

‘DIRTY LIGHT’: APPROACHING LIGHTING IN AUDIO-VISUAL CONTEXTS BEYOND ITS MATERIAL-IMMANENT PROPERTIES

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ABSTRACT

In this paper I am going to address general questions concerning the compatibility of sound and light as a generic visual medium. After a brief discussion of more conventional methods of creating analogies between sound and light in artistic works – like temporal organisation, coloration or spatial arrangement –, the focus will lie on the question whether a form of ‘dirty light’ as a corresponding form to ‘sonic noise’ is imaginable.

The musicalisation of noise is a prominent aspect of the development of music in the 20th century. The same can be said of the inclusion of non-artistic materials in art objects in the field of visual arts, as opposed to the traditional ones like paint on canvas. However, these analogies cannot be easily applied to light as an artistic medium, since light is characterised by purity and can neither incorporate extraneous materials, nor can it be rendered dirty. In an artistic work which attempts to find correspondences and compatibilities between the media of sound and light, noise therefore poses the biggest challenge since a direct translation into the visual domain does not seem possible. However, by applying a semiologic approach and conceiving light as a symbolic form rather than a medium that is characterised by specific ‘material’-immanent properties, a form of ‘dirty light’ becomes very well conceivable.

1. NOISE AND DIRT

When investigating the notion of dirt in societies, it can be said that hygiene and pathogenicity only play a

secondary role. Rather, the idea of dirt reflects a certain order, which is to be maintained. Dirt is not an isolated event but an expression of a system with a set of ordered relations and a contravention of that order. Therefore, dirt is the by-product of a systematic classification of elements in the environment, in so far as ordering involves rejecting inappropriate parts (Douglas 1966:5). According to the anthropologist Mary Douglas:

...ideas about separating, purifying, demarcating and punishing transgressions have as their main function to impose system on an inherently untidy experience. It is only by exaggerating the difference between within and without, about and below, male and female, with and against, that a semblance of order is created. (Douglas 1966:5)

In this sense the differentiation between purity and dirtiness gives stability to a society as it defines a system in a world that it otherwise perceived as disorganised.

In much the same way in which dirt is not an isolated event but a result of a system of ordering, the meaning of noise in music has not been a stable one but has constantly shifted through history. Especially the history of music of the 20th century can be read as an ongoing redrawing of the line that separates musical sound from noise. According to Douglas Kahn:

Although existing in all music, the noise-element has been to music as sex to humanity, essential to its existence, but impolite to

mention, something cloaked by ignorance and silence. Hence the use of noise in music has been largely unconscious and undiscussed. (Kahn 1999:82)

In order to comprehend a notion of 'dirty light', I will propose to analyse light and sound as a 'symbolic form'. Before doing so, I will however briefly discuss the more traditional means by which correspondences between sound and light have been established.

2. COLOUR

Analogies between tonal and visual colour have dominated the search for correspondences between sound and light. Many composers have expressed that they have synaesthetic reactions that pair sound and visual perception of colour. However, beyond the fact that some individuals have such involuntary responses, 'tone colour' is a commonly accepted term to describe shades in the timbre of a sound. Nikolai Rimsky-Korsakov opens his book Principles of Orchestration (1891) with the sentence: "Our epoch... is the age of brilliance and imaginative quality of orchestral tone coloring" (Rimski-Korsakov 1922:1). Even though it is very common to speak of colour in the field of tone as well as vision, no universal correlations between the two have been found. It is also interesting to notice that there are substantial physiological differences in how the eye perceives colour information and how the ear processes sound.

The human eye contains about 120 million rods that are colour-blind and only distinguish light and dark. It also contains 7 million cones that are colour sensitive. Human vision is so-called 'tri-chromatic' as the eye contains three types of cones that detect colours with peaks at wavelengths of 419 nm (red), 531 nm (green) and 558 nm (blue) respectively (Bruce, Green and Georgeson 2003:18-21). This means that the human eye can only distinguish three colours. All other colours that

we perceive are a compound of different degrees of stimulation of the three types of cones.

