The development of form-awareness by means of aural Sonology

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Contents

1 Introduction

In this Master thesis I wish to examine the benefit that performance students and musicians can have from the ability to use aural sonological analysis as an aid in the approach and presentation of contemporary music to an audience. The original idea of this thesis was born from the personal experience of the chasm that often seems to exist between contemporary music and the audience with which it seeks to communicate. As a performer of contemporary music shamelessly dragging friends and family to listen to my concerts I was often intrigued by the lack of understanding and communication which sometimes occurred in the concert between music and audience despite the obvious willingness of the audience to understand. I became interested in the concert situation itself and if maybe the presentation of contemporary music demanded something particular in this situation.

Using the term "contemporary" music poses a bit of a problem as any definition is sure to be either too wide or too narrow according to the agenda of the person using it and because the term technically only points to the fact that the music is written by composers who are contemporary with one self or who belong to the same time. In this case I will focus mainly on music belonging to the 20th and 21st century which brings us to another problem. First of all the sheer magnitude of expressions and styles of composition from the beginning of the 20th century and onward makes it an impossible task to point to any single stream of development or common language as has to some degree been possible (or at least tried) in the music of earlier times. The plurality of options, techniques and styles which has been tried out and remained open to further development and experimentation has created a musical landscape of our time which spreads out like a delta, overflowing with different aims, expressions and means. I must therefore specify that in this thesis the term "contemporary music" will be used merely to denote repertoire mainly from the last half of the 20th century and up to the present day, and will therefore encompass several different expressions and styles.

Students of today who wish to work with contemporary repertoire faces several challenges that were not relevant even as late as the beginning of the 20th century. In addition to the increased demands for new instrumental techniques and the knowledge of un-traditional notation, the classical musician of today needs to, among other things, relate to elements like chance-procedures, improvisation and a mixture of musical genres, theatrical elements and the use of electronic devices ranging from amplification to the interaction with computer generated sound.

Coincidentally with these new demands placed on the performer a redefining of the relationship between musician and audience has gradually taken place. This is a result of the increased demand that a lot of contemporary music places on the listener to contribute in a much more active way than what we are generally used to when confronted with works from the classical repertoire. In works belonging to the traditional classical canon the musical language is often well known or at least recognizable and the listener has the possibility to retreat into a relaxed, passive-receptive state of mind. Many listeners of today therefore relate to music-listening as a one-way communication between an active sender versus a passive receiver. Consequently a lot of listeners have established a relationship to music where the attitude seems to be that the music has to agree with certain preferred anticipations within themselves in order for them to like it or

be able to gain anything from it. In other words: *"the music has to be in a particular way for me to be able to enjoy it"*. A more uncommon idea is that maybe "I" as a listener have to be in a particular way (in this case meaning: listen in a certain way) in order to be able to fully *experience* music of this particular kind.

Aural Sonology consists of an analytical system where the object of analysis is the aural aspect of music; music as heard as supposed to the written aspect (the score). The musical object experienced through listening will never be an objective fact like a score but will always change according to how we listen. Therefore the subject of *listening intentions* or *listening behaviors*[1] is central in aural sonology as a means to achieve a systematic approach to the object one is analyzing. The subject of listening intentions is also relevant when it comes to understanding what takes place in a concert situation because it helps to place the focus equally on the listener and the musician. The knowledge of the different listening behaviors we may encounter in an audience is an important knowledge for musicians who wish to work with the presentation of music of a more contemporary date (it may indeed be just as important a tool for the presentation of the traditional classical repertoire as well but that is not the topic of this thesis).

In the concert situation the expectations of the audience meet with the conscious intent of the musician to communicate and present a meaningful expression. However, when it comes to concerts with contemporary music there is no denying that the sense of communication is often less that hoped for in comparison with concerts comprising repertoire from the traditional classical musical canon. If our wish is to improve the communication of contemporary music in the concert situation we have the choice between two alternatives of focus. One is to focus on the audience; the listener, and the way he or she listens. Here knowledge of how the human mind in general perceives music or temporal objects is an important factor and the knowledge of listening intentions found within Sonology can be an asset when it comes to developing different concert settings or concepts of presentation. Our other choice is to focus on the performer; as musicians we can look at our own understanding of the music we are performing and how, by increasing this understanding, we can contribute in giving a clearer and more precise presentation musically.   In this master thesis I will concentrate on the last alternative; my focus will be primarily on the performer and I will show how this focus also includes knowledge from the first alternative; how an increased understanding of our own work (knowledge of "what we are saying" in our music) requires knowledge of how our audience listens. In the opening chapter *Understanding, interest and perception* I will explain this further. One of my main intentions here is to show that contemporary music in particular demands a highly developed form-awareness in the musician. The term "Form" in this context is meant to be understood as *emergent organic form* and is a vital concept in the process of making interpretational choices and a key-term in this thesis. I have therefore devoted some time to define the term "organic form" and to explain why it is possible to place such emphasis on this element.

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[1] The terms listening behaviour and listening intentions are explained in depth in 1.2 *Concerning Sonology and aural Sonology*

I have chosen to use a sonological and a historical approach where I will present three contemporary works by three different composers (each contextualized and presented within their own historical setting and particular compositional traditions) and will make an analysis of each of the works using aural sonological analyses. These analyses will be based on *emergent* musical forms meaning forms as they are experienced developing through time or as heard, as supposed to a experience where music is related to pre-decided form-schemata. I hope to show through these analyses how aural sonology may contribute to an emergent organic form-understanding and how this understanding, for a performer, is an important factor in the performance and conveyance of contemporary music to an audience.

This Master thesis has an appendix consisting, among other things of a rather detailed presentation of key terms and definitions from aural Sonology. As I am using aural Sonology as the method of my thesis and because there is limited general knowledge concerning this subject and its methods I am in the position of working with a subject where I cannot assume that the reader has much pre-knowledge. I have therefore deemed it necessary to give the reader a certain minimum of guidance in order to better be able to follow the analyses in the thesis and the theories on which the analytical systems are based. For this reason the size of this thesis is above average. Within the appendix I have also included three interviews with the three composers as a particular and personal reference to the historical contextualization of the individual composers and their work and as a confirmation of some of the information concerning compositional choices presented in the texts and the analyses. I have also chosen to include these because I as I see it am in the fortunate situation of writing about and working with music by living composers. In the back of the thesis there is an audio CD with the sound material used in the analyses.

I wish to thank my mentor Professor Lasse Thoresen for his constant support and countless interesting discussions concerning sonology and the mystery of music perception, and the composers Bent Sørensen, George Crumb and Rolf Wallin for their generosity with their time. I am very grateful to Professor Elef Nesheim for always being available for answering obscure historical questions and to composer Asbjørn Schaatun for introducing me to the music of Bent Sørensen. I would also like to thank Tone Mo at the music sales Group at Edition Wilhelm Hansen AS, Denmark for lending me several scores of the music of Bent Sørensen. Last but not least thanks to all my friends and family for showing support and inquisitive interest and thereby forcing me to be concrete concerning what I was actually writing about.

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1.1 Understanding, interest and perception

For a listener who wears earplugs, a very loud performance is the best.
– J. Levinson.

My original intent when I began this Master thesis was to look at the situation in which contemporary music is presented and in light of the (more often than not) hostility and frustration the music often evokes or are met with to consider if something in the *presentation* itself could better the relationship between the music and the audience. There are several aspects to consider here. First of all I am not claiming that the relationship between music and audience described here is universal and applies to everyone and every piece of contemporary music in general. If this was the case the music of today would not be played at all and the concert repertoires consist solely of Bach, Beethoven and Mozart etc. Basically the core issue is one of understanding and perception. It is about the fact that most people when faced with something unusual, uncommon or un-experienced either shut themselves of from it or searches for a way to mentally organize the un-familiar input they are experiencing so as better to be able to grasp it. This is however only done if what we are faced with succeeds in arousing our interest.

In the psychological field of interest and motivation a great deal of research has been done concerning the nature of interest and the status of interest as an emotion (Silvia, 2006). Theorist and psychologist Silvan S. Tomkins who was one of the first to view interest as an emotion proposed that our emotions were dependent on the amount or density of information input we receive through our perceptual channels (Silvia, 2006:44). An increase in the input of information would create emotions such as interest but interest would only occur when the rate of information was increased at a particular speed: rather quickly so as to surprise us but not to quickly so as not to activate fear or startle. In order to get interested we need just the right increase of information. Another way to look at interest is the theory that when we experience an information conflict (meaning when we are faced with something which does not add up to our expectations or frames of reference) our Interest is often aroused as interest in general often is triggered by elements like novelty and complexity. (Silvia, 2006:48) Our response to this information conflict might be either interest or dismissal, but again the degree of the conflict decides which response we choose.

Both of these views share the belief that the *amount* of new and unknown information is decisive and it emphasizes the importance for the receiver to experience a sense of mastering. What then can create this sense? Any situation of music-listening consists of three factors that are present: the composer who wrote the music, the performer who performs it and the listener who receives it and filters it through his or her personal attitudes as well as physical organs of perception. Each of these persons has the possibility of affecting the outcome of the music, both as actual created sound and as sensual experience. If we are to say that the listener is in need of a sense of mastering in order to experience interest in the music we must look at the chain of dependence that exists between the composer, the performer and the listener. Is it solely the responsibility of the listener to `get a grip of the music´ so that he or she might experience a sense of mastering or does the performer and composer hold an equal share of responsibility for creating an

opportunity for this to happen?[2] The belief that in a concert situation part of the responsibility for giving the listener this experience belongs to the performer is found several places from composers and performers to writers of music (Stein, 1962), (Narmour, 1988), (Bach, ed. 1949). In his book *Ind i musikken (into the music)* Peter Bastian quotes Wilhelm Furtwängler who was to have said that the only indispensable condition for an audience to be able to understand a lecture or a speaker is that the speaker *himself* knows what he is saying, that he understands the meaning of what he is speaking of; Only when what is communicated is in accordance with one's own understanding can it be given the right sound which leads to others understanding it as well.[3]

1.1.1 Form-awareness in the musician

If we then assume that the performer shares in the responsibility of creating a meaningful performance from which it is possible for the listener to extract a sense of mastering, how does this responsibility manifest itself? How does one, in the words of C. Ph. E. Bach, make the listener aware of "the true content and affect of a composition"? (Bach, ed. 1949:p148). This thesis uses aural sonological analyses of music as its method to gain knowledge that can be of use here. As aural sonological analysis is based on music as heard it goes without saying that the analyses can only be used on recorded material. Therefore the use of aural sonological analyses in the pursuit of interpreting contemporary music might at first seem as a paradox as a large part of the contemporary repertoire that a musician or student of performance will be confronted with is unrecorded. This however leads us to an important point concerning this thesis: our goal when using aural sonological analysis as a way to train a musician into becoming a better presenter of contemporary music is not to present him or her with an aural image of the "right way" to play a piece of music. The point is not (as a preparation for learning a new piece of music) to listen to a recording enough times so as to memorize the phrasing and expressions and then to copy that interpretation, thereby becoming acquainted with a "contemporary" way of playing the piece. Rather than memorizing details pertinent to one particular piece we are searching for a more general and universal type of knowledge and awareness which might help us to face the enormous versatile material which goes under the caption "contemporary music".

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[2] Eugene Narmour, an authority on the psychology of music writes that:"(...) The temporal materialization of a musical artwork emanates not from the composer alone or from the performer alone but from a triarchical interrelationship among the composer, performer and listener. The composer produces a score, a kind of syntactical roadmap based on a highly efficient but therefore limited symbol system whose interpretation even in the relatively highly specified notation of Western culture is indisputably still partly dependent on oral tradition. The performer attempts to bring the score to life, in the process modifying it to fit with his or her own aesthetic beliefs, stylistic experiences, and tradition of learning. And listeners complete the interpretation by actively bringing to bear their own peculiar cognitive expectations based on their own idiosyncratic learning of the style." (Narmour, 1988:p318).

[3] Bastian, P. (1997:p129). See also the interview with Rolf Wallin attached to this thesis (*To do or not to do..Interview with Rolf Wallin)* Erwin Stein, musician, writer and pupil and friend of Schoenberg, points out the importance that the single elements of the musical discourse as well as their mutual relations be considered by the musician and states that "(…)performance is a function of musical form."(1962: pp 12 – 14). In his well-known *Essay on the True Art of Playing Keyboard Instruments* C.P. E. Bach emphasizes the responsibility of the performer: "What comprises good performance? The ability through singing or playing to make the ear conscious of the true content and affect of a composition. Any passage can be so radically changed by modifying its performance that it will be scarcely recognizable." (Bach, (1759). trans. and ed. 1949:p148)

Through the use of aural sonological analysis one becomes exceedingly aware of the element of musical Form and one can train one's general ability to see and experience Form in music. We mentioned earlier the importance for the musician to know "what he is saying" when intending to convey meaning though his or her playing (something which is here seen as a prerequisite for taking one's part of the responsibility for creating a good musical experience for any listener).

The claim of this thesis is that in order for the performer of the music to know "what he is saying" he or she has the need of form-awareness, and by form-awareness I am talking about emergent organic form-awareness. It is therefore important to distinguish between the traditional concept of form and the emergent organic form concept.

1.1.2 Form

In the Oxford Concise Dictionary of Music (Kennedy, 1996) the term "form" is defined as "The structure and design of a composition" and in Wikipedia "musical form" is defined as: "(...) The type of "architectural" structure on which the music is built". The definitions and distinctions used to describe this "architectural structure" vary considerably as does the terminology used in the descriptions and classifications. Percy A. Scholes (Scholes, 1938) works with the notion of six defined types of form within Western classical music. Among the six forms mentioned are the Sonata form, the Rondo form, the Air with variations and the Fugue. The variety of names given to different types of compositions are classified not as forms themselves but as different "styles" within a particular form (for instance the Nocturne, the Gavotte, the Konzertstück etc.) R. Delone classifies form and formal detail into three categories: sectional, developmental or variational (Delone (Eds.) (1975) where sectional form is constructed out of various smaller units or sections that are combined (rather like stacking legos), developmental form is built through material which is developed progressively and variational forms are built from sections presented and varied successively.

This traditional concept of form (as in "sonata form", "Rondo form" etc.) does not view form as something which develops temporally over time, but rather as a fact stated from the beginning where our knowledge that a piece of music has a certain form is not dependent on whether we actually hear the music or not. It is an a posteriori, score based and scored dependent form concept and can work more or less as a dogma both for performers and composers. This is not to say that the traditional forms were developed as a sort of mental exercise unrelated to the sounding music. We know that the sonata form for instance originated from simple binary forms where two complementary and related sections would move between a fixed set of scale degrees, for instance between the tonic and the fifth scale degree. After awhile the modulations would become richer and more varied and eventually more complex forms would be developed. Even so, the traditional form concept today is used to denote something which can be read out of the score, and which is present in a piece of music regardless of how it is performed. The emergent organic form concept on the other hand signifies a form-experience which is obtained through music as heard and where one's focus is on the music as temporal object.

1.1.3 Organic form

In organic form we are interested in the *formation of form* rather than formal schemata and here we are talking about a formation of form which is only perceivable during or in retrospect of listening.

According to Schoenberg organic form means that every part of a piece of music has specific functions in proportion to the other parts, just like the parts of a living organism. If a part doesn't have this relation it will fall outside of our general experience of the music. If there are too many parts which don't have this relation the result is fragmentation and the form of the piece will no longer be organic. Form means, according to Schönberg, that a piece is *organized*, and organization means that the music "(...) consists of elements functioning like those of a living organism. Like the elements of an organism, the constituent parts of music must be differentiated according to their importance and function, but the differentiation must never endanger the underlying unity of the composition"[4] (Schoenberg, 1967:20).

The fact that the parts of the music need to be differentiated according to their importance and function points to a certain element of hierarchy found in the organic form experience. The specific functions of the individual parts create relations between them that are never random but have a specific and decisive meaning. These relations are what keep the multitude of parts from threatening the wholeness and "underlying unity" of the piece. Schonberg here points to a very important paradox when it comes to organic form: on the one hand you need an underlying unity because if things cannot be related to one another they fall apart in our perception. On the other hand unity can become extremely boring and uneventful if nothing ever happens or changes, therefore variation is needed and surprise. We might therefore say that organic form is the paradox of combining the two: underlying unity with change and variation.

The musical literature may be divided into a very large part of organic music and a rather small part of un-organic music, found mainly in the fifties and the sixties where the ideologies of modernism preached a negation of the earlier search for coherence and meaning. From Adorno who called for composers to make things one did not know what was ("Dinge machen, von denen wir nicht wissen, was sie sind") (Adorno, 1963:p437) to Helmut Lachenmann who's aesthetics dictated a music that was to subject the listener to "fundamental uncertainty"(Lachenmann, 1966:p168). John Cage with his focus on the Moment as a decisive element in music and his conscious effort to break up any conceived or constructed sequential order trough the use of chance would also be a prime example. [5] Likewise the aesthetics found in some of the music (not

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[4] Although I here use Schoenberg's definition of organic form, it is possible to experience a glitch between his concepts and their musical realization. Conceptually we might say that Schoenberg has succeeded in defining organic form but perceptually his music does not necessarily reflect the clearness of thought surrounding the definition. When it comes to his twelve tone compositions, one is a very often obliged to "know the system" in advance to be able to gain any sense of underlying unity. Here the schism between structured form and emergent form becomes evident.

[5] Cage's work *Wintermusic* for 1-20 pianists (1957) consists of 20 single sheets of music that can be played simultaneously or in a random order as can the material written on the sheets which consists for the most part of chords of varying size and complexity. It goes without saying that the experience created in the listener here is quite different from a work where the sequence of the parts is fixed.

all) of Stockhausen and Boulez among others did consciously go against an organic form experience by avoiding any sense of hierarchic relations and constructions within the music. The elements in the music were fragmented and lacked any unifying elements which could serve as a prolongation between the different parts

1.1.4 Temporal awareness

"To be concerned with form is taking into account man's limited powers of understanding; as he is unable to keep in mind very long time stretches, the musical discourse must be *subdivided* into manageable segments. However, these shorter segments must again be *joined* to the others in such a way that one segment presupposes the other and vice versa (...)"(Schoenberg, 1967:20).

As organic form is revealed by focusing on the music as an emergent form developing through sound and time, the organic form concept is closely connected to the way we as humans experience temporal objects and, as Schoenberg puts it, as humans we have certain limitations in that area. Music is, along with language, a temporal art. It manifests itself along a timeline and we experience it as successive sound-manifestations. Music and verbal language share the fact that both of them are human, sonorous and temporal expressions and it is important therefore to know something about how we as humans experience temporal objects. We might be tempted to think that we experience a temporal object as a series of "nows", somewhat like a series of picture-frames in a film, that are presented one after the other. But if this was the case we would not be able to have a sense of duration and of experiencing something going beyond its frame. Nothing would seem to endure through time; everything would be experienced as unrelated momentary flashes. When we experience temporality through our perception it comes with a primary sense of past and future given from the very beginning together with the "now" of the situation. In phenomenology the full and immediate experience of temporality is called *the living present*. This is the name of the temporal *whole* so to speak, and as a whole it is composed of three moments: *primal impression, retention* and *protention*. These three moments are inseparable. Retention points to the past by "retaining" something while protention opens up the future for us and enables us to have anticipations about what is to come. The primal impression is the experience of the "now" at the moment it is experienced. We can illustrate this by looking at how we experience a sentence spoken to us. When we listen to someone speaking we are in a way in three different places at the same time. One part of our mind focus on the words at the very moment we perceive their sound (primal impression), one part retains the by-gone beginning of the sentence in the back of our mind, creating coherence between the by-gone and the present (retention) and the third part senses what is to come, making it possible for us to mentally anticipate the conclusion of what is being said (protention) and shedding additional light on what has gone before. Primal impression, retention, and protention refer to the way in which our consciousness structures its experience of temporal objects, both objects that are present and before us, and inner objects experienced in our mind. As temporal objects music and verbal language both gives us this experience of temporality and we respond to both by searching for a way to mentally organize the impressions we receive: we strive to retain what we have heard while at the same time receiving new material and create anticipations of what is to come. The longer the "sentences" or "phrases" which we receive, the harder it is for our mind to be able to

make this mental organization and the reason for this lies in the way our normal human perception works.

According to cognitive psychology our short-term memory has a span of about 3.5 seconds and can hold an average of seven objects at the time, give or take a few (Snyder, 2000). The important thing here is that we are talking about seven *different* elements, meaning that we can construct larger elements by grouping smaller, similar ones together, thereby extending our reach of memory. By doing this we are "condensing" the material at hand making it possible for our perception to hold on to larger segments while at the same time receiving more material. In aural Sonology we reflect on the form of a given piece of music through repeated listening and a conscious "interiorization" of the music as heard where we try to expand our mental reach, containing as much of the heard material as possible. In order for us to be able to make this sort of interiorization our most important ally is our memory and its ability to "condense" musical time. We might call this *comprehension-oriented listening* as our mind in an effort to gain some sort of general picture will regroup smaller elements into larger units or summaries, often based upon what we might call elements of prolongation (this term will be explained further on).

In order for us to be able to make such summaries the segments and elements of the music needs to be what we might call *time-collapsible*, i.e. it must be possible for us in the retrospect of our memory to wrap up all the manifold and complex details of them into a simpler summary. When creating these summaries we are in a way stretching our consciousness, something which classical musicians are in fact trained to do. The interpretational choices made by a performer to give more here, sustain a suspension here, underline this and suppress that are all based on the inner experience of a certain sense of equilibrium in the music which is to be maintained. This sense of equilibrium is not a universal phenomenon experienced naturally and spontaneously by every person but is something which the musician gains through practice and experience. In the classical performer this sense of equilibrium is often trained mainly through the attempt of creating "flow" or longer stretches within the music. This ability is most often gradually developed through the experience with the traditional divisions found in classical music, such as for instance the four-bar-sections which we find in most classicist repertoire. However, our ability to stretch our consciousness needs the support of elements of prolongation within the music, meaning elements which serve to join the different parts of the music into longer strands. In order for us to perceive music as a temporal object we are dependent upon certain un-temporal elements of prolongation (such as tonality, texture, the disposition of contrasts etc.) in order to be able to experience it. Within western European music tonality has played a main part in this as it holds a great capacity for helping our mind to contract parts of the music and within tonal music the tonal cadence has been one of the formulas used to create the suspense needed for prolongation. In atonal music other means must be found and here we often find texture, timbre and rhythm to replace the role of tonality as a principal element of prolongation. Within sonological analysis we find a vocabulary for elements used to create prolongation within the non-tonal music, such as dynamic fields, time fields, layers etc. These will be explained later on in the analyses.

In order for a listener to be able to experience the music as an organic whole the composer needs to use elements of prolongation consciously and the listener is sometimes dependent upon the

performer or the presenter of the music in order to be made aware of them. If we agree on the fact that the presenter/performer holds a share in the responsibility for the listener to have a sense of understanding and mastering when presented with new music, it is often here that the role of the musician or the presenter becomes clear: to point out (musically) for the listener the elements within the music which creates coherence and connection, and this is often the same as pointing out the functions of the different parts in relation to one another[6]. It is impossible for a musician to do this unless she is aware of these functions and connections herself. As the musician needs to understand this in order to be able to point them out he or she needs tools to be able to learn this. Aural Sonology and the use of sonological analysis are precisely such tools.

When we, as performers, are aware of the elements of prolongation in a piece of music we are also guarded against the danger of presenting the music as a series of sections, one following the other. Through any type of analysis we might often experience the music as a series of parts and it is therefore essential that we never reduce it to being merely *the sum* of its parts. The musician Peter Bastien points out that music in its essence is holistic and as such always shows us a reality where everything is connected and where all the elements exists solely by virtue of each other (Bastien, 1997). Therefore the *relationship* between the different parts is crucial when it comes to shaping a work. In the same way that we use our words, pronunciation and tone of voice consciously to impart meaning through a sentence, we need to consider what functions the different elements have within a musical discourse and what demands this will have on how we shape the different elements' relation to one another. This is not done by labeling every musical part as rhetorical categories like "question/answer" (and thereby diminishing the music into being merely a "translation" of semantic categories) but by seeing that in music (as in language) we are dealing with the transmittance of meaning, be it abstract and intuitive or concrete and descriptive. I will now turn to a short historical and theoretical presentation of the subject of Sonology and aural Sonology.

