping similar sounds to one pattern, creating melodically path by giving attention to the hierarchical important elements and less to the less important transitory tones.

At the end you form melody by adding important to important tones assuming the transitory tones. And putting different awareness on a sum of sound as on an ‚exposed‘ sound element. This all is important for the survival strategy of humans: you have to detect the sense of a sound as fast as possible to be able to react on it.

Lets put it the way, that the music sense making is a pleasurable and nice side effect of this acoustic survival skill. The effect it has is the effect John Cage was much aware of and sensibilizing his audience for: associative listening. When you hear a car passing by, you in fact here a car passing by, if you are good even the model, but you are not listening to the frequencies behavior itself. Basically you hear the car passing by and at the same time you don‘t really ‚hear‘ the sound. The famous story of the interviewer being in Cages place asking him, why there is no music player and with this no music in the apartment and Cage simply opens the windows facing to 6th Ave, NYC.

abstract sound recognition:

as the need of expression of a certain Zeitgeist develops, the vocabulary expands, and as the distribution of abstract music becomes wider, also the „making sense“ decoding process develops its skills. When we just remember that Gustav Mahlers followers would get into physical fights in order to defend the artistic quality of the work, including the 7th interval which their adversaries would consider dissonant and therefore bad. Nowadays the 7th is as common as fifth or third and integrated in the basic and conventional tonal vocabulary. I experience in the reception of abstract music a freedom of associating it, which means it gives me as audience the freedom to associate and experience it new to create new meaning, and in order to do so to become active. As I mentioned before the processing music and developing in the reception to „make sense“ is anyway an active process, so the more the process is benefitted by the music production, the more fulfilling is the listening process in it whole complexity. Basically the more abstract it gets, the more platform of association it becomes. But now the question is, if we even need a platform to associate? Maybe just a trafficked street could be music. And this is where we close the circle who started at the Cage quotation. In theory a however provoked sound experience can become a listening pleasure by itself.

The important is the awareness and - here the artist comes in the game - there has to be an artistic framing, perceiving the Zeitgeist giving it back to the people. In creating a context of questions the audience is stimulated by grabbing the artwork which plays with awareness and perception. Also for the same goal the artwork is soliciting questions. Probably the artist goal is to make the life better - very idealistic speaking. Now the question is

why do artist choose abstraction for communication?

Adopting Kants definition of abstraction you can act way more precisely displaying the possibility of it and not „it“ itself. When displaying the possibility of „it“ I have the freedom of using the grey tones in between black and white, the shadows, I don't have the necessity to draw „it“ as „it“ is, but can show „it“ by stimulating the fantasy and amplifying the actual active process of perception. And with this, „it“ becomes way more blurry in the sense of: I as the producer of the aural art pieces give much less figurative clearness, so I don't predefine what the audience has to image. The blurriness consists in the situation, that with abstract music more people after having attended the same concert can have extremely differing images and feelings about it. But my, the performers, product is way more precise, because of the multilayered and detailed information I have to send out in order to stimulate.

Going deeper into **instant composition** as one possible concept of new composition methods from the point of view of the producer of music results: The instant composition is a method which comes originally from improvisation and still ,is' considered to be another definition of improvisation. For me, and probably I speak for others as well, the difference is, that improvisation lead towards clearing the mind and doing what you've never did before, kind of a Zen approach. The instant composition deals definitive with the topic of composition. Composition derives from Latin *compositio* „a putting together, connecting, arranging, (Src: <http://www.etymonline.com/index.php?term=composition>), so it means the putting together, arranging of something. In music terminology and traditional use we intend the activity of the composer sitting equipped with pencil and paper on a piano writing notes on lines. I/we in instant composition give the main focus on the sound result - which every composer would declare of doing the same, and probably does. What we are interested in is the practice of creating arts in the moment, like the painter who works with his tools being in the condition or flow of creation. In order to succeed and be able to create instantaneous a piece of art, a huge practice in dealing with artistic vocabulary and intuition is needed. The artistic vocabulary is formed pieces by piece throughout detection of material then adopting it, developing it in terms of information carrier, testing it and finally objectifying it. Finally you have to rehearse, if you are artist and instrumentalist in personal union, because as instrumentalist you have to be able to fulfill what the artist „you“ demands from the instrumentalist „you“.

The next important step consists in achieving knowledge about composition techniques and, or developing own techniques. So the question is how do I compose the elements of the vocabulary.

Then being an artist consist in generating artistic framing and content, which then you express instantaneously by using the vocabulary and composition techniques.

At last the artist has to develop a subjective ear while working artistically.

So this is the complexity but also fascination of the technique of instant composition.

But I would like to get a bit further: I was mentioning

artistic intuition

as a major ability for instant composition, but any kind of arts production: the intuition is the one skill or ability, which makes you inside the process taking the right - or in examples of „bad“ concerts, wrong decisions. Although even decision is not really the right description. If you are in a instant composing situation, I consider it as being the best situation, when one idea develops to its destination and from there automatically the next idea or topic just hooks up and connects. So you even don't think about having to go left or right, but you are in the continuum. How can you build up this skill? My image of intuition is that intuition has kind of a container where it is fed out from. The containers content consists in a variety of informations, opinions, feelings and point of views, artistic, political, aesthetic, social, ambiental and other topics. All the information in the container is selected material. And with the ingredient of artistic intuition, vocabulary and personalized composition techniques you instantaneously compose and achieve a best possible clearness and density.