While the cones and rods in the eye are directly exposed to light, and therefore immediately convert the information via chemical processes to neuronal activity, the ear involves a number of mechanical steps before the acoustic information reaches the cochlea in the inner ear. The cochlea is filled with a liquid that is put into motion by vibrations. Along the cochlea is the spiral ganglion, a group of nerve cells that sends a representation of the acoustic information to the brain. Depending on the frequency perceived, a different portion of the ganglion is stimulated which enables the brain to distinguish different acoustic information (Pierce 1985:87-9). Unlike the eye, which derives colour information from the stimulation of only three types of cones, the ear translates acoustic information via a continuous band of nerve cells. It is worth mentioning that perception of colour strongly depends on context. The same colour can be perceived very differently depending on the colours that surround it (see Albers 1963). No comparable inconsistencies in the perception of frequencies have been found in the aural domain. Also, superimposed colours lead to the perception of a new, mixed colour, whereas different simultaneous pitches can be readily distinguished as long as they do not fall inside the "critical band", which is the minimum interval necessary, in order to perceive two pitches as individual frequencies.

Even though there are no apparent similarities in how visual and tonal colours are perceived, colour remains a strong metaphor in the description of sounds. Several composers who were not necessarily synaesthetic described tone colour to be an important aspect in the compositional process, as for example Arnold Schönberg (1874-1951).

Of all Schoenberg's accomplishments in integrating musical means, not the least was that he conclusively separated color from the decorative sphere and elevated it to a compositional element in its own right. It changes into a means for the elucidation of musical relationships (Adorno, Theodor W. quoted according to: Riley II 1995:279).

Since the eye and ear are physiologically very disparate, the correspondences that are perceived between tonal and visual colour must be taking place in the processing stages in the brain. According to the composer Wayne Slawson:

Sound color is a property or attribute of auditory sensation; it is not an acoustic property. Similarly, visual color is a perceptual attribute, not a property of light. Sound color, like visual color, is abstract, no specific *source* of energy is implied by either term (Slawson, Wayne, quoted according to: Riley II 1995:290).

Similarly, the film artist Malcolm Le Grice sees the commonality between sound and colour not so much in a direct correspondence of tones but in the emotive effect they cause:

When color has become abstracted, by losing its specific object association but retaining an emotiveness in unspecific association, it is able to provide us with one of those strong phenomenological stimuli, like musical sound, capable of opening up new imaginative space. And like sound, when it is separated from the utilitarian purpose to become music, *it becomes available* as the basis for structured abstract expression. This more general similarity rather than any one-to-one correspondence is color's

main analogy with music (Le Grice, Malcolm, quoted according to: Zoller 2009:82).

3. TEMPORAL ORGANISATION: RHYTHM/FORM

Rhythm is the perception of time on a micro-level of a musical composition. Form is the perception of time on a macro-level. The perception of time, however, is not the property of a single sense. Rather, we do not perceive time as such but only changes that take place in time and their temporal relations. Since we only perceive events as present, our experience of temporal relations between successions of events is based on our remembering the previous events by recalling them from memory (Poidevin n.d.). Therefore, the experience of temporal relationships between aural or visual information does not directly depend on the properties of our sensual organs. This is true in the sense that rhythm and form provide a very powerful means to create interrelationships between sound and vision. However, visual and aural perception still behave differently in how they can process stimulation in time, especially in the domain of short time intervals.

Sound perception and visual perception have their own average pace by their very nature; basically, the ear analyzes, processes, and synthesizes faster than the eye. (Chion 1994:10)

The ear is an organ of eminently superior temporal resolution than the eye. (Shipley 1964:1328). The eye's response to changes in light strongly depends on the overall brightness and also on the colours involved. Also different points in the visual system have different response times. Even though the ear has a much finer temporal resolution, also with auditory perception phenomena have been discovered where the detection of temporal relationships – even at relatively low speeds – become diffused. For example, experiments have shown that under certain circumstances people are unable to identify the order of sounds if the individual sound is

shorter than 300ms (Warren and Roslyn 1970:30), and if the sounds follow each other without interruption. Considering that the ear already detects temporal changes on the scale of 1ms for the detection of sound direction, 300 ms are a very long time interval. (Pierce 1985:122). Temporal relationships between sonic and visual events are a key-aspect in all artistic works that are trying to realise a sort of “visual music”. While the exact synchronisation between auditory and visual stimulation are often used to create an evident relationship between the two, already in the earliest days of sound film artists have asked to use them asynchronously in order to create an “orchestral counterpoint of visual and acoustic images”. (Eisenstein, Pudovkin and Alexandrov 1978:80f). Counterpoint is not only concerned about the temporal and melodic shaping of simultaneous voices but also about their harmonic relationship to each other. The harmonic backing of a melody actively changes the appearance of the melody as the individual notes are placed in reference to a changing harmonic scheme which places them in a more consonant or dissonant context. When speaking about a contrapuntal relationship between sound and image, the harmony in question would therefore address the interaction between the visual information and the music and vice versa, and how a change in one domain alters the perception of the other.