1.2 Concerning Sonology and aural Sonology

The breakthrough of the electro-acoustic music in the late 1940ies called for a new system and terminology which could be used to discuss, document and reflect upon this newly discovered sound-world. One needed something which could act as a counterweight against the technical engineering concepts which at the time was the only available terminology if one wanted to discuss the subject. This was one of the reasons for the phenomenologically oriented version of Sonology as developed by Pierre Schaeffer.

The Aural Sonology Project was initiated during the first half of the nineteen-seventies by Lasse Thoresen and Olav Anton Thommesen, both then professors at NMH and the motivation for launching the project was, according to Thoresen:

"(...) a strong impression that the aural aspect of contemporary music was being neglected by contemporary composers to the detriment of its ability to communicate with a non-specialized audience. The Aural Sonology Project therefore seeks to enhance the listeners' ability to encounter

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[6] To "point out" is here meant in the sense of taking something into consideration when making interpretational choices.

and evaluate the sonic results of any technical procedure, by an explication and conceptualization of its perceived, aural syntax. Moreover, Aural Sonology intends to benefit from the study of the aural syntaxes and principles of form in music that have already proven to make sense in a greater community of listeners."(Thoresen, 2007b)[7].

Much of the project is influenced by the work of Pierre Schaeffer (mainly his book "*Traité des objects musicaux* ") and his approach to the sound world of electro-acoustic music (which he sought to categorize) with its profound effect on the notion and understanding of the element of timbre.

The electronic music had its birth through the *Musique concrete* of Pierre Schaeffer which began in Paris with a research studio within the French Radio (ORTF). The research department was called GRM (Group de recherchés Musicales) and was established in the 1950´ies and was later followed by studios in Köln, Milano, Warzaw and Canada to mention a few. In Köln the research was done under the theoretician Werner Meyer-Eppler and others (later the studio would be known for names such as Karlheinz Stockhausen). The institute of Sonology in Utrecht in Netherland was founded by Gottfried M. Koenig who first worked at the Köln studio. The focus of these two institutions (Utrecht and Köln) was on algorithmic compositions and on computer generated structures and systems of composition derived from serialism, while the Paris studio focused more on an acoustic view and an auditiv approach to the subject of sound. (Wiggen, 1971)

The Norwegian composers Lasse Thoresen and Olav Anton Thommesen both studied at the Institute of sonology in Utrecht but the focus that they chose to followed up was closer to that of the Paris studio and at the Norwegian Academy of Music in Oslo the Aural Sonology Project was established with the intention of creating a tool for analysis and an aid in the search for communicational codes within music. Schaeffer's focus on the experience of the ear made his ideas and theories a logical component in the projects search for, among other things, an aural approach to analysis. Schaeffer's approach was a typical Phenomenological one, meaning that it sought to describe and reflect upon the sound-experiences rather than to explain them. One of the concerns of the Aural Sonology Project was therefore a search for a terminology to name nameless sounds in music, and by naming them opening up for the possibility of discussion, analysis and reflection. In the three analyses used in this master thesis a short presentation of this terminology, its corresponding set of symbols and the different analytical systems used is presented. These are also described in more depth in an appendix at the end of this thesis and will therefore not be described further here. Instead, as we are speaking of experiences of the ear, we turn to the subject of listening intentions.

As mentioned above one of the main goals for the Aural Sonology Project was to strengthen the listener's ability to conceptualize what he or she hears and thus to be able to represent graphically:"(...) *That which makes syntactical sense in music as heard."*(Thoresen, 2007b). Because listening and "music as heard" is a highly ambiguous and individual experience our interpretations of what we hear (or believe we hear) may vary greatly and complicates any discussion regarding interpretation. Therefore it is important to state a few things concerning the theories of listening

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[7] In the cases where the same author has published several publications in the same year alphabetic lettering will be used to denote which publication the reference in the text is taken from.

and that of listening intentions as found in the theories of Pierre Schaeffer which contribute in forming the theoretical base of aural Sonology. When it comes to listening Schaeffer lists several listening intentions through which one and the same sound object may be experienced in many different ways, somewhat as an object seen from different angles or a prism reflecting different colours of light depending on from which angle you view it. The goal for a listener is to be able to shift between different listening intentions and by this to gain access to a truly multifaceted experience of the music he or she is presented for; to develop into virtuoso listeners.

1.2.1 Listening intentions

"Music as heard is a phenomenon of enormous richness and ambiguity. People make sense of music in a number of very different ways, which tends to make a meaningful discussion about music problematic. Even when listening to the same piece of music, interpreted by the same musicians, the listening experience itself, and its interpretation in words, varies greatly. The musical experience consists of a synthesis of signs and signals transmitted as sound, and of the listening subject's own perceptions and conceptions of the music, i.e. his constitution of the musical object. Different listening intentions constitute different musical objects."(Thoresen, 2007b).

Most people have a natural inclination towards one particular listening intention, somewhat like a default listening perspective which is their personal automatic approach toward every music they encounter, a choice and intention which is often taken at a sub-conscious level. When we listen we have the possibility, once we are aware of our options, to actively change between different listening intentions but this presupposes two things. One: that we have knowledge of the different listening intentions available, and two: that we are able to make a specific change in our everyday way of perception, from one attitude of perception into another. This change is concerned with the general way in which we perceive things in our life, not only music. In the subject of Phenomenology this change is called a change from the *natural attitude* to the *phenomenological attitude* (Sokolowsky, 2000: p42-51)*.* The natural attitude is our normal way of perception, the way we perceive everything around us through our senses, from the scent of a flower and the sight of a view to the touch of a door handle. These are impressions experienced trough our senses every second of our life and we experience them, speak of them, act upon them and react to them in different ways. We have emotional responses of different kind (some things appear attractive and other things repellent), responses who's reasons we might or might not have a conscious knowledge of. But as humans we have the possibility to figuratively "step back" and watch *ourselves* have these experiences and reflect upon how they affect *us*. Instead of simply smelling the flower I *observe myself* smelling the flower and also how "I" react to the smell. This is called the phenomenological attitude and when moving into this attitude we become philosophers, reflecting on everything which presents itself to us instead of merely acting upon it.

 As mentioned earlier the ability to change into this attitude of perception is necessary in order to actively change our listening intentions. This is because through the Phenomenological attitude we are able to go beyond our normal automatic listening perspective.

It is possible to divide listening intentions into two categories:

- Listening intentions through which the listeners focus is directed towards extra-musical ideas. These might be emotions evoked, images created in the mind, ideas concerning the composer's life and person, or thoughts connected to the performance and the performer or performers.

- Listening intentions through which the listener's focus is directed towards the interconnections given in the music that the listener is able to hear. This happens when we experience the music as separated from any extra-musical meaning or "(...) refrain from experiencing music as expression, as symbol, as social rite, and even forget about the causes of the sounds that make up the music we are listening to"(Thoresen, 2007a).

It is listening intentions according to the last category mentioned here that is used in the analyses of this Master thesis. Through this kind of listening, where we experience the music as sound devoid of any extra-musical meaning, we can experience the music on three possible levels:

- Level 1: As the individual sounds of which it is created. (Sound elements)

- Level 2: As the patterns in which these sounds are combined. (Basic gestalts)

- Level 3: As the combinations of these patterns which makes up the compositional form of the music. (Formal gestalts)[8]

Each of these levels are within the listener experienced through a change of focus and a shift of listening intention; level two and three are given through *Taxonomical listening,* a term that will be defined further on. In order to detect the sound elements from level one in the music we make use of a particular listening intention called *Reductive listening.* When listening to it we extract in our mind both the cause of the sound and any extra-musical meaning it might have had. Our approach is, as mentioned earlier, a phenomenological approach where we seek to describe and reflect upon the music. On level one we look in particular at the *sound spectrum* of the context-reduced sound, the part or aspect of a sound in which the experience of pitch, whether present or absent, is located.[9]

1.2.2 Listening intentions; Musical listening as "reception behavior"
The work on listening intentions initiated by Pierre Schaeffer was further pursued by Francois Delalande, researcher at INA/GRM (Institut National Audiovisuel, Groupe de Recherches Musicales). While Schaeffer himself had focused his research on the categorization of sonic

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[8] This tripartition of the musical experience is confirmed in resent research within cognitive psychology where Bob Snyder describes the three processes of the human mind connected with memory and relates them to what he calls "(…)three different time levels of musical experience, which I will refer to, respectively, as the "level of event fusion," "the level of melodic and rhythmic grouping," and the "level of musical form"(...)". (Snyder, 2000)

[9] It is possible to categorize the sound spectrum of a sound as tonic, dystonic or complex which can be seen as different criteria of the sound spectrum. These terms are used mainly in spectromorphological analyses. For further information on these terms see 4 Appendix→ *4.3 Key terms and definitions*.

objects, Delalande moved into the field of general music appreciation. Through interviews with listeners he identified six types of what we might call reception behaviour.

It is interesting to note that during the experiment only two different pieces were played, *Sommeil* by Pierre Henry and *La terasse des audiences du clair de lune* by Debussy. The fact that Delalande identified six different types of listening intentions in listeners confronted with only two different types of music might imply that individual listeners might favour specific listening intentions regardless of the music they listen to, but also that one and the same piece is open to a wealth of different ways of experience. Further on we shall give examples as to what kind of music would naturally be experienced through the different listening intention, but in light of Delalande's experiments it is important to remember that these are only general terms and, as mentioned earlier, a person's way of listening is a highly personal matter.

1.2.3 Selected listening intentions according to Delalande

1.2.3.1 Taxonomic listening[10]
This listening behaviour has to do with the observation of form. When we apply taxonomical listening we recognize and subtract particular elements from the music. We identify smaller parts and integrate them into greater wholes which we organize in relation to one another. Through taxonomical listing the listener discovers or searches for a sense of musical order, but it is important to remember that the patterns one might find is but one of many possible solutions. Taxonomical listening and reductive listening are the two listening intentions favoured in aural analyses that searches for comprehensible aural form, but it is important to remember that the form need not be obvious and on the surface but might just as easily be found as a constructed order hidden beneath a complex surface as is often the case in the music of more structuralist oriented avant-garde composers.

During the period of classicism the taxonomical listening perspective became somewhat of a standard as audiences discussed and took delight in discovering and observing a comprehensible musical landscape organized according to general musical forms recognized by everybody at the time who listened seriously to music. From around 1700 the instrumental music had developed to a great degree and *musical forms* replaced text as the meaning conveyer of music. The audiences in this time in history were mainly from the upper classes of European society. People from these layers of society had often small need for a profession-oriented education as most of them inherited their economy and titles. The general tuition that they were given was among other things concerned with literature and music. Most had house-teachers and the knowledge of the common forms used in instrumental music and the codes conveyed through these was part of the general educational upbringing and culture expected of a person of the upper classes. This would later change both because the forms of the music developed into greater complexity and magnitude as it began to with Beethoven, but also because many people from the lower classes now suddenly emerged in the upper class society through the acquiring of sudden fortune as a

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[10] A further tripartition of the term "taxonomic listening" is given in Thoresen, (2007a) at 1.1.24, fig 3.

result of the industrial revolution which came in the transition between the late 18th and early 19th century. In the instances of these people the outer appearances of class was present but as they had risen to wealth and stature through a short space of time and in a mature age they lacked the educational part of the upbringing concerned with the knowledge of subjects such as music, art and literature and subsequently the knowledge of subjects such as the form structure of the music of the time. Today the knowledge and active use of taxonomical listening is mostly used by people who have had a specific musical training and composers, musicians and music theorists.

1.2.3.2 Empathic listening

Empathic listening is a listening where the sense of differentiated parts and formal development is discarded in favour of immersing oneself in the feelings which the music evokes in the listener. The listener experiences the music through emotions, moods and personal physiological responses rather than as a sense of structure, form and succession of differentiated parts. When we experience emotions and bodily responses we usually experience them as here and now, always oriented toward the present moment. Therefore this listening intention also lacks the sense of development and movement experienced in taxonomical listening. Through empathic listening music is enjoyed because of the feelings it evoke, and any "development" is experienced rather as a change of emotion that as a development of form. There is of course much music which might satisfy in equal terms both taxonomically and empathically oriented listeners; one might not necessarily exclude the other. However, since this kind of music often is oriented against the present it very often lacks a clear development or strong contrasts and might therefore often be of a short duration.

1.2.3.3 Figurative listening

In figurative listening music is experienced in the listener as a metaphor for a narrative chain of events. The listener often hears a story told through the music and feels that the music creates a sense of a plot while evoking emotions. In this type of listening the imagination of the listener is active and response to signals and musical metaphors given in the music, sometimes deliberately by the composer, other times unintended. This type of listening intention is most often evoked by programmatic music like some of the works by composers such as Franz Liszt, Hector Berlioz and Richard Strauss. In our modern time film music is another good example of music in which it is easy, though our imagination, to detect action and events.

As any action or narrative plot moves along a line of development this listening intention might be closely connected to that of taxonomical listening as it suggests form through a succession of different parts (events). At the same time music of this kind often appeals directly to our emotions through easily recognizable musical codes suggesting emotions such as sadness, joy, rage, excitement, suspense, terror etc. therefore it is also connected to empathic listening.

1.2.3.4 Immersed listening

Immersed listening is often experienced as more of a bodily sensation than as an aural experience. The listener usually feels almost physically touched by the sound and the sensation is often characterized by a certain abandon, a feeling of letting oneself go. In our modern time the sound worlds found in the discotheques are easily recognizable examples of music related to this kind of listening. This type of experience is also often given when the listener himself partakes in the

creation of the music, for instance as a single singer in the midst of a great choir or a musician playing in an orchestra. Many works of music, both earlier and more modern, have made use of the concert space in the way that the musicians or singers are placed around the audience, surrounding them with sound[11]. Another and more common example is the everyday use of surround music found in almost every shop in the big cities of the world, although this kind of music often creates a bleak imprint on our conscious mind as its main task is to remain in the background. However, every time I lean back, close my eyes and focus my attention on what I hear in a detached but conscious way, this experience of listening is open to me. Certain instances of strongly repetitive music like those found in minimalist music will also create the same sensation; also musical experiences which border on religious or ecstatic experiences are often linked to this type of listening[12].

1.2.3.5 Search for a law of organisation

This listening behaviour is introduced by Delalande but developed further by Thoresen (Thoresen, 2007a). It is concerned with the search for an explanation as to what goes on in the music and not only the elements and structures which are audibly detectable. It is a listening behaviour aimed at explaining and as such it is used by professionals and music specialists. The listener postulates underlying structures and elements or ideas which are not necessarily immediately available to every listener. The aim of the listening differs depending on the listener's speciality. "(...)*A composer might look for a structural background (in Schenkerian tradition), or an Urgestalt (in Schoenbergian tradition), postulate the use of series or identify an operation on the series, such as inversion; or identify a compositional algorithm. A conductor might listen for the explanation of a timbre through deciphering the orchestration producing it; the sound technician would identify the sound processing system, the synthesizer used, or name the reverberation box; the acoustician might refer to acoustics in order to provide the explanation for a certain sonic; a pianist would observe another pianist's fingering, hand positions etc."*(Thoresen, 2007a).

In all of these instances the *explanation* of what is observed is often more important that the actual music, at least in the moment of discovery and exploration. The act of searching for isotopies in the music falls under this category. The term Isotopy will be thoroughly explained in

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[11] An example of this kind of concert is described under 4 Appendix → 4.4.2 *Cycles of songs. Interview with Bent Sørensen.*

[12] An example of this kind of experience is vividly described by the composer Giacinto Scelsi in the following: "If you play a sound for a very long time, it grows. It becomes so big that you start to hear many more harmonies, and it becomes bigger inside. The sound envelops you. […] The sound fills the room you are in, it surrounds you, you swim in it. […] When you enter a sound, it surrounds you. You become part of this sound. Gradually, you are devoured by this sound and you need no other sound. […] It's all in this sound, the entire universe is in this sound that fills the room. All possible sounds are contained in this sound from the start. You have no idea what is inside a single sound! There are even counter points, if you like, displacements of various tone colours. There are even overtones that produce completely different effects inside and do not just come out of the tone but penetrate to its very centre. One single tone has movements travelling toward the inside and outside. When this sound has become very big, it becomes part of the universe. As minute as the sound may appear, it contains all." Giacinto Scelsi. Cover text of the CD *Natura Renovatur*, 0012162KAI.

the analysis of Bent Sørensen's work *The Lady of Shalott.* However, the term can have different applications and some additional definitions can be found in the appendix, 4.2 *Key terms and definitions.*

There are several other listening intentions available but these will not be commented on here. In this thesis the approach through analysis has been based on several different listening intentions from taxonomical and figurative to the search for a law of organization. For a presentation of the different analytical techniques found in taxonomical analysis see appendix, 4.3 *Key terms and definitions*. I will now move on to the presentation of the three composers and the analyses of the three chosen works which form the main part of this thesis.

2 Three composers

2.1 George Crumb

2.1.1 George Crumb: Master of colours

George Henry Crumb was born on 24 October 1929 in Charleston, West Virginia where he received his bachelor's degree in 1950 at the Mason College of Music. He went on to study for his Master's degree at the University of Illinois and studied also at the Hochschule für Musik in Berlin from 1954-1955 under Boris Blacher. He received his D.M.A. in 1959 at the University of Michigan, studying with Ross Lee Finney who in his time was a student of Alban Berg and Nadia Boulanger. Crumb retired recently after more than 30 years of teaching at the University of Pennsylvania.

Among his early works we find *Three early songs (1947)* for voice and piano, *Sonata (1955)* for solo cello and the orchestral work *Variationi (1959)* which was also his doctoral thesis. These are all exceptions from other works written by the composer in these early years, of which he considers many to be of juvenile quality and not fit for performance. It is in the period of the 1960's and 70's that we find most of the works in which the composers unique style emerges most clearly, among others the electric string quartet *Black Angels* (1970), the trio *Vox Balaenae* (1971), for piano, cello and flute, Ancient *Voices of Children* (1970), *Madrigals, Books 1-4* (1965, 69), *Night of the Four Moons* (1969), *Songs, Drones and Refrains of Death* (1968). *Makrokosmos, Volumes 1 and 2* (1972, 73) for amplified piano, *Music for a Summer Evening* (1974) for two amplified pianos and percussion, and the large-score work *Star-Child* (1977), for soprano, solo trombone, antiphonal children's voices, male speaking choir, bell ringers and large orchestra. Crumb has received numerous awards, among them a Grammy in 2001 for the work *Star child* and earlier on the 1968 Pulitzer Prize in Music for the work *Echoes of Time and the River.*

2.1.1.1 The musical traditions in America

Up until the 1920ies most American composers had at one point studied in Europe. The German Romanticism was a strong influence but later on French inspiration, both Impressionism and later neoclassicism were to become important, especially as many composers at the turning of the twentieth century would go and study with Nadia Boulanger in France, among them Aaron Copland. (Bjerkestrand, 2005: p 240).

By virtue of its diversity of ethnicities, America was a wealth of stylistic varieties when it came to music. The vast body of immigrants from "the old country" (Europe) had created a veritable melting pot of different musical traditions, bringing with them traditions and imported ideas which, far away from the old countries' traditions and conventions, were subject to change on a much larger scale than they would ever be in their homelands. (Bjerkestrand, 2005: p 136). To put it in another way: in the setting of a new country and a new continent far away from home, musical styles and traditions were much more likely to be treated as raw material than as holy unalterable relics.

It was not only American composers who travelled to Europe; the young country was also visited by European composers. The Czech composer Antonin Dvorak visited America in 1892 and stayed

until 1895, during which time he among other things wrote his famous symphony nr. 9 in E minor op. 95 subtitled *From the New World*. Dvorak was said to have claimed that he had used spirituals and American native music in his themes but he later denied this. However, in an article in the New York Herald (December 15, 1893) he wrote that in his original written themes he had embodied the peculiarities of American Indian music (NationMaster,2009). Dvorak encouraged the American composers to make use of their own rich folkloristic heritage of native Indian music and the music of the African slaves and contributed thereby to the creation of more acceptance around these things than there had been earlier. In the years to come many American composers would act upon his encouragement. This tendency might be followed up to the present day when, during the chamber music Festival in Trondheim, Norway in 2007 in an open interview with pianist James Primosch, Georg Crumb talked about a future project of setting music to Indian poems, creating a cycle of American songs, scored for percussion Quartet, amplified piano and solo voice.

When the European influences from Germany and France met with the varied and rich folkloristic expressions of old traditions, Indian and African music of a highly pluralistic society, the result was necessarily bound to be experimental. Beginning slowly in the 1920ies, the gradual acceptance of jazz music and the enormous spread of popular music through the new inventions of mass media such as radio, talking films, and the gramophone, created another layer in the dense web of American musical traditions.

We might say that in a way America has had the advantage of being able to treat its traditions, imported or native, with a much greater sense of freedom than the European countries with a long unbroken classical tradition on their backs. Experimentation and cross fertilization between different styles, ideas and traditions has been a natural consequence in a country with a population of so vastly different backgrounds. The introduction of "talkies" or talking films with the groundbreaking film "the Jazz Singer" in 1927 might serve as an example of this mixture of styles as the musical score of the movie was composed of a combination of melodies based on sources of such variety as Tchaikovsky, traditional Hebrew music and popular ballads.

The experimental flavour of American music was also strengthened by innovative composers such as Charles Ives (1874-1954) who is by many regarded as the first American "modernist", especially seen through his influence on later composers, and also for his personal notions concerning what a musical composition should in fact be, regardless of the European traditional notions on the subject. (Griffiths, 1981: pp171) Ives' music became well known first in the 1920ies after he had finished composing, and he was noticed at first in Europe by, among others, Anton Webern. Later his influence was to be felt by American composers such as Henry Cowell (1897 – 1965). In the music of Charles Ives the sound in itself was the important point of focus. The sound as a phenomenon was the main material of the composition, not melodies, rhythms or harmonies. His extended use of polytonality, unsynchronized harmonies and quarter tones (such as in his *Three Quarter-Tone Pieces* where two pianos are tuned a quarter of a tone apart and play simultaneously) in addition to using clusters and chords constructed out of seconds, makes his music sound thoroughly unique in its constant search for new sounds. Henry Cowell would continue Ives' focus on sound as a phenomenon and also on his interest in folkloristic music outside of America. Only twenty two years old Cowell finished his work "New Musical Resources",

a book where he presents and comments on techniques such as clusters, poly- harmonics, quartertones and dissonant counterpoint.[13] In Cowell's music we find the combination of experiments of sound, traditional folkloristic elements and classical triad harmonics, for instance as seen in his work *Aeolian Harp* (1923). Here the pianist makes use of the strings of a piano, playing on them as on a harp by depressing the keys on the keyboard silently while brushing the open strings with the other hand. The musical material is mainly triad-based chords of a somewhat traditional and simple nature and the result becomes a mixture of the new and the old.