For me there is more important mechanism which function in the instant creation of arts. It is Husserl and Merlo Pontis phenomenology. I am not able to go completely into the subject but would like to make a short notice about my vision how it infects instant arts production: When you are in art production, you self are influencing your own production by what you created and is surrounding you. And what surrounds you is created by your self in combination with your colleagues who you are working with, by the audience who has an enactive effect on you because of her being in space and influencing the happening energetically, and the space you are in. Also the moment of the decision, or better activity and its latency of realization has a phenomenological impact. I see it parallel to Einsteins experience by watching the clock tower from distance and noticing the minute index needle moving on. He recognizes that the time, the light needs to send the information of the moving index needle to his eye, eventually exists as an entity. So I consider the latency of planning intuitively and doing, as an inbetween time span which influences the perception and awareness. I want to leave this topic just like this, more as an observation and as an idea.

I would like to finish here. As a kind of

conclusion

I would like to quote a few important thoughts:

The first to quote is an email which the producer and composer Cristian Vogel send me after a long talk about art perception:

To quote Nora Bateson on art as an integrated way of knowing...

,The way we think has everything to do with the way we perceive. While our logical, rational frames of reference can only see small pieces of the larger patterns of our world, art provides leverage in our powers of perception by stretching us into new territories of knowing. There are levels of communication that only art can reach.'

All music is encoded with symbolic knowledge, which is kind of different to what I understand as „meaning“.

We have an important task as composers... Can music help us to see a bigger picture of our world?

Aldous Huxley said, ,The central problem for humanity is the quest for grace.'

In a portrait movie on Gerhard Richter he was asked by the interviewer what he think while being in an art process. He answers painting is an other form of thinking. Expanding this statement to auditive arts, I find this totally applicable to the process of creating in aural arts.

John Cage refers in an interview done in 1991 to the fact that he doesn't need sound to talk or transmit any kind of deeper information. He says that he is completely satisfied by the variation a sound can provide on its own. He doesn't need the sound to be talking.

What I found out in this period of researching and questioning musical content and its processing towards sense-making, is a variety of details about transmitting and receiving, abstraction and methods of composition, but mainly, music being a language on its own. Music communicates in an other way, then language does. It reaches other stimuli and transmits other information then other communication channels does. You don't need music to be able to tell what anyway you can say verbally.

Analyzing music and trying to verbalize it, is a process which will never succeed fully because music and sound and art in general touches so many more and different levels and layers, as the consciously controlled ones, that I am very much tempted and willing to stick with Andrew Wellmers theory, of music not responding to the requirement of a language in precisely naming lets say a table musically as table. About a certain part of the music producing and processing we know, but a big part is, as Nora Bateson explains, not controllable. And frankly it is good like it is.

As I mentioned at the beginning, the research consisted in talking with colleagues, observation results achieved during the period, evaluating observations I did in the past and reading books. The input the books gave me brought me to a closer and more detailed knowledge of different aspects in music. For this I would like to include in this paper the

booklist,

and thank the authors for their enormous work and wonderful inspirations:

- Versuch über Musik und Sprache, Albrecht Wellmer, Carl Hanser Verlag, 2009
- Semantics, Thomas Mießgang, Wolke Verlag, 1991
- Semantics II, Thomas Mießgang, Triton Verlag, 2002
- Elektroakustische Musik und Computermusik, Martin Supper. Wissenschaftliche Buchgesellschaft, 1997
- Unbound Sound, Paul D. Miller, The MIT Press, 2008
- Musikpsychologie, das neue Handbuch, H. Bruhn, R. Kopiez, A. Lehmann, Rohwolt Taschenbuch Verlag, 2008
- Emotion and meaning in music, Leonard B. Meyer, University of Chicago Press, 1956
- John Cage im Gespräch, Richard Kostelanetz, DuMont Buchverlag, 1989
- Lost and Sound, Tobias Rapp, Suhrkamp Taschenbuch, 2009
- Träumen Sie in Farbe? György Ligeti im Gespräch mit E. Roelcke, Paul Zolany Verlag, 2003
- Soundcultures, M. Kleiner, A. Szepanski, Suhrkamp Verlag, 2003
- Klangliche Milieus, Marcus Maeder, transcript Verlag, 2010
- Netzmusik, Golo Föllmer, Wolke Verlag, 2005
- Ocean of Sound, David Toop, Hannibal Verlag, 1997
- Radio Happenings M. Feldmann, J. Cage, Musik Texte Edition, 1993
- Die Ordnung der Känge, Andi Schoon, transcript Verlag, 2006
- Music, Language and the Brain, Adiruddh D. Patel, Oxford University Press, 2008
- Arcana, John Zorn, Granary Books, 2000
- Bernhard Leitner, Museum für Gegenwart, 2008
- Improvisation, Derek Bailey, Da Capo Press, 1992

and with a big recommendation

- The music instinct, Philip Ball, Vintage Books, 2010

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