4. SPACE AND MOTION

When working with sound and light, the performance space becomes an important common denominator with a significant influence on the perception of either of them. Both sound and light are projected from singular sources and are emitted into the space in a three-dimensional way. Also, both are strongly affected by the environment they are placed in. The character of acoustics is shaped by the various reflections and absorptions by the materials and surfaces in a space. Similarly, the colours and reflective characteristics of the materials in a space determine the appearance of light.

The ear locates the direction of sound primarily in two ways: by measuring the difference of the intensity with which an acoustic stimulus reaches either ear, and the time difference with which it reaches them. A sound of medium to high frequency that is located left of the listener reaches the left ear at a louder intensity since the mass of the head weakens the signal before it reaches the right ear. However, at least as important for the determination of the direction of the sound is the time difference at which the sound reaches the ears. If the sound source is slightly closer to the left ear, the sound takes longer to travel to the right ear. Even though these time-differences are extremely small, they play an important role in the detection of direction. Furthermore, the perception of reflections of a sound from surrounding surfaces give the listener information about the placement of a sound source in relation to the space in which it is placed (Pierce 1985:121-3).

In binocular stereopsis also the difference between the image that is received by one eye is compared to that of the other, in order to derive spatial information. Due to the horizontal separation of the eyes, they receive a slightly different view of the world. By comparing these differences the brain can derive information about the position of an object in space. The closer an object is to the observer, the stronger the perception of depth becomes (Bruce 2003:171).

The perception of motion in space is again an experience of time, and therefore not only the property of a sensual organ, but also of our memory. While our ears can process temporal information more accurately than the eyes, the latter are much more sensitive for the processing of spatial information (Chion 1994:11). Still, just as temporal relationships on a rhythmic or formal scale, the perception of motion in space can work as an effective means to create interrelationships between aural and visual information.

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The comparison of visual and aural stimulation and the creation of cross-sensorial associations is a fundamental principle of information processing. When experiencing visual and aural inputs at the same time, the brain tends to create a causal connection between the two (Flückiger 2001:138).

Most events that attract our attention stimulate more than one sense at the time. We see somebody walk and hear his steps, or we hear him speak and see his face. We look at the things we touch and we experience the motion of our body kinaesthetically as well as visually. In our mouth we touch what we taste and we feel the motion of our speech-organs when we hear the sound of the words we pronounce. (Neisser 1976:125-5)

A physiognomic interrelationship between the senses, as it was sought after for example in many researches related to synaesthesia, is therefore not a necessity in order to create a coherent relationship between various senses.

5. TOWARD DIRTY LIGHT, SOUND AND LIGHT AS SYMBOLICALLY CHARGED IDIOMS

As discussed above the inclusion of sounds or materials in artistic works that have formerly been perceived as unacceptable has been a driving force in the development of music and visual arts. This was especially obvious in the 20th century, although it can be observed as a stimulating principle in much of the history of Western art.

When comparing sound and light, it becomes apparent, though, that light – as a medium – is reluctant to be placed within a polarity that distinguishes purity from dirtiness. Rather, purity seems to be an aspect that is in the very nature of the immateriality of light. In other

words, light can neither be rendered dirty, nor can it expand its boundaries by including elements that were previously not part of it, in a way as music can internalise noise or visual art can incorporate “non-artistic” materials. This pure aspect of light is probably one of the main reasons why it has cross-culturally often been associated with the divine.

When working with light in the context of contemporary composition, sounds with noisy qualities – in the many different forms that they can take – are likely to play a part. The following section asks the question if there is any such thing as ‘dirty light’? Has the search for correspondences between sound and light reached a dead end when it comes to the question of noise and dirt? If this is the case, the coupling between the two would have a fundamental flaw, considering that noise and dirt have taken on a strong stimulating and aesthetic function in art and music of the last century and beyond.

6. CONTEXTUAL AND LIMINAL NOISE

In this paper I am developing a set of categories of noise, where the terms noise and dirt could be used interchangeably, since the underlying meaning of both of them is the same, while noise rather refers to sound and dirt to matter. The following differentiation of noise is therefore equally applicable to aural as well as visual phenomena.