During and in the wake of the Second World War many European artists, composers and musicians travelled to America and settled temporarily or permanently, bringing with them a wealth of cultural capital in the form of new ideas, traditions and inspiration. Composers such as Schoenberg and Bartok hit the American continent as successive waves, and the influence of Webern whose legacy was continued and spread through the summer courses at Darmstadt also created a strong influence on the American composers. (Crumb, 1994 audio tapes)

Just like the European musical traditions would leave its imprints on American music and therefore on the music of George Crumb, so the music of the Far East also played an important role, particularly on composers who lived on the West Coast (Crumb, 1994 audio tapes). In a lecture Crumb relates how once, when he was teaching at University of Pennsylvania, an ethnomusicologist at the University had invited several musicians from the east to come and demonstrate their instruments and music. Crumb had been transfixed by the strange sounds which floated across the hall and into his room "like Siren-songs"(Crumb, 1994 audio tapes). Eastern influences became obvious in the works of many American composers, John Cage being a prime example with his venturing into Zen Buddhism and the Eastern philosophies, but it is easy to trace some of Crumb's timbral footprints back to these influences and the composer's constant search for new ways to develop his timbral sense. In one of the lectures from a workshop given at the Hochshule für Musik in Vienna, 1994, Crumb explains his fascination and interest in the new instruments, especially in light of the fact that the composer had no obligation to use the instruments in their traditional way. The composers were free to use the sounds as they pleased and according to their own compositional wishes. This way of looking at new instruments and traditions as being a sort of raw material is something Crumb shares with Charles Ives and it is also an example of the great love for experimentation found in American music. (Bjerkestrand, 2005).

2.1.1.2 "Enlarging" the piano: Cowell, Cage and Crumb

George Crumb's *five pieces* from 1962 display extended piano resources and mark a definite brake from the composer's previous compositional style. The use of extended techniques in piano music had been done before, most notably by another American composer, Henry Cowell, and one of his more famous students, John Cage, who had established a whole new sound world related to the instrument through his pieces for prepared piano. While Cowell experimented with reaching inside the piano in the 1920ies, creating what he called "string-piano" through pieces such as "*Aeolian Harp*"(1923) and "*The Banshee*"(1925), the invention of the prepared piano came in the

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[13] Although Cowell finished writing the work at twenty the book was first published in 1930 after extensive revision.

late 1930ies when Cage was asked by the choreographer Syvilla Fort to compose the music for her *Bacchanale.* Cage was enthusiastic to the idea and had originally envisioned a large percussion ensemble but as the performance space was too small and all that was available was a piano he started experimenting with altering the sound of the instrument, making it more percussive. While Cowell had altered the sound by plucking and scraping the piano strings with his fingernails or brushing then with his palms Cage first experimented with placing objects upon the strings and later of inserting the objects in-between the strings, creating his own personal percussion "orchestra".

Through his works for prepared piano Cage effectively altered the way one expected a piano to sound and through this, more than through a sharing of techniques, Crumb can be said to belong to the same line of "piano-developers" although his use of the instruments follows more the tradition of Cowell. Crumb is very clear on the fact that his use of extended techniques differs considerably from that of Cage. (Crumb, 1994 audio tapes). Through the piano preparations of Cage's music a new but fixed sound world was created, where a note, although altered from its traditional sound, still would remain the same throughout the piece. Crumb however was interested in the possibility of changing the timbre of the note during the course of the piece. In this connection he talks about "enlarging" the piano, where what is created is not another instrument with a fixed set of sounds but an instrument with innumerable possibilities of creating timbral changes throughout one and the same piece. In Crumb's music strings are plucked or muted with hands and fingers. Glissandi effects are made by brushing the strings with fingertips or fingernails and arpeggio- chords are created by silently pressing down the keys of a chord with one hand while brushing over the resonating strings with the other. In addition percussive effects are made by rapping the metal beams of the instrument with the knuckles or hitting the bass strings with the palm. Many pieces also require the pianist to use percussive instruments inside the piano, such as mallets and brushes or to touch the resonating strings with paperclips or pieces of paper. Because many of the effects created within the piano had such a limited reach the use of electrical amplification became an obvious choice and are regularly called for in the composer's works, among other places in *Vox Balaenae* and *Makrokosmos III*.

2.1.1.3 Compositional elements

2.1.1.3.1 Timbre and Instrumental techniques
Crumb nurtured a deep admiration for the French composer Claude Debussy. One of the main reasons for this was Debussy's emphasis on timbre, an emphasis which made the timbre become a compositional element in itself. Crumb was interested in the change of focus from that of structure to that of timbre, a focus which "exalted" timbre to a whole new level. Inspiration from composers such as Mahler was also instrumental in this interest in timbral explorations. The exploration of timbre will often naturally lead to the use of extended instrumental techniques which is one of the main stylistic traits in the music of Crumb as was mentioned concerning his works for piano. This is also seen in some of the less programmatic compositions, like *Five pieces for piano* (1962) and *Four Nocturnes (night music II)* (1964). In the latter the exploration of the violins timbral possibilities presents the instrument in a new light as Crumb bridges the gap between the two instruments through a rich variety of alternative techniques, evoking a sense of

nightlife in which we are confronted with a host of unfamiliar noises from unknown creatures hidden in the shadows. Crumbs' use of voice-effects in several of his works, for instance in the *Makrokosmos I and II* or in works like *Black Angels,* can be sees as the wish to continually expand the timbral possibilities. Through the use of whispers, shouts, singing, whistling and tongue-clicks the musicians are in a way pushed into going beyond the instrument, adding to or enlarging their original musical voice.

2.1.1.3.2 Form/symmetry

Crumbs affinity for symmetry, in pitch formations as well as in overall form is seen in many of his works. *Black Angels* shows an example of the use of palindrome forms where the thirteen movements of the work are suspended in an arc and where the instrumentation of the movements relates symmetrically to one another. Symmetrical shapes are also found on a harmonic and thematic level, as in *Makrokosmos II, A Prophecy of Nostradamus/ Aries,* where both chords and themes are mirrored and reversed halfway through the piece so that it is actually possible to turn the score upside down and continuo to play. Cyclical shapes are also created on a larger scale by the repetition of movements as in the song cycle *Apparition*.

In the "mosaic" form-construction which Crumb mentions in his interview, small cells (often rhythmical or interval based) are presented either singular or grouped together into larger elements. Themes, ideas or elements of high associative richness are repeated, augmented or fragmented and used in new combinations which create a several-levelled musical landscape of alterations and related items. Despite the process of alteration the elements used remains recognizable, often by retaining the ability to create associations in the listener through the use of musical quotes or signs. For instance, in the piano piece *A Little Suite for Christmas* (1979) there is a bell-like theme of a repeated sixth interval which through its intense repeated rhythmical pattern and increased dynamic expression creates a strong symbolic impression; a musical sign available for a wealth of imaginative interpretations. "Signs" like this occur frequently in Crumb's music and functions as easily recognizable elements of prolongation for the listener.

 In order to create recognizable objects rhythm is also used extensively. Crumb gives credit to Bartók for the inspiration in using rhythms based on prime numbers (3, 5, 7, 11, 13 etc.) In *Lux Aeternam* (1971) for instance the four refrains labelled "Masked Dance: Elegy for a Dead Prince" contains percussive beats in the successive order of 77, 55, 33 and 11.

2.1.1.3.3 Quotes/references to other works

In a way we might say that one of the terms best used to describe the form of the works of Crumb is the linguistic term parataxis; the juxtaposition of elements. The placing of themes and ideas of equal importance next to one another is a reoccurring feature in the music of Crumb. We often find the juxtaposition of elements from different musical styles, such as un-western musical traditions, free tonal elements, whole-tone scales etc. In the piece *Lux Aeternam* the instrumentation includes a sitar. However, the sitar is not used in accordance to traditional Indian musical practise as the music is deprived of the two main organizing forces of this musical tradition: raga and talae. It is mainly the sound and timbre of the instrument which is used along

side with its capacity to create a tonal centre through the tuning of the strings in octaves and fifths.

Another element is the frequent inclusion of external musical references, both from within traditional western music and from folk music, religious music, and non-western traditions, like quotations from Bach's Wohltemperierte klavier in the piece *Makrokosmos III. Music for a Summer Evening* (1974) for two pianos and two percussionists, or in *A little Suite for Christmas* where fragments of an old English carol is inserted into the fragile structures of a free-tonal frame. In both these examples the musical quotes (in addition to the pure tonal elements which they contribute with) has the ability to evoke a wealth of emotional and symbolic associations in the listener. In *Makrokosmos III* the last movement is captioned with an excerpt from a poem by Rainer Maria Rilke:

"Und in den Nächten fällt die schwere Erde aus allen Sternen in die Einsamkeit. Wir alle fallen. Und doch ist Einer, welcher dieses Fallen unendlich sanft in seinen Händen hält"[14]

The movement starts with a gigantic downwards gesture in both the pianos where both pianists play an identical polyrhythmic phrase slightly un-synchronized creating a sense of randomness and chaos. What is created is a musical sense of "falling". Each gesture is initiated with a brushing across the bass strings of the instruments creating a sense of a vast open space behind the sounds. The falling-gesture is repeated several times. Then, out of the reverberations of the last gesture comes a frail line from Bach's Wohltemperierte klavier played extremely softly. The juxtaposition of these two elements set against the introductory quote from Rilke creates a strong impression and symbolically it is possible to interpret the Bach melody as that "something" which, in the midst of the great fall, holds the world ever so tenderly in its arms through its sense of beauty and familiarity. By being something recognizable and ordered it creates a sense of "home-coming" after the brutal chaos of the great falling gestures and the quote is given a strong symbolic meaning in addition to contributing with a tonal "flavour".

2.1.2 Black Angels. Thirteen Images from a Dark Land
Electric String Quartet by George Crumb

2.1.2.1 Numerology and duality
The work Black Angels was completed in 1970. In the score the inscription "in tempore Belli" (in times of war) is added and refers to the ongoing Vietnam War. However Crumb himself has said that the work first and foremost is "a parable on our troubled contemporary world." (Crumb, 1990) In Black Angels the underlying idea of "our troubled contemporary world" is presented as a description of the soul's mystical journey beginning with the fall from grace (Departure), through the state of the dark night of the soul (Absence) and the return to light (Return). The main centre of the work is the essential polarity between Light and Darkness, God and the Devil. In Crumbs work, this is presented through a systematic use of numerology constructed around the numbers seven and thirteen. These two numbers are used as a basis for rhythmic figures, intervals, melodic

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[14] Translation: And in the nights the heavy earth is falling from all the stars down into loneliness. We are all falling. And yet there is One who holds this falling endlessly gently in His hands.

phrases and repetition of chords among other things as well as the overall shape of the movements. Each movement has its own numeral construction which is given in the score at the beginning of each movement and also on the first instruction-page of the score (see below). The numeral construction is however not always easily discernible, at least not audibly, and in the analysis below I will only comment on it in those movements where it stands out. Crumb remarks in the score that the numerological construction of movement 7 (7 times 7 and 13 times 13) is a central motto which can be seen as the numerological basis of the entire work[15]. Numbers are also used in the ritual chanting the musicians are expected to perform during certain movements. Numerals from one to seven and one to thirteen are to be chanted in seven different languages, among others Hungarian, Russian, Japanese and Swahili. It should also be mentioned that the work was completed on Friday the thirteenth of March 1970.

The work itself is built mainly on palindrome forms. It consists of thirteen movements which between them form an arc supported by the three main threnody movements: movement one, seven and thirteen. These movements are also the only ones that are played tutti. Between these three the other movements are placed in a mirror-relationship: movement 2 and 12 are trios, movement 3 and 11 are duos, movement 4 and 10 are accompanied solos, movements 5 and 9 are duos and movements 6 and 8 are trios.

Movements	Numerology

Departure

1. Threnody I: Night of the electric insects (tutti)	*13 times 7 and 7 times 13*
2. Sounds of bones and flutes (trio)	*7 in 13*
3. Lost bells (duo)	*13 over 7*
4. Devil-music (solo – cadenza accompagnata)	*7 and 13*
5. Danse macabre (duo)	*13 times 7*

Absence

6. Pavana lachrymae (trio)	*13 under 13*
7. Threnody II: Black Angels (tutti)	*7 times 7 and 13 times 13*
8. Sarabanda de la muerte oscura (trio)	*13 over 13*
9. Lost bells – echo (duo)	*7 times 13*

Return

10. God- music (solo – aria accompagnata)	*13 and 7*
11. Ancient voices (duo)	*7 over 13*

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[15] Introductory text from the score. *Black Angels*. New York: C.F. Peters, 1970.

12. Ancient voices – echo (trio)   *13 in 7*

13. Threnody III: Night of the electric insects (tutti) *7 times 13 and 13 times 7*

2.1.2.2 Instrumental techniques and musical quotes

The work has a strongly surreal expression due to all of the different instrumental techniques the musicians are expected to use, and the fact that the instruments are all amplified so that the effects created are given a prominent role in the general soundscape. The dynamics of the piece ranges from barely audible whispers, often marked "gossamer", to screechy intense outbursts and the techniques used vary from regular bowing, pizzicatos and glissandi to playing with metal thimbles on the fingers, plucking the strings with paper clips and bowing on the "wrong" side of the left hand near the pegs. A lot of the techniques are used to emphasize the percussive side of the string instruments and at the same time, the musicians are expected to use a number of supplementary percussive instruments, among others: maracas, Tam Tam, gongs and water filled crystal glasses. All of this along with highly poetic movement-titles contributes in creating an atmosphere of intense emotions and strong symbolism.

The work itself borrows a variety of musical quotes from other compositions, especially from the Latin sequence Dies Irae which occurs both in the fourth and the fifth movement, but also from Schubert's "Death and the Maiden" and Tartini's "Devils Trill." This also contributes in setting the mood of the particular movements, the atmosphere and the associations given to the listener.

2.1.2.3 Analysis

When analysing *Black Angels* through its emergent musical forms the use of sonological analytical methods reveals form patterns that looks more at reoccurrence, repetition and textural relatedness than harmonic progression and thematic development in the sense of traditional form. In the analysis of this work I have chosen to use a *Taxonomical analysis.* This is a method of analysis with the following aural focus:

- *Time fields* -a grouping of musical elements based on audibly recognizable and logically related units where we deal with four different time levels: Object-fields, phrase-fields, sentence-fields and form-fields,
- *Dynamic form* -categorizing the different time fields into forward-oriented, presence-oriented or backwards-oriented functions,
- *Musical layers* -relations between simultaneous musical units, definition of foreground and background in the musical material.
- *Form-building elements, processes and transformations* -A ranging of the relationships in form-building processes between elements of great similarity to elements of great difference.

During this analysis I will present these terms briefly and give a short explanation of the particular elements from each of the four systems that has been used.[16]

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[16] A more thorough description of these four parameters together with the term *taxonomical* is given under 4 Appendix→4.3 *Key terms and definitions* → 4.3.3 *Taxonomical analysis*.

The work *Black Angels* is a densely saturated composition and a thorough analysis of the piece would have to include elements like numerological structures, tonality, instrumentation or special instrumental techniques, musical quotes, symbolism etc. However, in this analysis our main task will be to understand the formal structure of the movements through the chosen analytical tools (time fields, dynamic form, musical layers and form building elements, processes and transformations). In order to exemplify this analytical methods I have chosen movements one, two, seven and nine. The other elements mentioned will be considered where they appear pertinent. The symbolical meanings of the music and the musical elements can also often give valuable information concerning interpretational choices, and the numerous writings in the score (like the fact that the voice of the first violin in movement four is labeled "vox Diaboli" or the caption "trillo di diavolo" given over the shake in the cello voice in movement seven) underline the need to also look at the work and the technical choices the composer has made from a symbolical angle. The musical quotes taken from other works are all connected through themes like death, darkness and diabolical forces. (Schubert's Death and the Maiden, the Latin chant Dies Irae, Tartini's Devils Trill). This tells us something about the composer's wish to create a certain atmosphere and how the use of quotes from other works as well as unconventional instrumental techniques and vocal and percussive elements contribute in creating this atmosphere.

The enclosed graphical analyses of the four movements[17] are marked by time markings referring to the Cikada quartets recording of the work (along with works of Anton Webern and Witold Lutoslawski). The music can be heard on the enclosed CD as tracks 1 – 4.

2.1.2.4 Movement 1: Threnody I. Night of the Electric Insects
The first movement is constructed mainly out of static, repeated sound structures, which is given momentum and direction through dynamic form and instrumental technique (according to written instructions each figure is to be played very loudly and with a very rapid vibrato, while all the notes are conjoint in a continuing glissando, giving the musical figure a piercing and intense character.)

In the analysis of this movement I have made use of *Time fields* and *Dynamic Forms* as the main analytical tools. The timelines of the graphic analysis consists of two levels where the time fields are placed above the dynamic forms[18]. The term time field is closely related to traditional musical terms such as musical phrase and musical sentence. In a time field analysis we divide the music as heard into successive units of different length. The length of the fields is decided by the time-level which we choose to use. In this analysis we operate with three different time levels: object fields, phrase fields and sentence fields. The different fields are combined in a hierarchical structure. Just like syllables are component parts of words, which again might be seen as component parts of phrases, which are component parts of sentences etc. Object fields are the component parts of phrase fields which again are the component parts of sentence fields etc. What levels to use

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[17] See 4.1 *Graphical analyses.*

[18] In the analyses of movement 1, 2 and 7 brackets have been used to show the time lines of the analyses. In movement 9 the analysis consists of only one line and the three versions of analysis are placed above each other separated by bold lines.

depend on how detailed an analysis we wish to make. The difference in levels are shown in the horizontal line of the notational symbol: object fields have broken lines, phrase fields have a single straight line, sentence fields have a double line and form fields have a double line with two short additional lines at the beginning and end of the field line. In this analysis form fields will not be used[19].

2.1.2.4.1 Time fields

I've chosen to divide the movement into five *Sentence fields* each placed inside a bracket. The divisions occur at points where I aurally experience a change in the sound structure or the presentation of new musical material.

The first sentence field is divided into four smaller *Phrase fields* where the presentation of the musical texture vary between greater and lesser degrees of intensity, something which is shown through the dynamic field-analysis placed beneath the time-fields. A time field may be concluded in six different ways[20]. The first and third phrase field of the first sentence field are abruptly cut off and this is marked in the analysis by a **X** on the stems of the phrase field markers (the same might be seen at the end of both the phrase field and a sentence field in the third line.) The second sentence field has more varying dynamics. The third and fourth sentence fields are of relatively equal construction (00:30 - 00:42 and 00:43 – 01:02): above a subdued phrase field comes two of the voices with four short thematic entrances (*Object fields)* followed by a homophonic phrase field, which consists of in the third sentence field a diminishing/decreasing dynamic form (00:36 - 00:42) and in the fourth sentence field a more shifting dynamical form (00:47 – 01:03). The fifth and last sentence field begins with an echo of the first movement and then gradually vanishes.

The figuration of the opening is constructed tonally over the intervals of a minor third, a major second and a tritone, three intervals which are repeated through the entire work, but as the harmonies, the instrumental techniques and the dynamics combine in creating a highly complex sound image, the tonal elements are almost impossible to perceive with an exception of the short thematic solos (00:30 - 00:36 and 00:43 - 00:47). Rather than creating a melodically recognizable line a homogeneous flexible texture is created, which is stretched and formed in order to create the effect of a swarm; of insects as well as helicopters. ("Things were turned upside down. There were terrifying things in the air... They found their way into Black Angels") (Crumb, 1990).

2.1.2.4.2 Dynamic form

Dynamic forms deals with the large-scale directions in the music which might be experienced both in the terms of general dynamics (ranging from pianissimo to fortissimo) as well as general terms of tempo (accelerando to ritardando). In addition to this, direction might be created through articulated tendencies such as musical textures becoming gradually louder, faster, denser, thinner etc.

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[19] For a graphical representation of the different Time fields see 4 Appendix→ 4.3 *Key terms and definitions*→ 4.3.3.1 *Time fields*

[20] For a graphic representation of these six notations see 4.3.3.1 *Time fields.*

The three main notational forms are:

forward-oriented   presence-oriented   backward-oriented

These three may be combined in different ways and the size given to the symbols may be used to denote individual differences (i.e. the difference between a large and a small crescendo). When trying to establish dynamic forms we need to decide which level of detail to focus on. Under 1.2.1 Listening intentions we mentioned the three levels on which it is possible to experience the musical discourse (as sound objects, as elementary musical gestalts and as formal gestalts). Dynamical forms may be found on all three levels, depending on how detailed an analysis we wish to make. Often it can be helpful to combine several levels as in the third and fourth lines of this analysis. Here the first violin and cello plays two short glissando-sounds each in the same reseeding dynamic. Each of the sound objects of the instruments has been labelled with their own dynamic form, labelling them all as backward-oriented forms. Beneath these four forms I have placed one long presence-oriented dynamic form showing the static field created by the second violin and the viola.

In the first line of the analysis each phrase field has been given one dynamic form. All of the four phrases in the first line consists of static blocks of sound and are therefore given presence-oriented dynamic forms. The forms are given different size to show the relation between their dynamics and show the constant alternation between phrases of high and low intensity. In the analysis accent symbols are used to point out the articulation of the dynamic forms[21]. They help to pin point moments of interest and focus, and underline musical forms on a larger scale. Through their different functions they give the time fields a clearer profile, helping us to see clearly the beginning, direction and conclusion of time fields. In this analysis I have used two different accent function symbols: first the general sign for an accent denoting simply a weighted point. This is marked by a wedge-shape. The entrances of the first and third phrase field of the first line have been given this accentuation to mark that they begin with a burst of energy. The other function is the so-called "release point". This is an accent which marks the beginning or a release of movement where the energy created in the accent is released (and sometimes thrown) forward. This is marked by two arrows joined in a straight angle. In line three and four the four short dynamic forms have been given this accentuation to underline the sense of release given in the abrupt diminuendo of the instruments. The use of accent functions is helpful in order to visualize the possible interpretations of the music for instance in deciding on the dividing of the music into time fields.

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[21] For a graphical representation of the seven different accent functions see 4 Appendix → 4.3 *Key terms and definitions*→ 4.3.3.2 *Dynamic Fields*

All the accent functions may be combined according to need, as may be seen examples of in the analysis of movement 7, Threnody II Black Angels.

2.1.2.5 Movement 2: Sounds of bones and flutes

This movement consists of clearly defined parts and elements with different degree of complexity. In order to be able to present these as clearly separated entities, I have made an analysis of *Form-building elements* (as well as Time fields and Dynamic Forms) in order to show that we are dealing with several levels of textural complexity. The form building symbols are placed underneath the dynamic form symbols. They contribute in clarifying likeness and relatedness between the different elements of the movement.

2.1.2.5.1 Time fields

In this analysis I have chosen to divide the movement into four sentence fields (placed in four lines, each inside brackets) based on the fact that the same pattern of construction is repeated four times: each sentence field is initiated by two short rhythmical sections (marked by two phrase fields) divided by a glissandi pizzicato tone, which functions as a transitional element. This is marked graphically by a slanted line between the two fields. After this there follows a more accentuated static rhythmical field with a clear subdivision of seven beats marked by the staccato whisper of sharp consonant syllables. Three of the beats are accentuated by tongue-clicks. (In the analysis these beats have been marked by an accentuation mark in the form of a wedge.) This is followed by a short melodic phrase giving the impression of a short intermezzo in an increasing/decreasing dynamic form, leading into the next sentence field.

The short glissando transition found between several of the phrase fields leads us to another important point in the analysis of time fields. As we divide the musical discourse into separate fields it becomes natural to look at the way these different time fields are joined or placed in relation to one another. This relates to the emphasis that organic form places on *function* when it comes to relating different parts of a musical structure to each other. There is a total of seven different ways the time fields can be positioned in relation to one another, all of them showing different ways that the time fields relate to one another[22]. As we see in the analysis the four sentence fields are connected in a hinged position where the end object of the previous time-field coincides with the beginning of the one that follows it, while the last phrase field of each of the four lines are connected to the previous phrase field in an overlapping position.

2.1.2.5.2 Dynamic form

As the dynamic forms used in this analysis are fairly self-evident they will not be mentioned here other than to point out their great ability to visualize the repeated form pattern used in this movement.