In order to get a better understanding of the different qualities that noise or dirt can take in the context of sound and light, I would propose to distinguish between three categories of noise. In this section I am going to introduce two of them: *contextual* and *liminal* noise.

Contextual noise is best described by what Mary Douglas said about dirt:

There is no such thing as dirt; no single item is dirty apart from a particular system of

classification in which it does not fit (Douglas 1966:xvii).

Hence, within a particular system, dirt is defined by not being part of it. It cannot be thought as an absolute value or condition. Dirt is what is excluded from a set of order, since order includes the rejection of inappropriate elements (Douglas 1966:44). Therefore dirt depends on relationships that are inherent in a system, in other words: it depends on the context. When working with sound and light, the term *contextual* noise describes the use of any material – musical or visual – that contradicts a certain order that has been established. What noise or dirt becomes in one context can be part of the accepted order in another.

Helmut Lachenmann's composition Accanto (1975/76) for clarinet, orchestra and tape serves as a good example to illustrate this. Lachenmann wrote this piece in reference to W.A. Mozart's Clarinet Concerto K.622. In his work as a composer, Lachenmann approaches music as a language where he tries to isolate the individual elements out of their context as defined by the tradition of Western musicianship. By rearranging them, other aspects of the sonic elements are emphasised and thereby an authentic expressivity is returned to them that has been lost in the habitat of repetitive use as a commodity (Lachenmann 1988:63). In *Accanto* the sonic texture is dominated by the use of instruments with extended techniques (also sometimes referred to as *musique concrète instrumentale*), which yields a very differentiated palette of noisy sounds – noisy in the sense of primarily non-pitched sounds. A tape part is also included in the composition, which consists of an original recording of Mozart's *Clarinet Concerto*. That concerto is also the conceptual provenance of the orchestral material of Accanto. For an extended period of time the tape is only turned up for fractions of a second. Thereby it appears as short sonic bursts, too short to make the actual content recognisable. The first

moment when the tape is played for a longer passage is at m.192, about 17 minutes into the piece, which has a total duration of approximately 27 minutes. Here, the utterly harmonic music of Mozart becomes recognisable. As the listener has become used to the abstract sonic idiom of Lachenmann in which very detailed instrumental noises with subtle nuances established an idiom in their own right, the sound of Mozart appears as a dissonance in the context of the composition. The Clarinet Concerto has become *contextual* noise despite its harmonic and sonorous character, which might otherwise be used as an example of the opposite of what is commonly associated with "noise". In the context of Lachenmann's *musique concrète instrumentale* the Mozart is "matter out of place".

The term *liminal* noise refers to the experience of noise that is less dependent on its context. It describes the direct experience of sensorial stimulation that is at the upper or lower limits of what our sensual organs can adequately process. Any sounds that are too loud or too soft, or too high or too low to be properly perceived, or any visual impressions that are too bright or too dark to be clearly recognised, are examples of *liminal* noise. Extreme speeds – either being too fast to enable the perception of details, or too slow for the perception of changes or contexts – can also function as *liminal* noise. The term *liminal* is used because the perceived information touches the limits of what the senses can handle. *Liminal* noise refers to a more immediate sensual experience than *contextual* noise, since it addresses the thresholds of what the senses can perceive. It is important to notice, though, that despite this direct experience, *liminal* noise can still be commoditised. By changing its meaning, dependent on the context it is placed in, it can become part of an established system. An example of this is how the perception of volume, or sheer sound-pressure has developed in Rock music. In the 1950s the electric guitar became the defining element of Rock n' Roll. Inseparable from the electric guitar is

the amplifier that inaugurated the era of amplified music. As a result, loudness became a stylistic element (Hegarty 2007:59). The loudness was at first perceived as an expression of aggression and rebellion because of which Rock n' Roll has often been attacked as immoral, anti-social and – because of the loudness – damaging to the ears. Nowadays an average Rock concert produces peaks of 140 dBA in sound-pressure (Chepesiuk 2005:A37). Sounds that exceed 85 dBA on average are considered to be damaging to the hearing system. Sounds beyond 120 dBA can even cause physical pain (Chepesiuk 2005:A36). Nevertheless, the loudness of Rock concerts has long lost its offensive character. The volume has become part of a performance practice and style. Despite its threatening effect on the hearing system it has become an accepted commodity. The *liminal* noise has become accepted and therefore lost its 'noisy' aspect, even when it causes pain. However, as a category of noise, it is valuable to distinguish *liminal* noise from the other categories, even though it can lose its noisiness by being commodified.

7. A SEMIOLOGICAL APPROACH TO MUSIC AND ART

In his book Music and Discourse the musicologist Jean-Jacques Nattiez proposes a semiological approach to music analysis. In the understanding of semiologists,¹ every human action – and therefore also every work of music or art – is considered to be a “symbolic form”. According to Nattiez

The symbolic is a constructive and dynamic phenomenon, characterized first and foremost by the process of referring; in this regard, it is *distanced* from reality, even as it is an element of the real. [...] The symbolic function is

generally spoken of as a “capacity to represent that which is absent” (Nattiez 1990:34-5).

Understanding a work of music or art as a “symbolic form” means that any human expression entails a web of references that are open for interpretation. In the interpretation of a work of art a “metacontext” is assumed, that reaches beyond the factual consistence of an expression. The referential character of music is certainly different than in linguistics, but

...one cannot develop a semiology for a special domain such as music, except by agreeing to inventory *all possible forms of referring* without limiting oneself to the single example of referential modalities in verbal language (Nattiez 1990:116).

Human beings are symbolic animals; confronted with a trace they will seek to interpret it, to give it meaning. We ascribe meaning by grasping the traces we find, artworks that ensue from a creative act. This is exactly what happens with music (Nattiez 1990:128).

In contradiction to human language, musical discourse does not strive to convey conceptually clear, logically articulated messages (Nattiez 1990:127).

In musical and artistic contexts, two basic types of references have to be distinguished – *extrinsic* and *intrinsic*. To different degrees, they are both present in every work. *Intrinsic* references are inherent in the formal manifestation of a work. For example, motivic cells that occur at different times and in different forms and contexts in a musical composition create a web of references. All material-inherent affinities in a work that form a compositional structure are *intrinsic* references.

¹ The semiological approach described here is taken from: Nattiez:1990 Jan Willem de Groot, "Gnosis en raszuiverheid," in *De Hang naar Zuiverheid* (Amsterdam: Het Spinhuis, 1998). Other writers on semiology might use a different terminology with other meanings associated with it.

In contrast to this, *extrinsic* references point beyond the materiality of a work. All sorts of programmatic music deliberately use extrinsic references. They can be mechanical imitations of nature, psychological effects or physiological gestures. But also musical elements like the beginning of Alban Berg's Violin Concerto, which begins with the open four strings of the violin, is an *extrinsic* reference, since it emphasizes the tuning of the solo instrument as a culturally grown phenomenon. The acquaintance with the *extrinsic* references is often not crucial for the understanding of a work. However, being familiar with and understanding them opens an additional channel of interpretation.

Intrinsic and *extrinsic* references form two superimposed semiological systems. Even though they are often intricately intertwined, they function on two completely independent levels (Nattiez 1990:117).

8. EXTRINSIC NOISE

The *extrinsic* quality of artistic material can form a third category of noise, which is referred to as *extrinsic* noise. *Extrinsic* noise is at hand if neither of the aesthetic criteria of *liminal* or *contextual* noise are fulfilled, but a sense of noise is evoked by creating an association with an impure extrinsic experience.

A good example of *extrinsic* noise is Nicolas Collins composition Broken Light for skipping CD and string quartet from 1991-92. Here Collins combines a string quartet with a manipulated CD player, which plays string music by the Italian Baroque composers Corelli, Torelli and Locatelli. As a result of the manipulation of the CD player, the playback of the CD gets stuck in loops (Collins 2009). Such loops are a common error that is likely to happen with scratched or dirty CDs. For the regular consumer of recorded music this is as familiar as a phenomenon as the regular thumps resulting from scratched records on turntables. Hence it evokes the feeling that a malfunction is at hand and that a piece of equipment does not behave in the way that it is meant to.

A lack of control seems to be imminent and as such it carries aspects of noise. However, the sonic results of the loops do not carry noisy sound characteristics in any traditional sense. Rather they create a lush harmonic texture that is completely congruent with the harmonic idiom of the rest of the piece. The noisy quality that remains is neither *liminal* nor *contextual*. It is based on the association with malfunctioning media and is therefore *extrinsic*.