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[22] For a graphical representation of the seven types of time field positions see 4 Appendix→ 4.3 *Key terms and definitions*→4.3.3.1 *Time fields*

2.1.2.5.3 Form-building elements

The form-building element-symbols given beneath the time-fields and the dynamic forms show the degrees of complexity of texture and tone within each sentence field. The degree of complexity is shown through a scale of geometric figures where the increasing number of sides on the figures point to the degree of complexity. The development from simple to complex sounds or textures follows the following scale: Circle, triangle, diamond, quadrant, and hexagon. The use of single versus double symbols (double triangles/single triangles etc.) is explained through the categorization of the sounds into, on the one hand, melodic elements or lines (single symbols) and on the other, textural elements (double symbols)[23].

The first two phrase fields have a moderate degree of complexity (a double triangle on a stem), while the third is of a higher degree due to the fact that the notes played by the instruments are underlined with tough clicks and whispered staccato syllables (a double diamond on a stem). This is followed by the fourth phrase field which consists only of a simple melody played by the first violin *col legno*. After the intense rhythmical part with its complex sound combinations, the effect is that this field is experienced as having a very low degree of complexity (a single circle on a stem). This general shape (two short linked phrases, a highly accentuated rhythmical phrase and a concluding melodic motif) is repeated in all the four sentence fields with small variations of dynamic and rhythmical pattern. The triangular symbol is, in addition to show its degree of complexity in relation to the following rhythmical and melodic parts, used to denote the particular rhythmical figuration which is repeated in each of the first two phrase fields of the first, second and last lines. This consists of three demisemi quavers followed by a glissando where the bow is thrown unto the strings and where the last note is accentuated. There is however a small change in the third sentence field were the two phrase fields in the beginning are connected into one field and the rhythm is given a sense of polyphony in that the rhythmical figure is imitated between the second violin and the cello (this is shown in the analysis by placing the symbols in two layers or rows to indicate the number of different voices.) Towards the end of the phrase the rhythm is altered in that the last part of the figure, the glissando made with the thrown bow, is repeated alone. In order to show this we can split the triangular symbol in two, giving a rough idea of what is happening. The point is not to give an alternative detailed rhythmical notation but to show that the previously repeated rhythmical figure now is being splintered into smaller pieces. This is followed by the same rhythmical field and transitional intermezzo marked with the same symbols. In the fourth and last sentence field the transitional intermezzo decreases and vanishes in the overlapping transition to movement 3. I have placed the ending of each of the first three sentence field lines in small brackets to indicate the overlapping transition between each sentence field.

The movement is given a strong percussive flavour as the musicians whisper staccato syllables and click their tongues in the accentuated rhythmical parts (entrances: 00:05, 00:16, 00:28 and 00:38), making the short melodic phrase of the first violin at the end of each sentence field to stand out.

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[23] A further presentation of the graphical representation of Form-building elements is given under 4 Appendix → 4.3 *Key terms and definitions*→ 4.3.3.4 *Form- building functions, processes and transformations*.

Numerological the movement is constructed over the relationship "7 in 13". The movement has 13 bars which alternate between 3/8 and 7/16. In addition to this the melodic phrase of the first violin consists of 13 notes of which the first three and the last three are demisemi-quavers while the seven notes in the middle are semiquavers. In other words: seven notes in a phrase of thirteen or "7 in 13". The melodic phrases are constructed from the combination of a whole tone scale and a pentatonic scale, giving the melody a flavor of folkloristic or archaic music, an impression which is amplified by the title of the movement.

2.1.2.6 Movement 7: Black Angels (detailed analysis)

This movement may be seen as the centre point of the entire work. Its numerological motto 7 times 7 and 13 times 13 is the numerological basis of the entire work. The movement is played tutti and "furiously, with great energy" as the composer has written in the score, the result being highly expressionistic.

If we chose to see the symbolic term Angels as the first manifestation of God's energy and will, then the *black* Angels must be seen as manifestations of the opposite. Symbolically this becomes most obvious in the music through a continuous shake which runs through the entire piece, entering shortly after an introductory gesture. In the score this shake is labelled " trillo di diavolo". Symbolically speaking the shake may be seen as the original dark energy which saturates the entire movement, giving strength and life to its black creatures. The movement alternates between strong outbursts and eruptive elements, and more lyrical lines of a more late-Romantic style, but all the time the shake runs through every element in the movement like an overcharged electric current, giving the gestures a flavour of hysteria rather than lyrical song.

2.1.2.6.1 Time fields

The entrance figure with seven short stabbing attacks is repeated three times throughout the movement, and in the analysis I have therefore seen these figures as the starting point of three sentence fields. Each of these sentence fields may be seen to share certain elements: a Bartok-pizzicato, the "seven-attacks"-starting figure and the number 13 which is shouted in three different languages. Each of these three sentence fields are followed by a sentence field with more melodic elements and great dynamical variations. In this movement several important elements occur on the sound object-level and I have therefore divided the phrase fields into several small object fields to mark these sound objects as separate from one another. This also underlines the expressive nature of the movement in that it shows the many bursts of energy and the energy's constant changing of direction in the music.

In the three melodically-based sentence fields at the end of the three first lines (00:19, 00:54 and 01:24) I have chosen to keep the phrase fields as the smallest unit, not splitting them up into separate object fields. This is to underline the sense of melody and melodic development. The only exception happens at the end of the third line in the second phrase fields which begins at 01.40. Here it seems obvious to use object fields to point out the three overlapping entrances and exits given in the instruments.

The fourth and last line consists of one single sentence field which has been divided into two phrase fields. The first of these follow the gradually constructed melodic swelling of the three

previous sentence fields mentioned above (00:19, 00:54 and 01:24) increasing slowly in pitch as well as intensity towards the climax where it meets with percussive vocal shouts where the numbers one through seven are shouted/spoken with gradually diminishing dynamics. Each of the vocal outcries has been given its own object field. The musicians play a continuing tremolo which swells and diminishes between each outcry, but which recedes together with the voices towards a whisper, giving the listener a false sense of calm. Then, at the very end, the listener is jolted back into tension by a crashing beat on the Tam Tam and the number "thirteen" shouted out in unison. Emerging from the reverberations of the crash comes an almost indiscernible echo of a gossamer-like tremolo with the caption "solo obbligado. Insect sounds" introduced earlier in movement 6 Absence. This element creates a link into the following movement.

In this analysis I have chosen to use a number of accent functions in different combinations. These have been used to underline and articulate the many dynamic forms given mainly in the first sentence field of the three first lines. In the first and the second line the Bartok pizzicato has been marked with a combination of a "point of release" and a "point of affirmation". This is because both these places affirm previous musical elements which precedes them; in the first sentence field an abruptly ended glissando which leads to the Bartok pizzicato and the beginning of the "devil's trill", in the second sentence the shouting of the number thirteen in Swahili. Although the last Bartok pizzicato in the third line also functions as "point of release" it does not have the function of an affirmation of something pre-gone. Nevertheless all the pizzicatos share the function of points of release. Together with the vocal outcries of the number thirteen (shouted in three different languages) they function as a constant factor linking the first three sentence fields of the first three lines together, while at the same time creating variation by never appearing in the same place in proportion to one another. The last two elements of the movement has also been labelled with two accent functions; the beat on the Tam Tam with a "point of release" and the final shout of "dreizehn" with a combination of "point of goal" and of "point of termination".

2.1.2.6.2 General analysis
In this movement I have, in addition to the detailed analysis, constructed a general analysis in order to show an example of the kind of mental "summary" it is possible to make from a complex aural material such as this. Trying to construct a general analysis is always a tricky business as we risk the chance of diminishing the work into easily graspable elements, viewing the work on our own premises rather than opening to the complexity of something not meant to be "a perfect fit"; said in another way: it is almost always possible to find what one is looking for. In a general analysis we therefore run the risk of simplifying to such a degree that we may later be unwilling to acknowledge elements in the movement which might counter or sabotage our analysis. However, provided one is keenly aware that any analysis is by definition a simplification where certain elements are brought forth and others ignored, a general analysis might be useful as one of many possible choices and most of all: as a support for our memory.
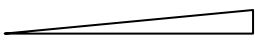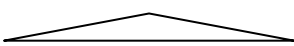
In my analysis I have chosen to view the dynamic main tendencies, drawn at the bottom of each line of the detailed analysis, and the appearance of two elements in the movement: the Bartok-pizzicato played in unison by all four players (marked A) and the vocal elements (marked B). If we

simply look at the sequence of these elements throughout the movement we get the following pattern:

A B, B A, BA, A´ B.

Again this is an example of the analyzers choice to simplify: the last A´ has been marked with a sign to show that it is no longer a pizzicato but a strike on the Tam Tam. I have chosen to see this last element as an enlargement of the pizzicato element, magnified by the composer in order to underline the finishing climax of the movement. Purely compositionally speaking one might also argue that the enlargement is needed in order to balance the repeated vocal counting from the mark 02:01. A traditional pizzicato would simply not be a strong enough climax after such a build-up. In this way I have ended up with a highly symmetrical analysis. However by recognizing the enlargement of the last element (the strike on the Tam Tam) I have also driven a wedge into my own analysis by pointing out that the experience of the music is highly forward oriented; it all leads up to a grand climax, something which is not visible in the symmetrical analysis which rather

than showing a tendency like this: seems to point to a tendency like this: (AB, BA, BA, ÁB). Nevertheless the analysis has certain strengths in that it emphasizes the pizzicatos and the vocal elements and their relation to one another. Looking at the pizzicato elements we also find one repeated tendency: they all function as an energetic release point; they collect the energy either as an affirmation, a conclusion, or a goal of the pre-gone phrase and hurls the energy forward, creating a strong sense of propulsion, making it clear that they are crucial elements in the construction of the large form of the movement.

2.1.2.7 Movement 9: Lost Bells
In this movement I have chosen to look at *layers* in addition to the form building elements and the dynamic fields. This analysis has been divided into three parts to show three different alternatives when it comes to analyzing the work. The three alternatives can be viewed as fulfilling each other or be seen as different types of focus. At the top we have the simplified analysis showing the overall dynamic form of the piece. In this analysis the dynamic fields are used in order to denote the general energy shape of the different parts. This dynamic analysis will not be discussed any further here as it is of a highly general and simplified nature. In the middle there is an analysis of the musical layers of the piece and their construction and at the bottom an analysis of form-building elements, processes and transformations is given.

2.1.2.7.1 Form-building elements
The movement consists of several clearly defined musical textures and elements which are combined in different ways. These different musical events are what we might call in a general word the movements' form-building elements. The symbols used to depict these may therefore represent such different things as a theme, a melodic passage, a sound object or a texture. When it comes to form-building elements we can talk of three basic relationships possible between them: recurrence, variation and contrast. An element might be repeated, it might be repeated but slightly altered creating a variation over the original element or it might be followed by something perceived as entirely unrelated to it; a contrast. This three-way partition gives little room for

nuances and we therefore normally operate with a number of six different degrees of similarity/dissimilarity shown graphically as different versions over the equality-sign.[24]

 The general shape of the movement is the Arc: a slow introduction leads to a gradual condensation of texture towards a broad central texture at the mark 00:34 and then recedes in an equal dilution of texture. When looking at the graphic form analysis what stands out most clearly is the melodic fragment of the cello which consists of a small cell of seven notes and then a following triple repetition of the two last notes, making it a total of thirteen notes. The fragment has been given a form building symbol of a single triangle. This figure is repeated at three points: 00:13, 00:28 and 00:50. After the first entrance of the cello the second violin enters with a soft arpeggio-motif played pizzicato. This motif is repeated again at 00:48 this time played arco at a quicker pace. In the analysis this motif has been given the form building symbol of a diamond in order to show that the timbre is more complex than in the traditionally played notes of the cello. The two elements have been connected with a symbol for *recurrence/variation* to show that they contain the same note-material although the technique with which they are executed differs. In the same way the three entrances of the cello motif has been connected with the same sign in order to show that the three entrances are almost identical but a slight change occurs in the last repetition (I will come back to this later). In the upper line a *recurrence*-symbol is used which connects the introductory and concluding gesture: the slow, high pitched harmonic which is created by one of the musicians drawing a bow across the edge of a Tam Tam. This element has been given the form building symbol of a double hexagon, referring to the richly overtone-timbre of the harmonic.

The middle part of the movement is created by a sequential introduction of three elements, introduced one at a time: first a lingering tremolo played with maracas, then the gentle whisper of the numbers one through seven in French and finally a short staccato phrase of ten notes in a mirrored rhythm where the viola throws the blow lightly onto the strings, ending with a soft glissando. All the three elements are terminated in mirrored sequence of their entrance: first the staccatos in the viola, then the whispered numbers and finally the maraca. In the analysis the maraca is given the form building symbol of a double triangle, the whispered syllables are presented as double circles and the staccato viola notes are single triangles. In the middle I have chosen to let these three elements merge together and form a new harmonic form-building element, presented through a double quadrate. In sonological terms we might say that the three elements merge in a process of fusion which is then reversed in a process of fission. Afterwards the arpeggio motif is repeated but now played Arco. It has nevertheless been represented with the same symbol as previous in the movement: a diamond. It is followed by a last repetition of the cello motif with the same formal symbols as in the beginning. The movement is concluded with

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[24] For a graphical representation of these six symbols see 4 Appendix→ *4.3 Key terms and definitions→ 4.3.3.4 Form- building functions, processes and transformations.*

the same double hexagon symbol of the bowed Tam Tam as used in the beginning of the movement.

The form-building symbols chosen here give an analysis which shows the movement to be, as mentioned earlier, in the form of an off-centred arc. The symmetry of the piece becomes clearly visible, resembling that of the Golden mean. Also, the contrast between the introductory and concluding motifs of cello and second violin, and the percussive complex texture of the middle section of the movement, stands clearly out.

2.1.2.7.2 Musical layers

The analysis of musical layers tells us something about the relationship between foreground, middleground and background in the music as heard. However, in this analysis the musical material is so scant that I have restricted the analysis to comprise merely of foreground and background. The labelling of the layers are given by an F (foreground) or a B (background) written at the beginning of each layer line.

Both the entrance note (the Tam Tam) and the following melodic sequence of the cello are here given the prominence of foreground. This because they both stand out as clearly separated elements; the richness of the tone created by the Tam Tam makes us listen with great interest and the melodic phrase of the cello immediately catches our attention with its easily remembered phrase. The Tam Tam-note overlaps slightly with the ending of the previous movement, strengthening its position as foreground, as an introduction in this overlapping fashion almost always will give the newly entered element a specific focus and therefore label it as foreground. At 00:25 the second violin enters with its soft pizzicato arpeggio but even though this is yet a new element introduced to us I have nevertheless chosen to categorize this element as background seen in relation to the repeated melodic phrase of the cello. This is because the cello-phrase sticks in our mind and when repeated so shortly after its first entrance it is automatically pushed into the foreground of our attention. We might say that at its entrance point, the violin arpeggio might be experienced as a foreground, but at the moment the cello melody is repeated the violin phrase will be seen in retrospect as background to the cello.

In the middle part of the movement where the three elements enter at different intervals (the maracas, the whispered numbers and the short staccato notes) we are faced with a problem; although the elements standout as they enter and should therefore all be given the status of foreground, both the maraca-shake and the whispering of numbers are through their complex textural nature not experienced as natural foreground-elements. They all, in addition to the staccato viola notes (although these have been marked with a "melodic" symbol) lack a sense of tonal centre and are therefore easily experienced as a background anticipating some sort of foreground-voice. However, as the three elements merge a dense texture is created and as the elements gradually recede leaving only silence, it becomes clear in retrospect so to speak that this dense texture has been a foreground element; a dense web which is given its prominence through the combination of these three greatly different elements which together form a completely new element. The foreground element of the middle section has been placed in brackets in order to show the broad complex layer which is created, visualized by three lines. As musical layers may

have different width, the graphic notation of the layer may vary from one to four lines depending on what it comprises (in analytical terms we might call a layer narrow, expanded, wide or ample according to its number of lines). In an expanded or wide layer (comprising of two or three different layers and lines) we often find that certain of the layers can have an intense profile meaning that some of the elements are given prominence over others. This is represented by making some of the lines thicker than the others. I have nevertheless chosen to characterize this layer as having a general weak, homogenous profile (the three lines are thin and of equal width) because I feel that the texture created consists of structural features which is typical of a background.

As the three layers gradually recede, they are followed, after a short silence, by the first violin which enters with the arpeggio theme now played Arco. The first time this theme was introduced we labelled it as background because of its relationship to the cello motif. However, this time it enters as a clear melodic element, following a layer which has been mainly percussive and textural in nature. Therefore (also by being played Arco) the violin motif stands out in our mind as a contrast to the foregoing layer and is here given the status of foreground. As the cello enters yet once more with the same melodic theme as in the beginning of the movement, the violin motif is pushed into the role of background, and the same thing is experienced as the Tam tam concludes the movement with its richly textured harmonic, overlapping the cello which recedes into background as the Tam Tam takes the prominent role of foreground. The gradual entrance of both the cello motif and the Tam Tam note is notated through a slanted line which joins the different layers.

In this analysis the labelling of the second violin motif and the cello motif can be used to illustrate an important point: if we listen to the recording done by the cicada quartet the two cello motifs in the beginning of the movement are labelled equally as foregrounds and the second violin motif in the beginning as background. This labelling is a highly subjective choice based on an auditiv experience of the music. However, if we look at the score of the music we notice several objections to our analysis. For instance, the motif of the second violin is written as mezzo piano while the second entrance of the cello is given as pianissimo receding to pppp. It should therefore seem that the prominence is given to the second violin and not the cello. Another objection can be made to the last two entrances of the cello and the second violin, because when we look at the score we find that the instruments have actually switched motifs; it is the cello which now plays the arpeggio motif as 6th partition harmonics and the second violin which plays the cello motif on the G string. As listeners this is almost impossible to notice. This is important because it shows that the analysis may change according to our point of view: aural information or graphical representation (score) and originally, the Aural Sonology Project was launched because of the impression that the *aural aspect* of much contemporary music (particularly in a time of many novel compositional techniques) was being neglected in favour of a strong focus on the written score. (Thoresen, 2007b). The choice taken in this analysis underlines the fact that this is an "aural" analysis.

During my interview with the composer George Crumb I showed him several of the movements I had analyzed in order to discuss a possible area of use for this kind of analysis. Crumb was

particularly clear in his answer that any written presentation of the music should, according to his opinion, only be used in a pedagogical fashion. It was of the greatest importance that the music was left to speak for itself. If we apply the same principle to the analytical situation we might say that the auditiv impression created through the music is the one thing which is important. Our analysis is not meant to give a truthful picture of how the music is constructed in the score but how this construction appears to the listener listening to it. It also underlines yet again that the sonological analysis is by its nature highly subjective. The listening experience in itself is highly ambiguous and can result in a variety of different emotional experiences as well as formal analyses. Therefore, the greatest advantage of a taxonomical analysis is its ability to point out different constructional possibilities in the music, and how the mental emphasis (of a listener) or the mental and technical emphasis (of a musician) of certain elements may create one experience of a work while another emphasis might create quite another experience.

2.2 Bent Sørensen

2.2.1 Bent Sørensen: Looking beneath the surface

2.2.1.1 The element of Intentional fallacy

Contemporary music often has the unfortunate tendency of provoking in some listeners a sense of frustration and low self-esteem by constantly placing them face-to-face with something seemingly incomprehensible; something which doesn't lend itself easily to categorization according to our usual patterns of understanding, and nothing makes people more uncomfortable than being faced with something which they feel unable to understand and thereby to master. When it comes to music, the eternal paradox is precisely that music is not meant to be "understood" in the same sense as a mathematical problem or a written text. Music is concerned with a different kind of "understanding", one which often demands that we disable certain tendencies in ourselves, among others, the tendency to seek a certain kind of comprehensibility in everything we encounter, the kind which is mainly concerned with comparing and categorizing according to prior knowledge.

Composer Bent Sørensen is particularly clear in his opinion that music is an enigma not to be understood but experienced in an enigmatic relationship which comprises both the composer and the listener alike, so that he finds it perfectly plausible for a listener to find or discover things in one of his works which he as the composer might not be aware of.[25] In this regard, the composer shares the views of the German philosopher and linguist Hans-Georg Gadamer. Gadamer claims in his essay "Ästhetik und Hermeneutik" (Gadamer, 2001: p 137–145) that the true nature of an art work can never be concurrent with what the creator of the artwork had in mind when he created it, simply because no artistic expression can ever be fully exhausted as a concept, no matter how many explanations we apply to it. This brings us to the concept of intentional fallacy. Intentional fallacy is a term used as a critique against the belief that in order to understand an artwork it is necessary to know the full intention of the artist who created it. It is a way of pointing out the possible fallacies in theories of this kind; the most obvious one being the difficulty in ascertaining the intent of an artist or a composer, who is long since dead. In addition to this there is also the fact that other elements besides the artists' conscious intent may have played a crucial part in the creation of the artwork including, above all, the subconscious of the artist[26].

But although the element of intentional fallacy is important in reminding us that the artwork always continues beyond the artist and that there are no absolutes when it comes to the interpretation of music and art, knowledge of the composer's conscious intentions are nevertheless important when it comes to the *presentation and analysis* of new music, because the knowledge of these intentions are just as important in constructing for oneself a comprehensive understanding of the work, its creation and its surroundings, than any new interpretation we might come across. Furthermore, as our emphasis lies on the element of presentation, the

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[25] See 4.4.2 *Cycles of songs. Interview with Bent Sørensen.*

[26] For a further definition of intentional fallacy see the Appendix → 4.3.2 *intentional fallacy.*

composer's intentions (perhaps specific ones when it comes to the performance) are always of vital interest, for instance in cases where the interpretational setting plays an important part in the expression that is to be created.[27]

According to Gadamer the art work speaks for itself. It imparts something. Not in the same way as a historical document imparts information by being a historical source, but rather as one individual to another; as something which is present and contemporary to us no matter what time or period it was created in. Therefore, in order for an artwork to be fully experienced, we need to integrate it into our own self-awareness and our own general philosophy of life.[28] In Gadamer's writings, the hermeneutical method helps to point out one crucial fact: in understanding something we receive information from someone or something and receiving involves a voluntary act, therefore one cannot listen without being willing to let someone else speak or, to put it more generally: one cannot understand without being *willing* to understand. Said differently: in order to experience a piece of music and its individual, unique message, the listener must first be willing to listen, to grant the music of chance to speak on its own terms and Bent Sørensen is a composer who has always granted his music the ability of containing more than what he himself has placed consciously into it.[29]

2.2.1.2 Sørensen and the musical traditions of Denmark from the 1960ies.

Bent Sørensen was born in Denmark on the 18 July 1958 and was initially a self-taught composer with his roots in folk music and the clarinet as his instrument. In the years 1983-91 he received tuition from Per Nørgård and Ib Nørholm which changed his musical direction. In order to understand this influence we need to consider the compositional environment in Denmark at the

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[27] See 4.2.2 *Cycle of songs. Interview with Be Sørensen.*

[28] The term "the art work" presents certain problems when it comes to music in terms of identifying the art object itself. When we speak of music as art, is it the written score or the aural presentation of the music which we are talking about? If we choose the aural presentation as our focus, we are faced with the problem of diverging performances, in the sense that no two performances are alike, and "the artwork" will therefore never be the same but in a constant state of flux. This makes it difficult for us to postulate anything general about "the work "since there is no such thing as the ultimate performance, as long as we are dealing with music meant to be interpreted by human beings. In this way music separates itself from artworks of a more constant nature, like a painting, a sculpture or a book. However, if we identify the artwork as the written score, we definitely have a fixed object on which to focus, but are faced with the obvious objection that the written score was never meant to be seen as the ultimate representation of the art work, it is merely a means by which to arrive at the artwork itself, the music as an aural entity. Another interesting question arises here. When the composer created his work (the music), did he envision the music aurally in his head? If so, we might say that he envisioned something which did not yet exist as an aural element, and if we go one step further and consider the composer Ludwig van Beethoven, who was composing in his later years without being able to hear a single note, both during the compositional process and afterwards, we can ask ourselves *what* it is that he is hearing when he composes. Does the artwork exist inside Beethoven's head? Does the identity of music as an art form only lie in the people who are able to perceive it aurally or in the work itself as an autonomous identity independent of whether it is ever played or not? I have no intentions here of coming with any specific conclusion, but merely to point out that there are many different ways in which the term "the art work" may be, and are, defined.

[29] See 4.4.2 *Cycles of songs. Interview with Bent Sørensen*.

time, an environment which had been shaped in a large degree precisely by composers such as Per Nørgård, Ib Nørholm, Pelle Gudmundsen-Holmgreen, Karl Åge Rasmussen and the earlier composer Vagn Holmboe.

One particular event was to become of great importance to the Danish compositional environment. In 1960 Per Nørgård and Ib Nørholm along with several other young Danish composers had travelled to the ISCM Festival in Köln where they had experienced important contemporary works such as Alban Bergs *Wozzeck*, Maurizio Kagels *Anagrama*, Karlheinz Stockhausen's *Kontakte*, Pierre Boulez' *Pli selon pli* and György Ligeti's *Apparitions* among others. Nørgård himself later commented that this could be seen as a crucial moment in their lives, indeed in the life of music history in general: the birth of post-modernism. (Nørgård, 1985-1986 – 02) This was music which carried a strong emotional sensitivity while at the same time being founded on strict technical disciplines. To the composers from Denmark the music represented a way to make a clean break with the emotional sentimentalism and the old musical forms of Danish Romanticism which were dominant in their home country at that time.

Nørgård himself had studied at the Royal Danish Conservatory in Copenhagen in 1952-55, a time in which the atmosphere was rather conservative and where the traditions of composers like Schonberg, Boulez, Stockhausen, Cage and Messiaen were either completely unknown or not spoken about. After returning from the ISCM-festival Nørgård and some of his fellow composers had decided to put together a study group in order to delve deeply into the new ideas and techniques which they had been acquainted with. The struggle against conformism was central. Compositional elements such as Nørgård's infinity-row were expressions of the new constructivism which was to become part of a musical direction called New-simplicity, a direction which owed a lot to the influences the Danish composers had experienced in Köln. The term comprised both the ideal of making music easily attainable but also of strictness and constructivism. New-simplicity was a reaction against the old forms and the "academical" approaches to music which were to be found in Danish conservative national romanticism, but it was also a rejection of the technically dry copy-pieces from the later "disciples" of serialism and the Darmstadt school; works which were written in the techniques of the Darmstadt time but which, by not being created as an expression of its time but as an imitation of a technique, fell short as a genuine contemporary expression.

Within new-simplicity there was a focus on communication through strong dramaturgical elements and often a high degree of constructivism coupled with strong expressiveness of which we might find clear examples, among other places, in the music of Arvo Pärt in the 70'ies (for instance in highly repetitive and strictly organized works like *Cantus in Memoriam Benjamin Britten 1977-80*, *Ludus* and *Silentium* from the work *Tabula rasa 1977* and *Für Alina 1976*) and in Nørgård's Infinity- rows and tone–lakes. In connection with Nørgård the term "self-likeness" is also central, meaning that the musical material circles around the same basic structures and intervals even though the row is changing as it moves down through the levels of the composition. This also gave rise to a clearly hierarchical way of thought; one which was to become highly influential in Danish music along with the so-called metamorphosis- technique, frequently used by many Danish composers, among them Per Nørgård. Nørgård had developed a keen interest for the music of the

Finnish composer Jean Sibelius and especially for his metamorphosic way of compositional thought, in which the music often developed in an organic fashion. Nørgård spoke of this as the organic growth and development of one central idea and material, and called it a worthy replacement of the dualistic principle of the Sonata-form. (Red. DMT/ Nørgård (1997-1998: -01) In Nørgård's view this technique allowed a musical thought to expand through a constant change in expression, character and material while at the same time retaining its "self", its essential core. Nørgård had experienced this earlier in the *Sinfonia Boreale* by the Danish composer Vagn Holmboe but saw Sibelius as the originator, mainly through the late symphonic works. In addition to this Nørgård claimed to have found, in the studies of Sibelius' *5 Symphony* and the work *Tapiola,* elements of symmetry and Chaos-phenomena later to be presented in the Chaos-theory of the70ies, (Nørgård, 97/98:-01) which were to become an important inspiration to Nørgård's infinity-rows and tone-lakes, developed over the 1960ies. These scientific theories were also adopted by other Scandinavian composers at the time such as the Norwegian composer Rolf Wallin. (This will be mentioned closer in *2.3 Rolf Wallin*)

Internationally the Danish composers became particularly visible in the sixties and seventies. There were two main compositional environments in Denmark, one in Copenhagen and another in Aarhus, the latter being seen as a dynamic opposite to the conservative Copenhagen environment. This became particularly clear in 1968 when the Aarhus Conservatory hosted the 23rd edition of the Young Nordic Music Festival and the organisers, among them the composer Karl Aage Rasmussen, selected a program which comprised only modern music, thereby giving the music a chance to reach a larger audience. Rasmussen had been a student at the conservatory and was later a teacher at Aarhus.

The traditions of new-simplicity, the metamorphosis techniques, use of layers and musical quotations and collages were all elements which were frequently in use by Danish composers. In the music of Sørensen we find several stylistic elements shared by other Danish composers of his time, among others the transparent and sometimes fragile moods which almost by understatement creates an extremely emotional expressiveness, along with the use of clearly defined and recognizable forms or gestalts, sometimes as hints of melody or melodic elements which might also be found in the music of some of his contemporary colleagues, among them his friend Hans Abrahamsen for instance in the work *Winternacht* from 1976-78. The element of constructivism is clearly present in Sørensen's music, particularly through his use of layers and strata. Sørensen's frequent use of layers, of letting certain groups of instruments create strata of different textuality and timbre which can move against, away from, combine or intertwine with each other, creates a strange sense of three-dimensionality in his works. This is also a technique which is shared by several Danish composers, perhaps also because it is a technique which is easy to teach and to work with, although mastering it takes skill.

Postmodernism with its backward-looking tendency had its strong followers in Denmark although it was treated different here than elsewhere. In Denmark post-modernism came along a lot later that elsewhere and not so much as a reaction on modernism (which was practically absent in Danish music) as in a fruitful cross-fertilization with it, something which can be seen in the works of among others Sørensen. Several composers made use of the past through a variety of different

ways: by paraphrasing, by studying and examining a particular style or technique, by collage works and by cut and paste techniques to mention a few. In this regard there are often great differences between composers who are "looking backwards" such as the Norwegian composer Olav Anton Thommesen, the Italian Luciano Berio and the Danish composers Pelle Gudmundsen-Holmgreen and Karl Aage Rasmussen. Even though Sørensen does not share Gudmundsen-Holmgreen and Rasmussen's use of pre-existing musical material set in new connections, or their collage and montage techniques there is nevertheless a strong element of reminiscence and memory in Sørensen's music often created through his reuse of elements from his own earlier compositions making the listener feel as if he is faced with something he vaguely remembers. We might also say that Sørensen's use of echoes, where he often lets one of the instruments play out the resonance of another or lets one group of instruments "shadow" another group through his layer technique, is in a way an abstract presentation of the very phenomenon of remembrance and memory.

2.2.1.3 Compositional elements.

2.2.1.3.1 Complexity, tempo and pointilist impressions

In 1996 Sørensen received the prestigious Nordic Council Music Prize for his violin concerto "*Sterbende Gärten*" but his international breakthrough came with the string quartet *Alman* in 1984, performed by the prestigious Arditti Quartet. Their involvement with Sørensen was to continue through a number of performances and recordings. Ironically the Arditti Quartet also contributed in giving Sørensen a reputation as a composer of complex and "difficult" music in the same traditions as that of Brian Ferneyhough and other central European composers who wrote in the continuation of the modernistic tradition. Sørensen was often placed in connection with the complexity-dogma of, among others, Stockhausen and Boulez with their search for never before perceived sounds and the necessity of accepting complexity through a constant and ruthless search for a new musical language (Griffiths, 1981: p21). However, this does not fit with the elements of recognizability which are so overwhelmingly present in all of Sørensen's music and which gives it its ability to create such rich associations in the listener. There is nothing of the modernistic estrangement in Sørensen's music; rather we are faced with a sense of something vaguely familiar and almost recognizable.

Sørensen's approach to the use of tempo might give us a hint of what lies beneath the seaming complexity-expression in his works. Sørensen often creates layers of different musical texture, which stand in contrast to each other. In some layers the music is often teeming with a hectic activity when seen up close, but if we make our ears take one imaginary step backwards we see that all the details make up a larger picture, a larger form which moves in a slower tempo. When we experience something as moving very fast and giving us a large mass of information in a short span of time, sooner or later something will change in our listening focus and the tempo will seem slower to us. This is because our minds have a tendency to gather the information we receive from our senses into larger units in order to better classify them.[30] So when we receive a massive amount of information in a very short time our mind picks out certain tendencies and reoccurring elements and focuses on them, thus giving us the experience of larger units of sound moving at a

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[30] see 1.1.4 *Temporal awareness*.

slower tempo. In other words: the glimmering mass of musical details that are found in Sørensen's music does, after a while, create the impression of large musical forms moving at a calm pace; a musical gesture, almost like a bodily movement translated into sound. The teeming dots of the music may also be compared to the impression of a pointillist painting. Sørensen himself uses the pictures of the painter Seurat as an example of the relationship between details and form (Sørensen, 1997). The pointillist artworks makes no sense when seen up close; it's just a collection of coloured dots, but when seen from a distance the images emerge clearly. A Similar pointillist impression is created musically in the work *Shadowland (1988-89)* where the piano and the glockenspiel entwine their melodic lines, playing many short staccato notes at a fast tempo in a close register, thus creating a glimmering, unified mass which, to the listener may be perceived as a single slow-moving layer of sound.

In Sørensen's music, one often gets the impression that there are many things going on in the music which one is unable to grasp but which one, at the same time, is keenly aware of. There is a sort of paradoxical experience connected to this: the knowledge and the somewhat near subconscious experience that there is a richness and wealth of information hidden within the music and at the same time the impossibility of grasping this completely with the conscious mind. This mirrors the case of the pointillist picture: only when we are willing to let go of our perception of the individual dots can the main motif of the picture emerge before us. Similarly, in Sørensen´s work we can only grasp the larger gestures and forms by letting go of all the teeming details overwhelming our ears.

2.2.1.3.2 Recognizability
An interesting connection to the American composer George Crumb can be seen in the fact that they both experience each individual composition as parts of one large lifework.[31] In Sørensen´s work, this is particularly clear because of the strong elements of reminiscence, which we find in his pieces. Many of the pieces overlap and borrow elements from one another, creating the very clear impression that we are dealing with a single integrated world of sound in which the musical ideas emerge according to a conscious unifying principle. This is more than just the common recognizable stamp of a composer. The different works emerge as distinct individuals, creatures belonging to the same world, and what's more: sharing a long forgotten genetic code with us humans. This sense of recognition, or rather, reminiscence has always been strongly present in Sørensen's music. The famous quote by the Norwegian composer Arne Nordheim, that "... it reminds me of something I have never heard," is fitting to the impression one gets when listening to his music.

There are elements in the music which appeals strongly to our ability of association, among other things the composer's affinity for pregnant titles. *The deserted churchyards (1990), This Night of no moon (1998-99), Looking on darkness (2000)* and *Shadowland (1988-89)* are all titles carrying an almost sensuous invitation into a sound-landscape strongly connected to the subconscious world of dreams, stories and archetypes. In addition to this much of Sørensen's music has its base in literary works. The piece *The Lady of Shalott (1987 rev.1993)* was inspired by a painting by the

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[31] See 4.4.1 *"I never believed in purist systems". Interview with George Crumb.*

pre-Raphaelite painter John William Waterhouse, which depicts a scene based on a poem by Lord Alfred Tennyson, and in the piece *The Echoing Garden (1990-92)*, the composer uses texts from Albert Cohen and William Shakespeare, as well Rainer Maria Rilke. At the same time we also find among the composer's work more traditional titles such as *Cavatina, Intermezzo* and *Lachrymae* and the composer himself states that the somewhat misinformed notion that everything in his music has to do with decay and nostalgia over a lost and withering past is a misinterpretation, despite titles such as *Funeral March*, *The Weeping White Room*, *The Deserted Churchyards* and *The Birds of Lament*. Indeed, we find little trace of nostalgia in his works *Birds and Bells (1995)* or the vortex-like piece *Clairobscure (1987).* According to the composer the titles always comes first, often inspired by meetings with literary texts or experiences which remain through the resonance they create with his own inner world[32]. In this way the titles are to be seen more as names of individuals than as descriptions of completed works. This is an important distinction because it shows that to Sørensen the work is already to be regarded as an individual entity at the moment of "conception" so to speak, and that the name given at this moment of "creation" names somehow the true original identity of the piece no matter how it may turn out in the end, somewhat as one might name a child regardless of how the child might turn out to be.

2.2.1.3.3 Tone colour and silence

In Sørensen´s music tone colour has always been an important element. He is famous for his delicate shades of tone variation and unusual sound constellations where he often uses unfamiliar means to get the desired effect. One never gets the impression that it is the instruments which dictates the sound, but rather, that the sound dictates the instruments and their required techniques. In *Ständchen* there is a part where the string players use wooden bows on muted strings, while some of the wind players rub their clothes or rustles a plastic bag. This creates a collage of sounds that strangely enough blends in with the rest of the music. It does not sound like anything remotely familiar and yet one gets the feeling that there is a strong relatedness between the chosen sounds. At the ending of his work *The Deserted Churchyards*, one of the sounding gongs are submerged into a water tank, causing the pitch to bend abruptly and creating a strange sinking sensation in the stomach of the listener. This brings the image of churchyards on the brink of being slowly swallowed by the sea almost uncomfortably close in the listener's imagination. Sørensen's interest in the finer shades of tone coloring also becomes evident in the act of transcription as will be shown in the analysis of *The Lady of Shalott*, a piece originally written for violin solo, and later for viola solo, but eventually transcribed by the composer for string quartet in 1993. Sørensen uses silence in his music as an element on a par with sound. He distinguishes between different types of silence, defining it not necessarily as the absence of sound, but as a quality of mood. In this capacity silence plays an important part in Sørensen's music.

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[32] More information on the composer's use of titles can be found on the facebook-profile of the composer under the caption "the titles"

2.2.2 The Lady of Shalott
String quartet by Bent Sørensen

2.2.2.1 Isotopies and narrative sources.
The lady of Shalott by Bent Sørensen was originally written for solo viola in 1987 and was later transcribed for solo violin in 1992 and for string quartet in 1993. The analysis of this thesis will focus mainly on the string quartet-version and the audio used in the analysis is taken from the CD *Birds and Bells* with the Oslo Sinfonietta and the Cikada quartet, ECM New Series 1694, 465 135-2.

The original inspiration to the piece was a painting by the Victorian English painter John William Waterhouse depicting a scene from the poem "The lady of Shalott" by Lord Alfred Tennyson[33]. The composer encountered the picture in the Tate Gallery in London. In the first version of the viola-score certain parts of the music were given "titles" of a somewhat descriptive nature such as: "morning", "Lady singing ", "bells a'ringing". These titles were later removed from the score because the composer felt that they made the music seem to programmatic, but on the other hand Sørensen admits that the titles may be seen as a support in understanding the "story" of the work.[34] This fact also speaks in favour of including the poem and its story as part of an analysis of the music. I have therefore chosen to make an isotopic analysis based on both a taxonomical but mostly a figurative listening intention where the poem will be used as a narrative source. I will therefore begin with a presentation of the poem and a definition of the term "Isotopy".

2.2.2.2 The poem The Lady of Shalott
The poem *The Lady of Shalott* is set in the context of the old Arthurian legends of England. It tells the story of a fair lady living in seclusion on the island of shallot, a place situated up-stream from King Arthur's city Camelot. The lady's one main task in life seems to be to contemplate the outside world through a magical mirror and weave the images she sees there into a tapestry. She is forbidden to look out of her window onto the real world outside by the threat that a curse will fall upon her if she so does. A main part of the poem goes to describe the Lady's secluded life, cut off from the real life and condemned for ever only to partake in the world of men through the shadows of her mirror and the frozen images on her tapestry. She sees people going by, the moon shining on loving couples and the knights of Camelot riding past two and two. One day she sees the reflection of Lancelot riding by and captured by his beauty she forgets everything and rushes to the window. The mirror shatters, the tapestry is torn asunder by a wind and the Lady feels the curse falling upon her. A great storm rises and the lady, sensing that she soon will die, finds her way down to the river. She finds a boat, writes her name around the prow, lies down in it and sets it adrift down the river. While singing her death song she dies and the boat comes to rest on the shores outside the walls of Camelot. She is found by the nobles of the castle who are sadden by

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[33] The complete poem is found under 4 Appendix→ 4.2 *The Lady of Shalott. Poem* as well as a web address where a print of the picture might be seen.

[34] Private Mail 30 okt.2008 from communication on facebook between the author and Bent Sørensen. The excerpt used may be seen upon request.

her fate and Lancelot, not knowing that he is the cause of her death, praises her beauty and prays that God have mercy upon her soul.

The poem has been the inspiration of many artists, especially painters from the pre-raphaelite tradition who has depicted scenes from the text. J. W. Waterhouse, painted three paintings illustrating three different episodes from the poem. Each of the paintings contains much of the mood and idea of the story. In the picture that Sørensen encountered a young woman clad in white is sitting in a low boat, loosening its mooring and setting the boat adrift. Over the edge of the boat we see parts of a large woven tapestry where a knight on horseback may be seen and up in the prow of the boat are three burning candles and a crucifix. The woman wears an expression of utmost despair, sorrow and possibly madness, her long hair blowing in the wind. In one of the other paintings Waterhouse depicts the lady in the moment when she is turning to look at Lancelot through the window and the threads of the loom ensnares her as she struggles to go to the window. The image of the lady standing over her web ensnared in the threads of the loom as she weaves on steadily is a motif that has been used by other painters as well. Many of the paintings inspired by the poem depict the many metaphorical elements and double meanings hidden in the text. For instance, the act of weaving is a way in which the Lady captures the world around her but depending on how one looks at it the tapestry with its loom and many threads also creates the impression of being a web which holds her captive.

2.2.2.3 Definition of the term "Isotopy"

In this part I will make use of the term *Isotopy* as a main term around which to concentrate the analysis. The term was derived from the structural semantics of the Lithuanian linguist A.J. Greimas. (Greimas, 1966). Generally speaking, the point is to find the common feature or denominator that links units together and makes us perceive certain elements as parts of a greater whole. An Isotopy is an implied meaning which creates coherence in the material at hand, be it text or music.

When we listen to music we receive such a vast amount of information that we have to make a selection of some kind in order to comprise it into a system which is comprehensible to us. Because we in listening are confronted with a temporal object experienced as a series of elements we are most often dependent on reoccurrence or repetition in order to have a reason to recognize and notice certain of the elements and to be able to keep them in our mind while continuing to listen. Things tend to stick in our minds when they are repeated, whether they are melodies, themes or phrases, rhythmical patterns, harmonic successions, dynamical shapes or specific timbres. When I, through listening to music, organize what I hear into defined elements which can be discerned or separated from one another, I create so-called musical gestalts in my mind.

Musical gestalts are the observable and yet un-interpreted elements experienced by the listener and when he or she begins to interpret these elements they will create an inner experience of structure. When we as listeners begin to experience relations between these different gestalts which we have become aware of, and we begin to group them together into larger patterns or longer strands, we get a greater understanding or a sense of something "graspable", and the "glue" which combines these elements and makes us experience them as related is the Isotopy of

the piece. We might say that the Isotopy is something which we might experience as the governing principle of a piece that equips us with a possible interpretation of the music; a certain sense of underlying logic. It is however important to note that the Isotopy we find is but one of many possible choices we as listeners have. It will of course always be possible to point out certain general elements which through their recurrence might be seen as general traits of a piece but the choice of which of these that might be experienced as the *main* element is highly subjective and also depends upon what strategy or listening intention we are using. Contrary to a jigsaw-puzzle where every piece has only one true and correct place there is no singular "right way" to experience or understand a piece of music. Sørensen himself claims that music is an enigma in which the listener often will be able to find elements and levels of meaning which even the composer himself has not seen, but which might be just as true and enriching.[35] In other words, we have the possibility of multiple ways of understanding.

Most music, as it appears to us, contains such a wealth of information that the sheer amount of it calls for a deciphering focus. In 1.2 *Concerning Sonology and aural sonology* we mentioned the three levels on which it is possible for us to experience music (level one: as sound objects. Level two: as compound sound patterns and level three: as form- building patterns). Isotopies may be found on all of these levels and sometimes on several levels simultaneously, making it possible to talk about poly-isotopies. It might therefore be useful to create a typology of the Isotopies found in a piece, especially to make a distinction between *predefined Isotopies* and *emerging Isotopies*. The following definition may be given to these two terms:

The predefined Isotopies are the ones that already are crystallized into a method of analysis (...) the emergent Isotopies are ones that are not already codified, either because they were not yet discovered, or they are specific to a particular work.(Thoresen, 2007a: chapter 1.3.4.7)

In the case of this analysis I have chosen to establish the following elements as predefined Isotopies:

- String quartet.
- String timbre.
- Exploration of sound and timbre.
- A linear discourse based on a narrative text.

These are elements which I, as analyst, have chosen to see as main components according to my experience of the music. Having established the chosen predefined Isotopies we can go a step further. These predefined Isotopies allows for me as an analyst to choose a narrative-based analysis with a strong focus on timbre. With these points of reference we can then start looking for the emerging Isotopies through several listenings of the musical material (with the appliance of a taxonomical listening intention[36]) and in this case also a thorough reading of the poem. When discovering, choosing and going into such an emerging musical structure or pattern it is often

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[35] See *2.2.1.1. The element of intentional fallacy*.

[36] For a definition of "taxonomical listening intention" see 1.2 *Concerning Sonology and aural Sonology*

common to experience these gestalts as conveying an extra-musical meaning of some sort. (This is of course even more so in works which are more or less based on literary text or narrative chronology of some sort, as is the case of this analysis.)

In Aural Sonology the focus (when it comes to experiencing Isotopies) is mainly on level three out of the different levels on which to experience music; that of form-building patterns. An Isotopy is by its nature concerned with context and is therefore rarely local; it often points to sections, entire pieces or even styles and genres. The methods created for analysis are mainly occupied with structures with isotopic possibilities found on this level such as Time fields, Layers, Dynamic form etc.[37] but several Isotopies are also found on level two. In this analysis I will deal with two Isotopies where one of them is a musical gestalt-Isotopy on the second level that is both a purely musical thematic gestalt and a narrative-linked expression and the other is a narrative-based isotopy linking a main theme of the poem as I have chosen to see it (that of reflection) with a main element of form (that of heterophony).

The first Isotopy on the second level has two aspects, one musical and one narrative. The musical aspect or form of the Isotopy is found in many different versions throughout the piece while the narrative aspect of the Isotopy mirrors a main "theme" in the poem. Both the musical and the narrative aspect of the Isotopy found in *The Lady of Shalott* is presented and discussed in the analysis under the captions "The narrative aspect of the Isotopies" and "The musical aspect of the Isotopies". Level two-Isotopies are often recognized by being described in pairs of opposites such as: *Concord* versus *discord, bright* versus *dark, open* versus *closed, fragmented* versus *integral* etc. The Isotopies chosen for the analysis of *The Lady of Shalott* is no exception and contains therefore pairs of opposites, one pair which pertains to the musical aspect (unfold versus enfold or more directly: crescendo versus diminuendo) and one pair which pertains to the narrative aspect (reaching out versus withdrawing). This will be further explained later.