9. SOUND AND LIGHT AS “SYMBOLIC FORMS” – SEARCHING FOR “DIRTY LIGHT”

The semiological approach shows that the expressive content of a work functions on levels that are beyond its factual materiality. In the case of light, this means that its potential meaning does not have to be constrained by its apparent pureness. Since dirtiness represents a stark contrast to light's medium-specific characteristics, this chapter will investigate how far its expressive range can be stretched. The question will be pursued whether something like 'dirty light' – metaphorically speaking – is conceivable.

The cultural connotations with purity and dirtiness are manifold. The following list shows terms that are commonly associated with pureness and dirtiness and that also include light and darkness (Groot 1998:224-5):

Pureness =	Order =	Light =	Control =	Spirit =	Virtue =	Joy =
Dirtiness =	Chaos =	Darkness =	Loss of Control =	Matter =	Evil =	Sadness

Since defilement of light in the literal sense is not possible, the other pairs of terms may offer a more suitable lead to the use of light in combination with sound. Especially 'order' as opposed to 'chaos', and 'control' as opposed to 'loss of control' are aspects that are closely related to noisy phenomena in music. While it is not possible to imagine that light is rendered dirty, it is certainly conceivable to use it in such a way that the impression of chaos or loss of control is evoked. How this could be obtained brings us back to three sorts of noise that have been distinguished above: *contextual*,

liminal and *extrinsic* noise. When these terms are combined, the following chart can be composed which displays how these are related with each other, and how a single light or sound element can function in an artistic work:

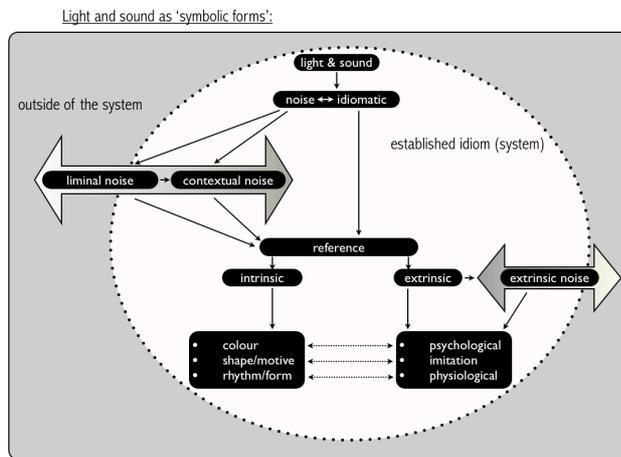


Fig.1 Light and sound as symbolic forms, graphic layout of the used terms.

Here are the different connections in the chart:

Within a particular work, the use of light and sound either fits or contradicts an established idiom. If it lies within the idiom, it also has referential qualities. If it is not part of the idiom and its particular order, it is noise. In that case it can either be *liminal* noise, which lies beyond the range that a sense can comfortably process as it addresses the senses at the thresholds of their capabilities, or *contextual* noise. In the latter case, it does not pose a challenge to the capacity of the senses, but it appears to be aesthetically incompatible with the established idiom. *Contextual* noise is always in a dynamic process with the established idiom since it challenges its boundaries and often eventually becomes part of it (Hegarty 2007:ix). This is also the reason why the circle has been drawn with a dotted instead of a full line: the border between what is inside and outside a system is only rarely a definitive one. If a noisy element becomes idiomatic despite its contextual noisiness it also gains referential qualities. Hence, it is reintegrated into the system.

Since *liminal* noise has a direct irritating effect on the senses, it forms a more autonomous experience. Its noisiness does not depend on the context. But while being *liminal*, it can at the same time also be *contextual* noise, if it is in an aesthetic contradiction to the idiom at hand. As shown with the example of volume in the presentation of Rock music, it can however also become integrated as part of an idiom and thereby as well become referential. Both *contextual* and *liminal* noise are always at danger to completely fall out of the system, if their respective noisiness is too much in contradiction to the idiom at hand.

Being referential, sound and light can either form an *intrinsic* or an *extrinsic* reference. The former refers to all relationships that are based on the material of a work and the structures that are generated by manifold medium-specific cross-references. *Intrinsic* structural relationships can for example be created by the use of motivic, colouristic, rhythmic or formal elements. *Extrinsic* are those references that point beyond the structure-immanent relationships in a work. They can either be imitative (naturalistic), psychological or physiological (gestural), to name a few. The extrinsic aspect brings yet another sort of noise into play, namely *extrinsic* noise, which does not depend on either sensual noisiness (*liminal*) or material-based noisiness (*contextual*), but which entails a noise aspect through association. Remember the example of Nicolas Collins' work Broken Light where a skipping CD player creates harmonic layers that are completely in harmony with the idiom of the work that also do not contain a significant amount of noisy sound characteristics – in the sense of non-periodic sounds, but where it is still conceived of as a noisy element because of the association with malfunctioning equipment. Also *extrinsic* noise can fall out of the system if it cannot be reintegrated into the idiom.