As the search for Isotopies always involves subjective choices in addition to more or less objective recognition of repeated elements it can never be the intention of an isotopic analysis to discover any kind of objective absolute truth concerning the music in question, but through the use of Isotopies we have a way *into* the music. The search for an Isotopy is the search for a way to experience a work of music as a homogeneous entity where the parts of the piece are related and connected through a central idea and element. Whether this entity or entities is the works "true nature" or what the composer intended while creating it is not the question. It is simply yet another way of reaching out for the music. In other words: an emergent Isotopy is a tool that can help us get a personal sense of understanding of the organic form of a piece of music. Within the field of aural Sonology we can, through the use of Isotopies, establish a possible starting point for a visual Sonological analysis. When we find a reoccurring element we can try to present it by a set of symbols or analytical structures, such as through dynamic forms, time-fields, layers or formal transformations. Every analysis in which we use these structures (dynamic form, time-fields, layers etc.) is an analysis in search of isotopic dimensions. The choice of which analytical system to apply

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[37] In the analysis of *Black Angels* by George Crumb these structures were seen as the Isotopies and were therefore chosen as the analytical tools. See 2.1.2 *Black Angels. Thirteen images from a dark country. Analysis.*

is a question of pertinence which again points to the sonological analysis as a flexible system that, depending on the analysts focus and choice of method, can reveal different aspects of the same piece.

2.2.2.4 Analysis

The Isotopic focus that is chosen in this analysis opens up for an analysis that deals with both *general context* and *detail*. I will focus on the general context in two ways: by examining the Isotopies (both the narrative and the musical aspect) and through a description of the general form of the piece. On the detail-level I have chosen two points of focus: the subjects of tone colour and of layers. The analysis will begin with a presentation of the isotopies and their narrative/musical aspect. Then I will describe the general form of the piece and, while passing through the different parts, examine the detail-elements (tone-colour and use of layers) in connection to particular places in the analysis where they are particularly visible. For instance: the element of tone colour will be discussed under the description of the part labelled *A*. It will focus on a comparison between the first opening bars of the solo-viola and the string version, and the point is to show the composers detailed shaping of timbre and the elements of heterophony used in this process of transcription. This tone colour-development along with the main isotopic gesture is presented graphically in a diagram (diagram 1) enclosed in the appendix along with another diagram (diagram 2) which presents the main gestures, dynamic forms and tone colours of the part "First narrative part: agitated part". Within the part labelled "Second narrative part: singing part" I will illustrate the particular texture of this part of the music through the use of a four-part layer analysis illustrated through 4 graphic layer-analyses.

2.2.2.4.1 The Isotopy of The Lady of Shalott

As mentioned above, based on the predefined Isotopies of the piece I have chosen to make a narrative-based analysis which a strong focus on timbre and timbral explorations. The main Isotopies of this work will be two things: the dualistic opposites of *reaching out and of withdrawing* and that of *reflection*. Withdrawal is one of the key words both in the poem and in the music; withdrawal from reality (which concerns the plot of the story) and withdrawal towards the end of themes, lines, motifs or sequences in the music expressed through diminishing glissandos and the dual tendencies of unfolding versus enfolding or crescendo versus diminuendo (concerning the musical structure). The element reflection is reoccurring through some of the main elements of the poem (the river, the mirror and the lady's constant rendering of a mirrored reality in her web) and in the music through the mirrored movement between the voices. I will look into how the Isotopies manifests themselves in the narrative text and how they may be seen in the structure and form of the music.

2.2.2.4.2 The narrative aspect of the Isotopies

The poem by Tennyson is based on an old Arthurian legend but Tennyson has added much of his own. Where the original myth was the story of the unrequited love between Lancelot and a young woman named Elaine of Astolat the story of the Lady of Shalott bares only a resemblance in the part concerning Lancelot being the reason for the lady's death and the part where the boat carrying the dead young woman floats down the river and comes to rest outside Camelot. In the poem the Lady of Shalott is a somewhat strange and magical creature, who is under a curse. She

can only interact with the world through a mirror, and by weaving what she sees there into a tapestry. In other words, she deals with reflections and mirrored images rather than reality. The obvious question (which the poem never answers) is of course, who put her under the spell? We might even ask if the spell actually is real or just something she is imagining? The poem is ambiguous at this point and only mentions that "(...) she has heard a whisper say/a curse is on her if she stay/to look down to Camelot." And the next verse begins "She knows not what the curse may be (...)"[38]

No matter if the curse is meant to be true or not, the lady might still be seen as a psychological image of a person who refuses or is unable to face reality and yet longs for it. Like the Isotopy of reaching out and withdrawing the Isotopy of reflection also indicates a duality as a reflection necessarily consists of two elements: the reflection and that which is being reflected. In the poem we are presented with the duality of reality and reflection of reality. We have the world of realities, of moonlight, love, friendship and everyday life, but also of loss, rejection and disappointment. Then we have the shadow world, the world of non-commitment, the world of mirages and, ultimately, of safety. In some analyses of the Poem comparisons has been made between the castle of Shalott, and Plato's cave. In both places the inhabitants deal with shadows and reflections rather than real phenomenon, and to introduce change into the situation may prove to be fatal. The lady's occupation of weaving the reflections she sees of the world into a web may be seen as an attempt of reaching for the real world and of trying to hold on to and solidify what she sees there but it is still not enough as she is not reaching the real world, only its reflection. Tennyson´s son once quoted his father talking about the meaning of the poem:

"The new-born love for something, for someone in the wide world for which she had been so long excluded, takes her out of the region of shadows into that of realities" (Nelson, ed 2004b).

And as the poem shows, the entrance into the world of reality proves fatal. The lady lives a life surrounded by reflections and shadows, illusive things which can never be grasped and which slip away when reached for (like the reflections in her mirror). One of the strongest metaphors of this illusive, ungraspable situation is the eternal flowing of the river that surrounds the island and which in the end carries the boat with the dead woman down to Camelot. In the opening of the piece the overlapping lines of (mainly) the first violin and the viola with their continuous crescendo and diminuendo certainly contributes in describing the ever running, surging and flowing image of a river. Alternatively this movement, seen as an audible image of running water, may also conjure up the image of weaving with the constant passing of the loom and its rhythmical back-and-forth-movement. The poem generally depicts the ladies confinement and solitary life as something of a peaceful existence. The surroundings of the river and the island are described in a lyrical way and we are tempted to think that all is well and the lady lives a peaceful and contented life but for one revealing line:

.."I am half sick of shadows," said
The Lady of Shalott.

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[38] See poem in the appendix →4.2 *The Lady of Shalott. Poem.*

This is the first moment we get a glimpse of her despair and desperation and how the world that surrounds her truly is a world of shadows, reflections and images as the music also sets out to describe.

2.2.2.4.3 The musical aspect of the Isotopies

We might say that the piece *The Lady of Shalott* consists of a combination of two things: *narrative parts* and *repeated elements*. The narrative parts are form-parts which concur with the underlying line of the story and which can be seen as related to specific episodes in the plot of the poem. They also accelerate the piece forward. The repeated elements on the other hand are directly connected to the reaching out/withdrawal- Isotopy of the piece and might be seen as the main "motif" or the main element that occurs throughout the piece. It is important to remark that the word motif is not used in a traditional sense here, as something based on recognisable melodic and rhythmic elements but as an entity or element which through its emotional tendency in particular gives the piece its homogenous expression.

The musical aspect of the emerging isotopic pair reaching out/withdrawing has the shape of a swelling sustained note which ends in a receding or diminishing glissando. The diminishing glissando-ending which concludes the motif is the characteristic trait of the withdrawal-gesture in the music (the dynamic contour being of high importance here). It is the gesture of non-completion. You reach out for something, but the will that initiates the movement disappears on the way and the movement becomes aimless. Sometimes the sustained notes start out with a fairly clear direction, underlined by the swell of dynamics but then the sentences trail off into indecisiveness, marked by the glissando-ending. In the music the gestures overlap each other, one vanishes as another starts to form. It is as if all the lines and gestures are constantly trying to construct a form which keeps disintegrating. The fact that the voices constantly overlap each other contributes to the elusive sensation of the music and relates to the themes mentioned above.

The main gesture with the diminishing glissando-movement is presented in the opening part of the piece. In the two opening phrases in bar 1 -2 and 2 – 3 the instruments in combination play first a long slightly lowered b which swells in a crescendo before diminishing and ending in a downwards glissando movement. The ending is overlapped by the beginning of the second phrase which follows the same shape but where the concluding glissando moves upwards instead of downwards. Graphically it might look like this (figure 1):
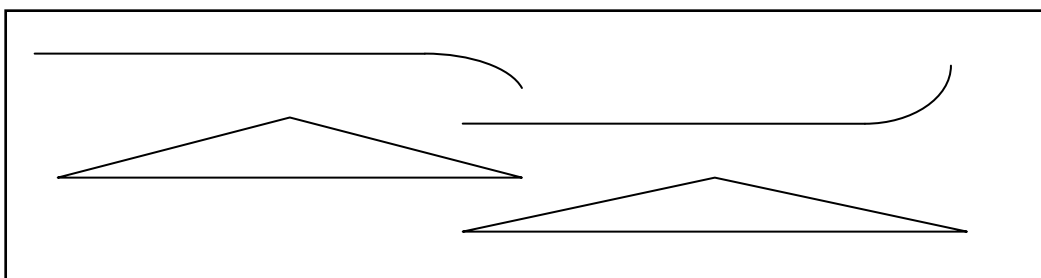
Figure 1

Here I have used dynamic forms to show the dynamic swellings and how these overlap each other. This particular dynamic profile with its diminishing glissando ending appears quite frequently in

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the opening of the piece (00:01 – 01:10) but throughout the work it also appears in slight alterations and shorter versions and between 02:07 and 02:20 for instance, the figure is reversed and diminished, and the short gestures are used to create a polyphonic imitational sequence between on the one hand the 1 and 2 violin and on the other hand the viola and the cello. This will be mentioned later under First narrative part: Agitated part and shown in diagram 2.

2.2.2.5 General form

As mentioned above I have chosen to look at this work as consisting of a mixture of narrative events and repeated elements. The music contains several dramaturgical "episodes" which, sometimes in combination with some of the titles found in the original score, may be seen as depictions of particular events that occur successively in the poem. Considering the general form of the work I have chosen to divide it up in successive parts as shown in this linear partition:

A ⇨ gliss. ⇨ 1.narr. ⇨ 2.narr. ⇨ 3.narr. ⇨ A' ⇨ gliss. ⇨ ending

2.2.2.5.1 A/A'

The opening (bar 1 – 13) contains material which is repeated later toward the end of the piece (bar 70 -79) although in a rather altered fashion. These two parts are therefore described together here. To denote the similarities between the two places and at the same time to show their differences I have marked these two places as A and A'. In the repetition (A') individual notes have been transposed and the rhythm altered; also, the notes are divided differently between the four voices. In the original viola version the A'-part was marked "*molto lontano quasi eco*" underlining the fact of the repetition. These markings have however been changed in the version for string quartet where it only says "*Meno mosso. Molto lontano*."

The opening phrases (A) set the mood of a world shrouded in unreality. The overlapping lines and repeated movements in the different voices creates an impression of mirrors and mirrored phrases just like the lady's mirror-visions. The constant shifting and fluctuating melodic lines may also be seen as a description of the river which surrounds the island of Shalott, especially when we look at the original descriptive titles which were inserted into the original score for Viola Solo where the caption "river flowing" was placed above bar 1.   In the original score for Viola Solo the A'- part was captioned "morning. Unlike in the poem where the lady reaches her boat late in the evening amidst rain and wind the picture by Waterhouse shows her sitting in her boat and loosening the mooring while illuminated by the sun which might just as easily be rising or setting. Anyhow, the morning described by Sørensen is a pale reflection of the beginning of the work and the re-use of musical material gives the "narrative" music a cyclical form.

2.2.2.5.1.1 A/A'-detail: Tone colour

"The Lady of Shalott" was originally written as a piece for solo viola in 1987 and was transcribed for string quartet in 1993. In any analysis it is therefore logical to investigate the steps the composer has taken in order to transform a single voice into four. How do you orchestrate one single melody, and more; how do you make it interesting? One answer may be found in the element of tone-colour. By incorporating a broad spectre of playing techniques Sørensen achieves

a sense of micro-tonality and increases the sound pallet of the work. The composer orchestrates by enriching the tones through the exploration of timbre or tone-colour so as to show what possibilities lies in the tone spectre of the tone. The composer has focused on the quality of each of the notes the viola plays and extracted from these the main composites which combined make up the timbre of each tone. It is as if each tone has been placed under a microscope, and enlarged to reveal all of its facets and details.

With the alteration of the timbre through instrumentation the composer creates an exploration of texture. In the opening phrases of part A this is particularly visible as three of the musicians play the same note but their technique and dynamic vary. The musicians simultaneously play *sul tasto, sul ponticello*, *con sordino* and *Ordinario,* revealing different aspects of the same tone and as these techniques are used not as ornaments and highlights but as the main expressive sound of the piece the music achieves its special insubstantial and many-layered flavour. In addition to this there are frequent alterations between *molto vibrato* and *senza vibrato*, often unsynchronized between the different voices and the result is that of a very rich and multi-faceted yet homogenous layer. In one of his interviews[39] Sørensen talks about different ways the element of echo can be used in music. One of these he describes as a technique in which the reverberation of one instrument is interpreted and played by another instrument, impersonating the sound of the first instrument. This may be one way of looking at what happens in the sound texture in the beginning where the characteristics of the original opening note is divided between the voices and the reverberation and the tone is completed and enriched by a change in technique and texture in an overlapping fashion.

In order to see how the composer has transcribed the viola into a quartet we can compare the techniques and dynamics of the very first note of the opening in two ways. First as a simple chart where we compare the techniques, the dynamics and the notes played:

String quartet-version. Bar 1 – 2 first note

Instrument	Technique	Dynamic	Note
Violin 1	Ordinario. Con sordino Molto vibrato	pppp → cresc → mf → dim → pppp (over five beats)	Low b
Violin 2	Tremolo. Con sordino. Sul ponticello.	p → dim (over half a beat)	Low b
Viola	Con sordino. Sul tasto flautando. Senza vibrato.	pppp lontano (lasts for a duration of three crotchets)	g. Enters on the last quaver of bar 1.

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[39] This interview was found at www.4composers.dk/dansk/sorensen/interview6.htm in 2008 but the web page has since then been removed. A copy of the interview can be seen upon request.

Cello	Sul tasto. Senza vibrato. Con sordino.	Pppp → cresc → p → dim → al niente (over two beats)	Low b

Solo-Viola. Bar 1-2. First note

Instrument	Technique	Dynamic	Note
Viola	Sul ponticello, tremolo.→ ordinario. Senza vibrato → molto vibrato → Senza vibrato.	pppp → cresc → mf → dim → pp	Low b with an added g on the last quaver of bar 1.

It is also possible to present the transcription in colour codes in order to visualize more clearly the alteration. Dynamics are not shown but each of the different techniques as well as the degree of vibrato has been given their own colour (the particular choices of colour has been random and are as follows):
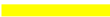
Ordinario

Sul Ponticello

Sul tasto flautando

Sul tasto

Con sordino

Senza vibrato

Molto vibrato

String Quartet-version. Bar 1 - 2

Violin 1

- (Con sordino)

- (Ordinario)

- (Molto vibrato)

Violin 2

- (Con sordino)
- (Sul ponticello)

Viola

- (Con sordino)
- (Sul tasto flautando)
- (Senza vibrato)

Violoncello

- (Con sordino)
- (Sul tasto)
- (Senza vibrato)

To be able to compare the tone colour of the two versions we can make a colour-chart that shows the development through the first two bars. First we show the colour version for viola solo and then the comprised colour version of the quartet:

Viola solo bar 1 – 2
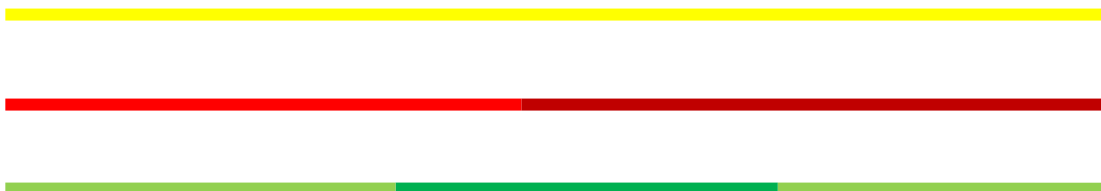
String quartet bar 1 - 2

In the diagrams enclosed in the appendix I have shown the isotopic gesture of the opening bars with the tone-colour chart beneath (see diagram 1). This also shows more clearly the transitions between the two phrases.

The colours make it easier to see the changes that the composer has made with the timbre when moving from solo piece to quartet. For instance, the Viola has no possibility of playing both *senza vibrato* and *molto vibrato* at the same time but in the string quartet the 1 violin and the cello play the two degrees of vibrato simultaneously and by doing so enriches the colour of the tone giving it

more depth. Sørensen also ads the *sul tasto* in the cello and tells the viola to play *sul tasto flautando*. The Viola enters on the last quaver of the first bar with a g creating a minor third interval against the low b of the first violin. In the viola solo-version the player is to play this g pp sempre while at the same time creating a steady diminuendo on the low b which floats above it. In the quartet-version the g is, by being played *sul tasto flautando*, given its own particular timbre and by adding *pppp lontano* the sound is pushed in the back adding yet more depth to the general timbre of the opening. This can also be seen as an example of heterophony. In "on music today", 1971 Pierre Boulez defines heterophony in the following way:

"Heterophony can be defined, generally speaking, as the superposition on a primary structure of a modified aspect of the same structure... Several aspects of a fundamental formulation coincide... Its density will consist of various strata, rather as if several sheets of glass were to be superposed, each one bearing a variation of the same pattern" (Boulez, 1971: p.117 -118)

The fact that the musicians all contribute in playing the same line but differ slightly from one another when it comes to technique, dynamic and pitch, create precisely an impression of several superimposed, transparent layers.

2.2.2.5.2 Glissandi

Both the opening (A) and its repetition later on (A') are each followed by a long drawn-out glissando (01:10 – 01:37 and 05:15 – 05:31). In the first instance the glissando is played by the 2 violin and the viola while the cello sings short repeated phrases underneath partially supported by 1 violin at the beginning of each phrase. The second glissando towards the end of the piece is extended in duration and is played in unison with harmonics giving it a close resemblance to that of a long exhalation. Both of the glissandi might, structurally speaking, be seen as enlargements of the shorter glissandi which are used in most of the parts of the work and which again might be seen as one of the main musical gestures of the piece. The emphasis on the glissando-element throughout the entire work is one of the things which contribute the most to its atmosphere and mood, giving it an insubstantial, fleeting and evasive character which awakes imagination and associations concerning the themes mentioned in the poem as well as moods found in the picture. Speaking metaphorically and in view of the theme of the story it is tempting to interpret the glissandi-elements as sighs and the sigh, as an emotional expression, can be used to denote despair, sorrow, longing, frustration and all forms of inner conflict. The last long glissando placed towards the end of the work can also be seen as a musical description of the lady's death through the final exhalation.

Structurally speaking the A/A' parts, each with a succeeding glissando-part, together form a frame around three "episodes" which I have chosen to call narrative parts (abbreviated above to 1.Narr., 2.Narr. and 3.Narr.) also because they only occur once in the work**.** In this analysis I have named them respectively:

- First narrative part: Agitated part

- Second narrative part: Singing part

- Third narrative part: Dance part

In these parts the focus of figurative listening intention becomes obvious as elements in the music are related directly to the "story-line" of the poem.

2.2.2.5.3 First narrative part: Agitated part (02:07 – 02:22/bar 26 – 33)

This part consists of one main gesture which is repeated between the voices. Now the motif from the beginning, the repeated element of the piece, has been reversed: each gesture begins with a glissando and the end-note of the glissando is played with a quick crescendo – diminuendo-swelling, almost in the sense of a sob. Graphically we can present it like this (figure 2):
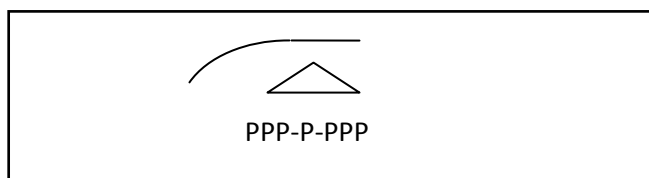
Figure 2

The example given above shows the first gesture played by the cello in bar 26. The gestures are organized into a repeated rhythmic pattern of triplets where the glissando occurs between the second and third note of the triplet. The last note of the triplet is sustained and joined with the first beat of the next triplet. The triplet-motif is repeated in imitations between first and second violin, and viola and cello where the first violin and the cello has the main figures while the second violin supports the first violin and the viola supports the cello by underlining the last sustained notes of the triplet-figures. In the diagrams enclosed to this analysis I have shown the interaction between the first violin and the cello graphically (see diagram 2). The gestures of the instruments have been written down, the first violin in black and the cello underneath in red. Below the gestures I have shown the gradual increasing dynamic. The exact dynamic of each gesture is given on the time-marking line beneath and show a steady increase in dynamic which goes through the entire part and ends on ff in bar 32. The harmony is centred on the tonic- dominant relation of d and a, giving the part a more clearly recognizable tonal identity than the previous parts. The rhythm and the swelling at the end of the glissandos creates a sense of unrest and we get the impression of a state of agitation or desperation as supposed to the dreamy, flowing hypnosis of the opening.

If we compare the two diagrams (diagram 1 and diagram 2) we see that while the main focus of the opening gestures as seen in diagram 1 is on timbral explorations with little melodic movement the focus of the agitated part shown in diagram 2 is on movement with consequently lesser emphasis on timbre; everything is played *ordinario, molto vibrato*, as shown on diagram 2 in the two coloured lines at the top.

2.2.2.5.4 Second narrative part: Singing part (02:23 – 03:52/bar 34 – 51)

The rhythmic part falls behind us as we move into a more fragile state with glissandi notes accompanied by frail tremolos. In the original score of the version for Viola solo this part has been given the caption "lady singing", a part which describes a mood of fragility tinged with a touch of hysteria. The singing is mentioned at the beginning of the poem (the end of part I) and also later towards the ending of the poem (end of part IV) where the lady is singing a death-song as she

floats down the river in her boat (see poem in the appendix). This part might illustrate one of the compositional traits of which Sørensen is well known, namely that of multiple layers. In order to visualize this I will present this narrative episode with a four-part layer analysis.

The main characteristics of this part of the work is that of the triple layer effect which is created through a combination of tremolos played over large intervals (such as a minor ninth and a major seventh) and melodic lines of long sustained notes with several instances of glissando. The tremolo's are mainly played by the viola while the other three voices combine in creating the melody in the same overlapping fashion as seen in part A. The second violin often contributes to the tremolo layer. The "singing part" may be seen to consist of four different combinations of the tremolo's and the melodic line and in this analysis one of our main focuses will be to look at these four ways of interaction. The tremolo creates an impression of two parallel layers of repeated notes because of the distance between the two notes played. The result is that of two shimmering un-sustained layers which enters into various relations with the melodic line.

This use of multiple layers which combine in constantly changing relations to one another is a trait often found in the music of Sørensen (Beckman, 198/87: 61-6). Variations of expression is created by allowing the various layers to interact with each other in different ways; layers may move parallel to one another, they may intertwine, grow out of one another or switch places or register.[40] In this analysis I have chosen to write one layer analysis for each of the four various ways this is done. In these analyses I have focused particularly on the following parameters concerning layer analysis[41]:

- The function and profile of the layer
- The width of the layer[42]
- The articulation of the layer
- The interrelation of the layer

2.2.2.5.4.1 Graphic layer analysis

1. The first part appears between the time markings 02:23 - 20:36 of the recording[43]. Here the melodic line is placed in the middle register and the two tremolo layers are placed on each side separated by an interval of a minor ninth. The line of the melody is played by 1 violin and cello. The cello enters first in a quick crescendo from ppp to mf placing it in front of our consciousness as an obvious foreground. Graphically, the distribution of the voices may be visualized as follows:

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[40] Another excellent example of this technique is found in the opening of the work *The Deserted Churchyards* from 1990 which is recorded on the same CD as the recording of *The Lady of Shalott* used in this analysis. See references for information concerning the recording.

[41] For more details concerning layers and the graphical system used in a layer analysis see: Thoresen, 2007a. See also the Appendix → 4.3.3.3 *Layers* where the terms and graphical symbols are further explained.

[42] Normally the width of a layer may vary from narrow to ample, however, in this analysis we will alternate between narrow and expanded layers (presented graphically by one vertical line versus two parallel vertical lines.)

[43] See enclosed CD track 9. The time markings given here refer to this recording. The individual parts have also been added as separate tracks (track 5 – 8) on the enclosed CD.
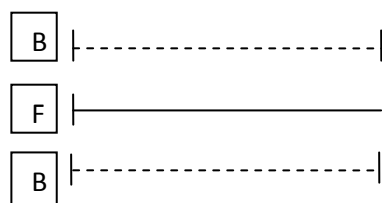
The voices have here been presented as three layers where the middle line is seen as a foreground layer of the middle register framed by two layers of tremolos. The lines of the outer layers are broken to show the articulation of the tremolo layers.

Because of the dynamic in the tremolo voices the tremolo layers enters gradually, increasing and then decreases again, creating the impression that the layers emerge or grow out of the foreground layer. Therefore the graphic presentation of this part is shown in the following way (figure 3):
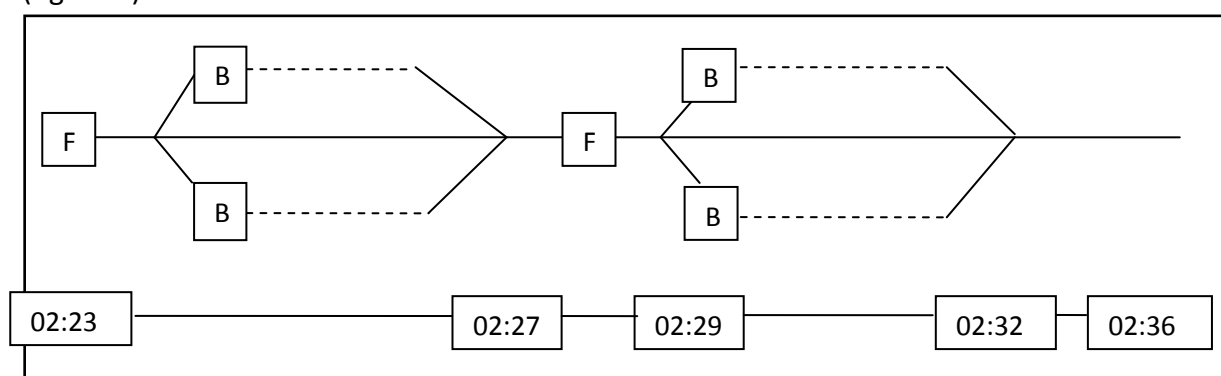
Figure 3. For listening: track 5 on the enclosed CD.

As we can see the tremolo layers are placed on either side of the melodic line.

2. The second part appears between the time markings 02:37 – 03:02

This part is initiated by the tremolo which appears in the lower register and with a smaller range than in the first part: that of a major seventh. In this part the melodic voice enters in a register above the tremolo's, not in between them. This time the foreground layer emerges out of the tremolo layers and is therefore graphically notated with a diagonal line up from the lower tremolo layers. However, the main voice which emerges gradually out of the tremolo layer eventually splits into two voices. These two voices relate to one another partially in a diagonal interrelation through imitation (where one of the voices is slightly delayed in relation to the other) and partially synchronized in a vertical interrelation. In the graphical representation I have therefore made use of three separate double layers where the first and the last have a diagonal interrelation while the middle one has a vertical interrelation. The alteration between the diagonal and the vertical interrelation creates a sense of flux and indecisiveness in the energy of this layer. The caret is used to mark a break in the tremolo layer: (for listening: track 6 on CD)

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As we can see the tremolo layers are here placed underneath the melodic line.

3. The third part appears between the time markings 03:03 – 03:26. The tremolo layer enters above the melodic line which is continued from the previous part. In this part the melodic voice changes between playing in unison and small episodes where the voices glide slightly apart overlapping or imitating each other yet remaining the same voice. It is possible to look at these events as episodes of Heterophony where several virtually identical voices are superposed on top of each other. I have chosen to show this graphically through a continued line with small episodes of wider layers (figure 5) The small episodes have all been drawn across with a diagonal line, referring to the elements of diagonal interrelation within them:
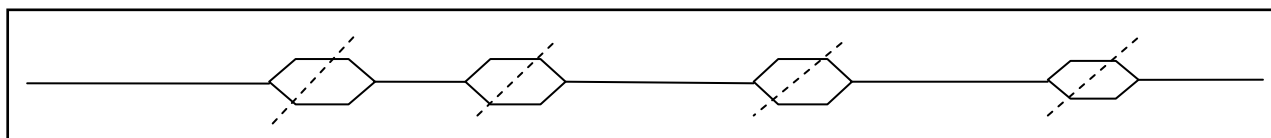
Figure 5

As mentioned before the tremolo enters above the melodic line. The layer emerges out of the melodic line, and I have marked this with a diagonal line as in part 2. But in contrast to part 2 where the foreground emerged out of the background layer, here the opposite is the case: the melodic line continued from part 2 remains the foreground and the tremolo layer emerging from it creates a background before it once again merges with the foreground layer at 03:14. Then, at 03:16 a second tremolo layer emerges but this is played in a higher register than the previous one and its dynamic, compared to the melodic line, makes it appear as foreground. This layer merges once more with the melodic line at 03:20 which once again pushes the melodic line into our perception as foreground. (figure 6):
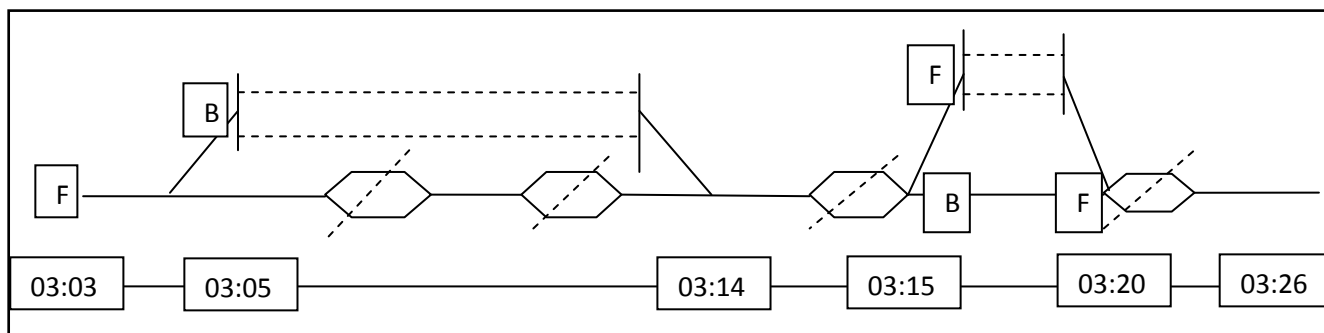
As we can see here the tremolo layers are placed above the melodic line.

4. The fourth and last part appears between the time markings 03:27 – 03:40. Here again, as in the first part, the melodic line is given as foreground and the two tremolo layers appear above and below its register. The lower layer appears a minor sixth beneath the melodic line creating a distinct tonal flavour preparing for the next narrative part which is to come. At 03:32 the upper tremolo layer merges with the melodic line and at the same time the lower layer vanishes, leaving the melodic line to continue alone. At 03:35 the note from the lower tremolo layer returns and joins the melodic line now with unbroken articulation, creating an expanded layer of two lines. This layer continues into the following narrative part (dance part). At 03:40 the viola enters with soft pizzicato notes, at first only an *a*, then eventually adding a *d* creating thereby an imitation of bells ringing in the distance. The pizzicato notes appear at increasingly shorter intervals and with increasing dynamics giving the impression that the bells are coming steadily closer (or that we are moving closer to the bells). In the original score this place was marked "bells a'ringing" and we might imagine it pointing to the outside-world, like the nearby city of Camelot. The fourth part analysis is graphically represented as follows (figure 7):
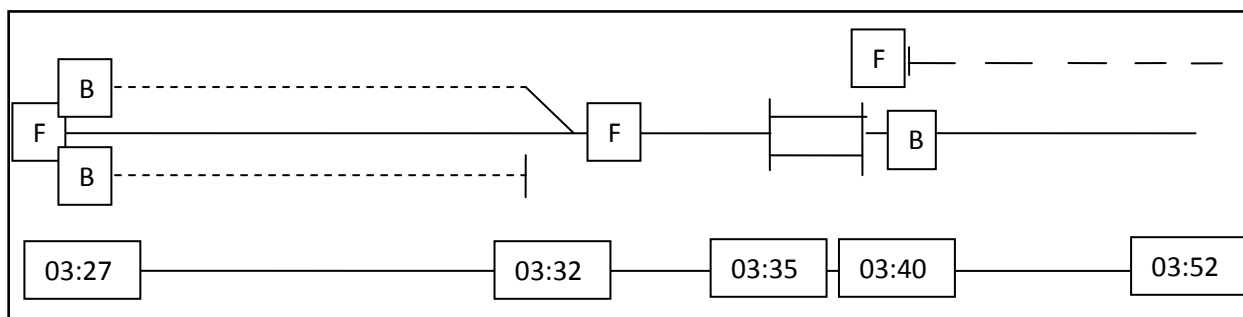
As we see here the tremolo layers are again placed on either side of the melodic line.

The layer analyses points out an important fact about the relation between the different layers. If we place the four graphic analyses together we see that the relation between foreground and background (melodic line and tremolo layers) follows a pattern when it comes to placing in register. In the first part the foreground layer is in the middle of the two other layers, in the second part it is above the tremolo layer, in the third part it is beneath the tremolo layer and in the fourth part it is again in the middle. All the different possibilities of placing is used and what is created is a constant change of profile within the part, revealing how the composer combines the layers in different ways and achieves different effects of colour as well as mood. The ending of the fourth part also creates a transition into the third narrative part.

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In the case of this analysis the element of heterophony found in the diagonally related parts can be seen as a metaphor for the term *reflection,* the second Isotopy of this analysis, in that the voices seem to play the same material but yet they differ. They are like reflections of each other, almost the same but not quite, like the difference between the world as seen in a mirror and as experienced in real life. The music creates a calculated vagueness which allows the simple structures to appear frail and strangely unreal.

2.2.2.5.5 Third narrative part: Dance-part (03:53 – 04:24/bar 52 – 69)

The long minor sixth interval played non vibrato in violin I and II and the pizzicato `bell–notes' in the viola leads into the fourth narrative part which I have called "dance-part". This is a highly rhythmical part of even semiquaver sextuplets played by the 1 and 2 violin where the musicians alternate between regular tones and harmonics, playing *sul tasto*. The dynamic is *pppp sempre con molto delicatezza*. The viola continues with its pizzicato notes underneath and at the bottom the cello plays a long swelling d creating a harmonic base. About halfway through the dance-part the viola joins the two violins in their sextuplet-pattern and the cello descends to a c and then develops into a slow soft song played *pppp molto dolce*. The part, at first played very softly, gives the impression of distant dance music as if heard from afar. We can picture the lady floating down the river lying in her boat (the waters´ slow currents or the lady's lonely death-song depicted in the cello) while from far away she hears the distant festive music of Camelot. The song grows into a crescendo in all the voices towards the end of the part and ends forte on the first note of part A', then quickly recedes in a tremolo.

This part is the only part of the piece where the withdrawal-element seems completely absent. There are no glissandos and the melody in the cello sings evenly underneath the rhythmical dance-theme. This seems logical as it is the first part of the music and the poem, which deals with the world outside of the lady's secluded life. The rhythmic part points to the outside where there is dancing, a social event in which men and women interact and meet, a clear opposite to the shadowy and lonely world of the lady. The dance-part is followed by the A'-part and the last glissando which have been described earlier in the analysis. After the last glissando there follows a short conclusion with a final hint of a waltz rhythm before the cello and the viola rounds it all up.

In the analysis of *The Lady of Shalott* a figurative listening intention has been used mostly, along with several entrance-points into the music, and the result is an analysis of a rather different character than the analysis of George Crumb's work *Black Angels*. The reason for the many different angles used in this analysis is given in the music itself. In the CD cover of the recording of the work, the composer himself writes about the many sources of the music; from the painting by Waterhouse to the poem by Tennyson and further on to the English legends of King Arthur and that, like the river flowing by Camelot, his piece attempts to meander among these many different sources. In the same way this analysis, rather than searching for a recognizable form-shape by which to identify the music, tries to point out the many different ways through which it is possible to approach this work; from the concept of Isotopy through that of tone colour and narrative versus repeated episodes, to the focus on layers and layer effects. This again points to the many different angles and choices an aural sonological approach allows us to have when attempting to make an analysis in order to gain understanding of a piece of music.

2.3 Rolf Wallin

2.3.1 Rolf Wallin: calculated unpredictability

Rolf Wallin was born in Oslo on the 7 September 1957. He studied composition at the Norwegian State Academy of Music with Olav Anton Thommesen and Finn Mortensen and in the middle of the 80ies spent a year at the University of California, San Diego studying with Vinko Globokar, Joji Yuasa and Roger Reynolds. Parallel with his career as a composer he has also worked as an essayist and music critic in the periodical Ballade and Dagbladet and as a teacher at the Norwegian State Academy of Music.

2.3.1.1 The development of Norwegian music in the post-war decades of the 50ies, 60ies, 70ies and 80ies

As several young composers of his time Rolf Wallin made use of the expanded possibilities of expression and technique which were the result of the experiments from the fifties and the sixties, experiments which came about in the musical environment in Norway after the Second World War due to a number of reasons and circumstances. The revolutionary ideas and ideologies of the 60ies and the upsurge of the musical expressions of the avant-garde in the 70ies coupled with the arrival of the computer as a compositional aid in the 80ies made the decades after the Second World War a particularly fertile ground for new experiments. After the war the tendencies in Norway leaned towards an upsurge of National-romanticism and French neoclassical impulses as many composers had travelled to France and studied with Nadia Boulanger and Jean Riviér, among them Arne Nordheim. The Norwegian composer Finn Mortensen had also been one of her students but still became one of the main Norwegian composers largely responsible for throwing the doors of Norwegian music open to the post-war Modernism of central Europe and the German modernist traditions of Darmstadt. (Bjerkestrand, 2005) Both Mortensen and Nordheim became contrasts to the neoclassical tendencies in their own way as will be mentioned later in the text.

Within a few short years towards the end of the 50ies several Norwegian composers were introduced to international Modernism, a relationship which began mainly with a group of composers who merely called themselves "gruppen" (the group) established by Mortensen in 1958, and who were largely responsible for bringing all of the concepts and ideas of international modernism into the Norwegian musical discussion. (Nesheim, 2004). This was done through a *coup d'état* where the members of the group strategically managed to exchange most of the old board members of the association Ny Musikk (New music) with members from the group. Although the composer Pauline Hall remained as leader Mortensen himself together with Arne Nordheim, Egil Hovland and Kjell Bækkelund became board members and quickly used their influence to establish a series of subscription concerts which became the perfect setting in which to present the modernistic music of the day (both international composers such as Stockhausen and music by the members themselves) together with the more "classical" modernists like Schönberg and Webern. Although this happened relatively fast and smoothly it is important to remember that the impact on the

population in general was rather limited. We are talking of a relatively small group of people and by no means a general national acceptance of these new and sometimes provocative ideas. Nevertheless, the Norwegian composers active within this setting were later to be seen as pioneers in the Norwegian compositional tradition and were to exert an enormous amount of influence on the composers of today. Finn Mortensen was himself the leader of Ny Musikk two times. In the 60ies both Mortensen and Nordheim presented new works that experimented with the use of sound and timbre-based expressions that was typical in the international musical society of the day. Neo-expressionism and the sound-mass technique[44] introduced by Penderecki and Ligeti in the 1960'ies with the works *Threnos* and *Atmospheres* had made a huge impression on composers and with works like *Epitaffio* from 1963 by Nordheim and *Tone colours* (1962) and *Evolution* (1961) by Mortensen the experiments of sound and timbre where introduced in the Norwegian musical society as well. This contributed in opening up a completely new sound world for the composers of the day by changing the way one thought about music. From being directed mainly towards the relationship between tones, be it scales or twelve-tone rows, the focus was now switched to that of texture, layer, development and processes containing elements such as chaos and transformation. Ny Musikk were responsible for bringing some of the great names of the international Modernism to Norway, among others Karlheinz Stockhausen and Maurizio Kagel who were presented in concerts at the Henie-Onstad Museum of Contemporary Art at Høvikodden which was opened in 1968 and were to become a focal point in the presentation of contemporary music.

The introduction of the computer and the general technological development within composition and music technologies was rather sudden in Norway. Nordheim's work *Epitaffio* (1963) composed in Warsaw in Polen was seen as one of the early examples of Norwegian compositions that contained electro-acoustic elements but recently certain recordings of earlier electronic music used as background music and illustrational music for radio-theatre was found in the archives of NRK where Nordheim experimented in the very beginning of the 1960ies. (Johansen, 2005). Nordheim himself has said that he became acquainted with among, other things, electro-acoustic music and the *musique concrete* through a Swedish radio program called *Nattøvning*. (Johansen, 2005). In an essay in 1988 composer and previous leader of Ny Musikk Geir Johnson points out that one reason why the introduction of the computer as a compositional tool happened so fast and smoothly might be that Norway as a somewhat isolated province on the outskirts of European society had a less firmly established classical tradition compared to the central European countries. One might say that we were less inhibited by previous traditions and had less to lose by opening up to new influences and innovations. (Johnson, 1988: 2/3).

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[44] I have here chosen to use the term "sound mass-music", taken from Wikipedia (http://en.wikipedia.org/wiki/Sound_mass) as a translation of the Norwegian word "Klangflatemusikk" denoting a technique used within neo-expressionism. The source of the term's definition is to be found in: Edwards 2001, p.326-327)

The natural sciences also stole themselves into the musical language through composers such as Iannis Xenakis who were using terms and processes from mathematics and computerized calculations as basis for his music like the works *Atrees* and *Morsima – amorsima*[45]*,* adding to the form-concept and opening up for new thoughts about the possibilities of musical form. This also added to the general language used in the musical discourse, as several concepts and terms from the scientific language were incorporated into the general language used in music. Through this the subject of music was more tightly connected to that of the natural sciences and also took on a more scientific profile, and the emergence of the computer as a compositional tool was a natural part of this development. With the emergence of electric and electronic music through the use of computers, the avant-garde and the popular culture also became more closely related by sharing much of the same tools and techniques.

The fact that music now was composed not necessarily on paper but just as often created from sound directly on a computer omitting the written score as a mediator contributed in creating a new attitude towards music. In addition to being faced with a completely new pallet of sounds the composers encountered difficulties when attempting to translate electrically generated or sampled sounds into regular notation or even when attempting to discuss and talk about the works created. The computer-generated sounds suddenly contained a wealth of properties for which there was the need of a completely new terminology. This was one of the reasons that Pierre Schaeffer began his categorization of sounds which eventually led to the establishment of the field of aural Sonology at NMH in Norway.[46]

Pierre Schaeffer and Pierre Henry had initialized the breakthrough of the electro acoustic music during the late 1940'ies. The research was concerned with the understanding of the nature of timbre, and the classification of different kinds of timbre into a new typology presented in Schaeffer's main work *Traite des Objets Musicaux* (1966) where he also explains the concepts of "the sound object" and that of "focused listening". These sorts of classifications now made it possible to work with timbre on a purely abstract level. The Norwegian composers Lasse Thoresen and Olav Anton Thommesen both travelled to Utrecht and brought back the ideas of Sonology. However, in Norway the methods of analysis was developed within an environment comprising both performers and composers and this contributed in giving the subject a general orientation towards a more applied music theory.(Thoresen, 2007b). Wallin, as one of Thommesen's students, would also become acquainted with these theories and systems.

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[45] The work Morsima - amorsima is one of the "family" of ST works which Xenakis composed with the help of an IBM 7090 computer. See further info at: http://www.iannis-xenakis.org/xen/bio/bio.html

[46] This is a rather extreme simplification of a long development which is further described in 1.2 *Concerning Sonology and aural Sonology.*

2.3.1.2 Improvisations and computers

Almost all of the above mentioned new tendencies can be seen reflected in the experiments and works of Rolf Wallin. The composer started out as trumpet player in ensembles of different kinds with repertoire ranging from early music to experimental jazz and rock. His development as a classically trained composer runs parallel with his work in the field of experimental jazz and improvisation, a field which has provided an interesting influence on his compositions. The interchange with other media such as performance art and contemporary dance and theatre has erupted in a rich and varied palette of expression. From his time at San Diego Wallin received tuition and impulses from several different directions such as improvisation, orchestration and philosophical concepts concerning composition[47].

The composer's background from improvised music might account for the mixture of structuralism with free playfulness that we often find in many of his works. The relationship between strict rules and free play is one of the major challenges a musician faces when working with live improvisation. When improvising freely one learns after a while through experimenting what works and what doesn't, which rules to break and which to uphold. An Intuitive understanding of organic form is developed, based on an understanding of the causality of choices made in the music (if I choose to emphasize *this* I must later balance it by diminishing *that*. If I want *this* to stand out I have *these* possible choices of how to do it) etc.[48] Through this process the music becomes an organic entity with a logic of its own, all depending on the form created by the improviser. This kind of insight and hands on-experience as to what "works" and what doesn't is a valuable asset for a composer who operates in the cross line between structure and free play as Wallin does, particularly in the pieces where he uses computers as a compositional asset. The use of computers in composition is a wide-spread area and can imply many different traditions of use. As Wallin says in an article *(Wallin, 1989b),* a computer can be used in algorithmic compositions but he claims that so-called "intelligent music programs" created to assist in composition are often either merely toys or are pre-programmed to such a degree that they leave the composer with very little individual space to move within. But for a composer who is willing to take the time and energy to create his own programs and to view the computer not as an oracle or composing-machine but as an aid in the task of asking questions the computer might prove an interesting working partner. In Wallin´s case the computer is often used to produce algorithms which are then used to decide on parameters such as the rhythm, timbre or pitch of single notes or on the form-development of a piece. Wallin was introduced to the use of

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[47]   In an interview the composer mentions in particular Vinko Globokar as a great inspiration when it came to improvisation as a concept with his inventor-attitude towards experimenting and constantly asking questions of "what if..." Roger Reynolds, who had worked at IRCAM with Xenakis provided input towards a more philosophical approach to the subject of composition. From an interview with Rolf Wallin, June 11 2009.

[48]   Improvisational processes of this kind are mentioned among other places in *Kruse, 1995/2001, Bastien, 1987/1997* and *Nachmanovitch, 1990.*

computers and programming during his year in San Diego by F. Richard Moore who has directed the computer music research at the university in California since 1974. The compositional technique involving chaos theory and mathematical calculations of fractal algorithms was presented by the composer in the aforementioned article *(Wallin, 1989b)*. These theories will be discussed further on under the heading 2.3.1.4.1 *Chaos theory and fractals*.

In Wallin´s case, the computer has been used to provide quick answers to questions and calculations which would otherwise take too long and be too complicated. With the aid of a computer it is possible not only to reach these answers quickly but also to move forward asking new questions based on the information acquired. The computer is never allowed to take over the process. It is merely an aid in creating a framework within which the composer might move freely. In the compositional process of Wallin there must always be room for experimentation and curiosity.