By investigating sound and light as ‘symbolic forms’ it has been possible to establish a differentiated vocabulary of various sorts of noise/dirt that function on separate perceptual levels. It reveals the numerous ways in which they can function in artistic contexts. This has opened the door to conceiving ways in which also light can appear as noisy or dirty despite of its medium-specific purity. A factual dirtiness is therefore no prerequisite for the creation of experiences in artistic contexts that are analogous to dirt. “Dirty light” therefore *IS* possible.

10. THE APPLICATION OF “DIRTY LIGHT”

In order to make it more comprehensible, how *contextual*, *liminal* and *extrinsic* noise can manifest themselves in the application of lighting, I would like to close with a few concrete examples from my own works.

In my composition Alias for electric violin, live-electronics, lighting and laser from 2007, I am using a green laser projector. In order to create an ambience with a matching colouration, I used 4 moving-head lamps with green colours. However, almost ten minutes into the piece I applied the colour magenta for a number of short flashes. In itself, the colour magenta is of course not more or less pure than the colour green. As it enters abruptly in a context where the eyes have become used to a green monochromatic environment, it has an offensive effect, though. I consider this an instance of *contextual* noise, because the green context makes the colour magenta appear as “matter out of place”. It is also an instance of *liminal* noise due to the choice of the colours. When being exposed to monochromatic light, the affected colour cones in the eyes undergo fatigue while the remaining ones retain their full sensitivity. As magenta is the complementary colour of green, the cones that are cognisant for blue and red are affected when the flashes come up. Since they have not been stimulated during the green monochromatic stretch of the piece, they perceive the magenta light to be more intense than the previous green one, simply because contrary to the

green cones the red and blue ones have not been fatigued. Therefore the sudden colour change has an even stronger appearance, which corresponds to the effect of *liminal* noise.²

A more obvious example for *liminal* noise can be found in my composition Rational Cantilenae in Nine Triads for a roaring pianist and lighting from 2009. In this work I am using a constellation of light fixtures where some are positioned on the stage floor and directed into the audience. As a result, the audience is blinded whenever those fixtures are used, while the other light fixtures are pointed away from the audience, providing warmer orange and yellow colours. I am using this aggressive blinding in correspondence to the use of a throaty voice with which the pianist recites texts. This raucous timbre stands in contrast the otherwise rather harmonic piano writing, similarly like the blinding lights stand in contrast to the remaining lighting.



Fig. 2 Marko Ciciliani’s Rational Cantilenae in Nine Triads for a roaring pianist and lighting, performed by Ashley Hribar. Light fixtures on the stage floor are blinding the audience.

In 2001 I composed a violin concerto titled Just because you’re not paranoid doesn’t mean that they’re not after you for solo violin, chamber orchestra, electronics and

² See the included video excerpt that shows minute 7:19-9:55 of Alias by Marko Ciciliani, performed by Barbara Lüneburg. This video fragment is designed as a split screen and shows the performance situation from various angles at the same time. It is taken from the DVD “Weapon of Choice”, released by the label Ahornfelder/Germany.

six moving head spot lights. During certain moments of the piece the spot lights are scanning the audience akin to search lights. The association with search lights brings a threatening aspect to the light design as it reminds of police or military operations. As such, the light itself could barely be more pure, since the shape of the beam is a perfect sharp circle and the colour is a high temperature white. Therefore I refer to this as an instance of *extrinsic* noise, since the irritating aspect is not material-immanent but purely associative.

11. SUMMARY

Approaching lighting with the differentiated vocabulary that we have established does not directly lead to completely novel light designs. However, it does provide a new perspective on visual and aural phenomena and helps to establish analogies between the two, beyond the traditional ones that are based on rhythmic, coloristic or spatial correspondences. It can therefore serve as a valuable tool to an additional analytical and aesthetic understanding of the manifold manifestations that are possible between these two media.

12. REFERENCES

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