2.3.1.3 Compositional elements

2.3.1.3.1 Calculated unpredictability

The ability of the computer to move so far along the scale of complexity that it finally reaches a place where one encounters moments of unpredictability is another important feature which makes the computer an ideal companion for Rolf Wallin. The duality found between *the unpredictable* and *the expected* form an interesting field of tension which creates life and vitality in the music. In improvised music this set of opposites appears constantly and is a natural ingredient. A composer who uses a system with the possibility to generate unpredictability has the chance to be surprised by his own work and through that to go beyond his own habits and usual limits, never stagnating in his own forms. The element of unpredictability might introduce unexpected and "foreign" elements into the music which, if the composer chooses, might end up as integrated elements in the composer's personal "language". This however demands a conscious effort of integration on the composer's part. (Wallin, 1989b).

Wallin's use of the computer is also coloured by the belief that the accuracy of the computer not necessarily coincides with the aesthetic accuracy of a piece. The musical aesthetic of the piece might demand alterations in the patterns and parameters given by the computer; in other words the resulting layout of the piece is not given up to chance or to whatever the computer presents. There is always the balance between the computer-acquired material and the aesthetic ideal and compositional choices of the composer. In this regard Wallin's thoughts differs greatly from the ideas found in the more rigorously composed works by composers such as Stockhausen and Xenakis of whom he holds a great admiration[49]. In the

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[49] It must of course be mentioned that Stockhausen also, towards his later works, were to allow room for judgements made by either himself or his performers. Paul Griffiths points out that "(...)perhaps the most deeply significant lesson of *Gesang der Jünglinge* was that there existed musical aspects(...)which could not be

leaflet of the CD *Boyl* composer Asbjørn Schaatun relates how one of Wallin's alleged favourite quotes are "the proof of the pudding is in the eating", a quote which points to a very result-oriented attitude towards music; however good or intellectually complex the idea behind the construction of the music is: if the ear is unable to "get it" the value is lost. If the "pudding" is inedible the complexity of the "recipe" is of little value. Of course this view is not necessarily in line with some of the esthetical ideals of several of the avant-garde composers, and Wallin has himself jokingly said that it creates a problem for his deep-rooted wish of being a rebel as he is often tormented by his own need for shapeliness (Schaatun, 1999). However, it is a fact that one of the things which strikes the listener in the meeting with Wallin's music is how logically and organic some of his works based on computer-generated materials sound. It seldom occurs to the listener that what he hears is in fact based on a computer-generated calculation of a mathematical relation. This might also be seen in the fact that we often might encounter tonal elements and consonance in Wallin's work that might appear or seem to be an imitation or something borrowed from earlier styles in the tradition of post-modernism, but which are yet again a result of an arbitrary programmed computer-process. The appearance of tonal elements and consonance in contemporary music was often surrounded with an aura of taboo within the traditions of mainstream modernism as the composer was expected to cast out any remaining residue of the past (Wallin, 1992: -3). Later the need to distance oneself from the tradition of post-modernism and the possible accusation of re-use of the past still creates schisms within the compositional world today. This attitude has softened somewhat during the later years but has however still revealed the need for a clear point of stand when it comes to the explanations and justifications of on what ground a composer uses "pre-historic"-elements such as plain tonality. In one article Wallin makes an important differentiation referring to this precise problem (Wallin, 1992). Using the composer Per Nørgård as an example Wallin refers to tonality and consonance constructed through the use of a "consistent, abstract system" as "a healthy indifference to style" and as an alternative to the "cut-and paste technique" of the post-modernists. Tonality and consonance might appear quite naturally within an otherwise completely abstract and dissonant piece of mathematically generated material. In this way it is also possible for the most fervent modernist to accept moments of tonality or these "ghosts in the machine" as Wallin calls them, without feeling that he is basing his work on residue from a past which should be forgotten and discarded according to the modernist creed.

2.3.1.3.2 Textures, layers and chaos theory
Wallin has received several awards for his music, among others the Norwegian Society of Composers Composition of the Year Award for ... *Though what made it has gone* in 1987, the Best Work Award for *Stonewave* at the ISCM World Music Days in Warsaw in 1992 and the Nordic Council Music Prize for *Concerto for Clarinet and Orchestra, 1998.* He has also

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quantified, and which therefore demanded something other than the precise pre-compositional schemes of total serialism for their effective use"(Griffiths, 1981: p103).

received several commissions. In the season of 2006-2007 Wallin was chosen as the main composer for the Oslo philharmonic Orchestra, an event that was marked by a three days festival where the program consisted of works written or chosen by the composer. One of the works chosen was Berlioz´ *Symphonie Fantastique;* a work which allegedly gave Wallin his first orchestral kick as a teenager (Habbestad, 2007). At the concert Berlioz´ work was coupled with Wallin´s early orchestral piece *ID*, a work he wrote as his exam at the Norwegian Academy of Music in 1982. In *ID* there is a constant construction and deconstruction of layers and textures charged with energies of different kinds, like a glissandi-layer at the beginning where the string players glide between given pitches at an individual tempo creating a shimmering, coiling web, or the use of fast ascending figures presented to the musicians in small boxes to be repeated in an individual tempo, where the gradual adding or removal of instruments gives the layer its form. What is created is a semi-static layer but at the same time the texture created by the individual voices playing individually but simultaneously, charges the layer with energy. The percussion section in *ID* is large and consists of four players playing both harmonic and non-harmonic instruments, and polyrhythm is also used frequently to create textures. The layer-effect is reminiscent with the earlier Neo-expressionism (or sound-mass music) of Penderecki, Ligeti and Nordheim (which as mentioned earlier, are found in works like *Threnos, Athmospheres* and *Epitaffio*) but it is also frequently found in the music of Danish composers such as Per Nørgård and later on Bent Sørensen[50]. Later, Rolf Wallin was going to move into the world of chaos theory and fractals which first became known in the 70'ies, among other places through the Infiniti-rows in the music of Per Nørgård.

2.3.1.3.3 Chaos theory and fractals

Wallin´s name is often mentioned in connection with the subjects of natural science and mathematics, especially that of Chaos theory and fractal algorithms. These are mathematical systems which can generate repeated patterns and they are used by Wallin in order to create a structure within which to work. Wallin´s first fractal-based work *Onda di Ghiaccio* for chamber Orchestra was composed in 1989. Other important works in which he has used this technique is *Stonewave* (1990), *Boyl* (1995) and the orchestral piece *Chi* (1991). The percussion piece *Stonewave* is particularly well known and was awarded Best Work during the ISCM world music days in Warsaw in 1992. A central element in chaos theory is the figure called the Mandelbrot Set (discovered by Benoit Mandelbrot) which, through a long set of calculations, is derived from the very simple equation: $y = x2 + c$. This equation, when run through a computer program or solved in a complex number plane creates a visual pattern of intriguing beauty which it is possible to enlarge at any point only to find the same pattern with slight variations hiding within; a box in a box in a box etc.. Basically, what we are talking about are small, simple "cells" which, when repeated many times, creates complex patterns. The pattern is, in other words, made up of a union of many copies of

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[50] Further information concerning the layer-techniques of Sørensen and Nørgård are mentioned under 2.2.1 *Bent Sørensen: Looking beneath the surface*.

itself. Several composers such as Charles Wuorinen and Gyorgy Ligeti have used fractal-like elements in their music and Ligeti himself was an acquaintance of Dr. Mandelbrot who claimed that Ligeti's background as a physicist gave him a unique feeling for the application of physical relationships to music and a knack for using "(...) Fractal-like self-similarity in music"(Brown, 1991). But at the same time both Wourinen and Ligeti have stated that composers in general tend to conceive music as large forms into which they can later fill in smaller reductions of the original large forms (Brown, 1991). Rolf Wallin likens the structures found in chaos theory with the way the world around us is constructed:

"After all, the concept of complexity from the interaction of simple particles and of the parts resembling the whole can be traced back to the early history of mankind, because it is so obvious to us that the world is constructed that way. Chaos theory therefore brings nothing strictly new to our perception of the world, it only confirms it scientifically in a shockingly simple way, and it also - for the first time - gives us a possibility to simulate some of Nature's own structures by mathematical means"(Wallin,1989a).

In addition to fractals the composer also uses another system of his own invention; that of Crystal chords. This technique was developed and presented first in his chamber work *ning* in 1991 and is also found in many other pieces, among them *Solve et coagula.* The techniques of fractals and crystal chords will be further explained in the analysis that follows.

2.3.2 Solve et coagula

2.3.2.1 Techniques

The work *solve et coagula*, written in 1992, was commissioned and premiered by the Cikada ensemble. It is scored for chamber ensemble with the instruments flute/Piccolo/alto flute in G, Bb clarinet/Bb bass clarinet, percussion, piano, string quartet and double bass and is one of Wallin's many works which is based on fractal algorithms. These algorithms have the potential of being transformed into various perceptible representations such as the visual constructions of the Mandelbrot-set which shows repeated enigmatic patterns repeated again and again through a constant enlargement of details. In the same way the algorithms also have great potential for being translated into music.

In *Solve et coagula* the mathematical formulas that are being used functions as a framework and also decides on the choices of parameters such as pitch, speed, tempo, ambitus etc. However, as in most of Wallin´s music there is always the mixture of the musical intuition of the composer with the given musical material that creates the expressiveness of the music.[51] For instance, in *Solve et coagula* there are three voices (or "streams" as the composer calls them) which moves through the piece. In a traditional language we might say that we are dealing with a three-part melody. The instruments are divided into pairs who play the same

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[51] See 4.4.3 *To do or not to do.. Interview with Rolf Wallin*. A detailed explanation of the composer´s use of fractal formulas can be found in *Wallin, 1989a*.

"voice" in the three-part harmony: flute and 1 violin, clarinet and cello, and 2 violin and viola. The notes of the three voices which appear at the accent points in the music create a sort of skeletal structure. Around these main tones the composer has constructed random arpeggios or embellish-like garlands of notes; random in the sense that they are not dictated by the computer program but still not random in that they are chosen with care by the composers musical intuition. The mathematical calculation gives the frequency of the melodic notes which in the beginning are spaced rather far apart from each other but gradually appear more and more frequent, consequently forcing the embellishments around them and between them to grow shorter and shorter. There is therefore a gradual condensation of accented notes up to bar 58 which marks the end of the first part of the general form of the work. This gradual increase and condensation of tension was dictated by the mathematical calculations used as a basis for the piece.

In this piece we also find the use of another system which wallin says he discovered while on the verge of leaving fractals and which he named "crystal chords. The name "crystal chord" is simply used because the chords between themselves create a three- dimensional interval– space which when written on paper form a cubic crystal. Each crystal or system is based on three intervals which are multiplied a various number of times. If multiplied many times, the notes will create a "scale" when written out in ascending succession, while few multiplications will give a "chord". One important element in this is that the scale created like this through the crystal chords does not repeat itself in the octave. In other words, we get a scale that evolves in unpredictable ways through the octaves. Therefore the use of crystal chords equips the composer with a rich harmonic pallet that, depending on the intervals used, can yield a harmonic material everywhere from consonant atonality to the sharpest of dissonances. The following figure is taken from the composer´s article "Lobster soup"(Wallin, 1998) and shows the notation of one such crystal- chord. Below it the notes of the crystal have been written out in ascending order:
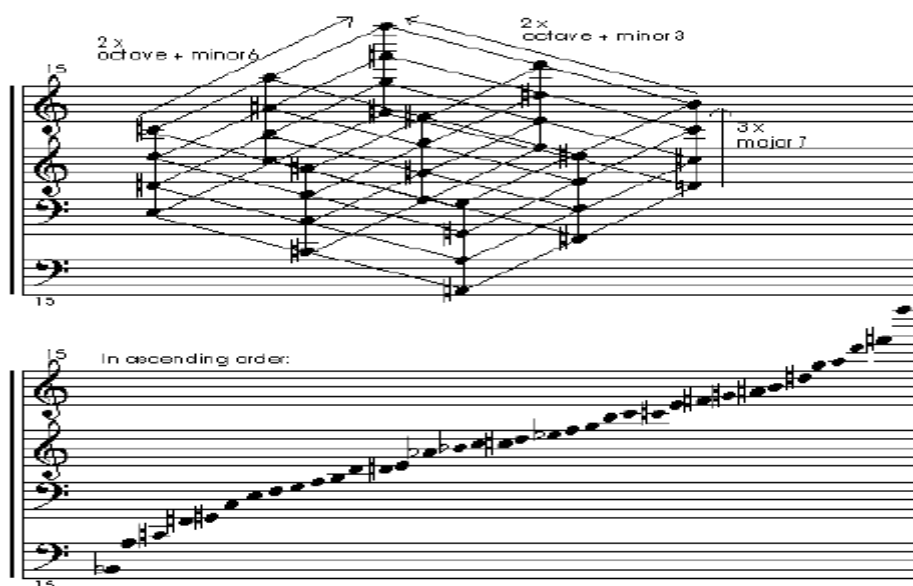
Both fractal calculations and Crystal chords have been used in many of Wallin's important works such as *Onda di ghiaccio* (1989), *Boyl* (1995), *Stonewave* (1990) and *ning* (1991) in addition to *Solve et coagula.*

2.3.2.2 The title of the piece

Rolf Wallin is known for his pregnant titles and also for using his music to shed light on phenomena, often found in the gray zones between science, metaphysics and philosophy[52]. In the work *Solve et coagula* the title of the piece points directly to this and in order to be able to talk about the particular auditiv expression of this piece it is necessary to include a short presentation of the subject of alchemy from which the term "solve et coagula" has been borrowed. The composer first came across the title in a poem by Paul Celan and later encountered the subject in the writings of C.G. Jung.

2.3.2.2.1 Concerning alchemy

Alchemy was said to have originated in Egypt, and one theory is that the word alchemy is based on the old name of Egypt, Kemet (arabic: El Kemin). But elsewhere we find that the meaning can also be simply "chemistry". The subject has been heavily debated in the modern psychological discussions, especially by the psychoanalyst Carl Gustav Jung (Jung, 1944/1968).

Alchemy might be said to have been the starting point of modern chemistry, in that it relies heavily on chemical processes in the transformation of metals and substances[53], but there is a parallel meaning to the word and the science, which points to a metaphysical interpretation: the transformation of the base state of the soul into a purer state of consciousness. It has to do with the search for the inner essence of matter, both physically, as in chemistry and the transformation of substances and metals, and esoterically as in the transformation of the mind into a higher state of consciousness[54]. In the alchemical process, the raw material of what is called *massa confusa* had to be excavated from the mountain and was then continually dissolved and coagulated in a long process, of which the desired result was the so-called *prima materia*, a raw material from which one could make gold (when the *massa confusa* is translated into *the subconscious* the process becomes a mirror of the psychoanalytical process of reaching mental balance and wholeness). The Latin term for this process is Solve et coagula, where coagula means to solidify, congeal and harden,

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[52] Another example of this is the ensemble work *ning* which has its name from a novel by David Grossman where the word is used to name a force that is responsible of making large groups of individual beings move as one, exemplified in the novel through a shoal of salmon.

[53] http://no.wikipedia.org/wiki/Alkymi

[54] For more information on the esoteric view on alchemy see: http://www.amorc.no/history/Alkymi.htm

and solve means to become fluent, to dissolve. The esoteric principles found in Alchemy do in a way match theories of quantum physics in that the essence revolves around the dual principle of positive/negative where these opposites are seen as neutral when it comes to value. In other words: the positive and negative values are not labeled as respectively "good" and "bad" but merely as mutual dependent opposites that together create an energetic space within which creation can happen.

In the CD-leaflet of the CD "Move" which contains the piece *Solve et coagula* Wallin, in the presentation of the piece, emphasizes the importance of the philosophical aspect of the alchemical process[55]. Based on this and my own auditiv experience of the music I have chosen to see the piece *Solve et coagula* as a musical play between these two polarized states of energy through the use of so-called *textural objects*.

2.3.2.3 Textural objects; the bigger building blocks

In the work *Solve et Coagula* I am going to focus on an element which often presents itself in contemporary music and which, from a perceptual point of view, might be quite elementary in the experience of much contemporary music. In the piece *Solve et Coagula* we are faced with repeated musical elements which are presented to us as highly recognizable shapes which at the same time has a unique, constantly changing character each time they appear. These shapes are not based on a traditional pitch-or- harmonically-based material, but operate on a different level. We can call these shapes textural objects. This term combines two important musical terms: musical texture and musical objects. Texture, in music, points to both melodic and harmonic relationships, and also to the density of layers which consist of different musical components. Pierre Schaeffer defined a musical object as any sound phenomenon or sound event which is perceived as a whole and coherent entity. (Schaeffer, 1966). A textural object in a musical context would therefore describe a sound phenomenon that is perceived as a homogeneous entity which is defined through its particular textural unit. We can also explain it in another way; in a lot of contemporary music it is common for the composer to "gesticulate" with the pitches rather than to base the music on repeated phrases or chords with recognizable intervals. This is especially so in electro- acoustic music. We also find it in music based on sound-mass composition techniques, as for instance in many works by Ligeti and Xenakis[56]. We might say that these works make use of textural objects where the term is defined as *a musical object whose totality of form is more important than the details of which it consists*. A quote extracted from an article by the composer Tristan Murail may serve to further illustrate the term. In this article Murail talks about meeting with the Greek composer Iannis Xenakis in Olivier Messiaen's class.

"I remember seeing and speaking with [Iannis] Xenakis in Messiaen's class. Xenakis had brought some of his big orchestra pieces - Metastasis, Pithoprakta - and he explained them. I

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[55] See also 4.4.3 *To do or not to do.. Interview with Rolf Wallin.*

[56] For definition of the term "sound-mass" see footnote 45.

was quite impressed by his approach, which was very different from what you were taught at the conservatories. You were taught melody, harmony, counterpoint, etc.; while Xenakis thought of sound masses, in which individual lines - i.e., the notes played by the performers - were not necessarily that important. What was important was the structure of the mass of sounds. (...) You didn't have to think about music in terms of accompanied melody or counterpoint. Ligeti and Xenakis had in common these other ways of thinking about music, masses of sound, processes, etc.... and the importance given to timbre, as a way of structuring the form. The concept of "process" - where a musical situation changes from one to the next - was also very different from the old notion of musical development"(Murail, 2003).

When using the term textural objects, we are looking at the music, in the words of Murail, as "masses of sound" and as "processes". In works of this nature we are not necessarily meant to be able to hear specific pitches or rhythmical patterns. Rather, we are talking about an accumulation or a "cloud" of pitch- particles where the shape and movement of this "cloud" is what is important, not its particular pitches, which in this instance are irrelevant for the function of the music. Because the subject of aural sonology deals specifically with the relationship between listener and music, there will always be an element of objectivity involved. This is also relevant when it comes to deciding textural objects but when we through a taxonomic listening intention turn our focus on textural objects our main question is the function of the object and what it is meant to express.

2.3.2.4 Textural objects – two kinds

When it comes to textural objects we might discern between two kinds: those whose ability of recognition are based on the objects color/timbre and where the duration of the object, although drastically altered does not affect our ability to recognize the object. These kind of objects have little or no pertinent dynamical identity and development, and might therefore easily be `chopped into smaller pieces' without this changing their nature. We might compare it to a piece of cloth which might be cut into smaller pieces, but where we nonetheless easily recognize the color, texture and fabric of the cloth. The other kind of object is recognized on account of its contour and form, where the dynamic form and the contour of the gesture are the pertinent features. Most often it is necessary for the object to run its entire course in order for us to recognize it. The object has a unique energy profile which makes it vulnerable to too much segmentation. In the piece Solve et Coagula both of these types of textural objects are used and the polarity between the two opposite energies of the piece is underlined by the fact that the coagulating-parts are mostly based on the first kind of textural object, while the dissolving-parts are mostly based on the second kind.

The problem when it comes to using textural objects as the basis of an analysis is that a textural object is not something which can be clearly defined in the same way as a harmonic progression or a theme. It is not necessarily experienced in the terms of time fields or musical layer-construction either. Rather, we are dealing with gestures which, by nature, are individual and different each time they appear, but which at the same time retains

something which makes us recognize them as related. Therefore we need some sort of means that enables us to analyze and show each object's particular unique construction, and which lets us compare the different objects and show their relatedness to each other. This can be done either in a textual manner trough the use of a formula and diagram, or in a graphic representation. As the first method also sheds some light on the individual components of a textural object I will explain it briefly before moving on to the graphical representation which is my chosen form of focus.

We can divide the textural object into three components which can be presented as the following formula:

$$\text{Textural object} = \frac{V + E}{C}$$

This formula shows the specific construction of a textural object. The three components of the object are:

C= Character
V= Variables, or what we might call "play"
E= Energy

- The Character (C) is the element or elements which remain constant in every version of the textural object. We might say this is the part or parts which contain the integrity of the textural object, the elements which makes us able to recognize the object every time it appears.

- The Variables or play (V) are the elements of the textural objects which are subject to changes and which might differ from one version of a textural object to the next. These are the elements which might be altered or which the composer might "play with" without the object losing its recognizable identity. This might be elements such as dynamic contour, length of phrase, register, attack, instrumentation, color of tone (vibrato/non-vibrato) and timbral character (tonic/dystonic/complex) [57]

- The Energy (E) is the dynamic shape or directionality of the textural object. The Energy points to the dynamics, direction and changes in speed. It is often perfectly possible for us to recognize a textural object simply by its dynamic profile, while the other parameters might be more or less unrecognizable and completely altered.

The graphical placing of the components is not to be understood in their mathematical significance but as an explanation of their particular role in the musical material. This means

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[57] The terms Tonic, Dystonic and Complex are explained under 4 Appendix→ 4.3 .4 *Tonic, dystonic and complex sound objects.*

that the + sign indicates that V always appears in combination with E and the placing of V and E above C shows that V and E are experienced as variations over C which remains constant. In order to show the "content" of a particular textural object we can then categorize their characteristics according to these three categories in a diagram.

The other alternative is to make a graphic representation which is what I have chosen to do. In the analysis I have made use of a taxonomical listening intention although as the classification of the two types of textural objects have been assigned each to their particular type of energy one might argue that this also shows the use of a type of figurative listening intention. In the analysis the Solve-parts and the Coagula-parts are given a set of characteristic symbols chosen by their pertinence to the tendencies found in the textural objects. These are described further under "Different versions".

2.3.2.5 Analysis

Although the piece *Solve et Coagula* is constructed over three parallel streams or melodic voices as mentioned earlier the auditiv impression of the music is highly vertical in that the instruments combine in creating large shapes and gestures which moves in a stronger or lesser degree of unison. The different instruments combine with each other in constantly creating new large forms and gestures with an ever- changing timbre which, especially in the first part up to bar 58, moves from accent to accent.

The categorization of textural objects is chosen as a main tool for the analysis of this work. The reason for this lies in the particular aural experience of the music as experienced by me as analyst and the identity given in its title: Solve et Coagula, as described and explained above. As mentioned before the piece can be seen as a musical play between two types of energy: the dissolving (hereafter: the solve-parts) and the solidifying (hereafter: the coagula-parts) represented through two kinds of textural object and, more importantly, between different versions of these objects.

2.3.2.5.1 Different versions

There is a constant balance between the character-elements and the play-elements in each of the textural object. If the play-elements dominate the character-elements to a strong enough degree the object will cease to be recognized and we will get another object all together. But to a certain degree it is possible to create versions of the same object, versions which can then be placed along a line of development, and with these versions we then have the possibility of visualizing larger processes and relations in the music without the traditional aid of harmony and melodic themes.

Aural Sonology has as one of its aim to "conceptualize and represent graphically that which makes syntactical sense in music as heard"(Thoresen, 2007b). Therefore the graphical forms and symbols chosen here are based mainly on the aural impressions of the music on me as a listener and will therefore not necessarily coincide with the movements and directions of the actual pitches used. It is important to remember that textural objects exist *because of the*

way we listen and that they are an aurally experienced phenomenon. A textural object is something created within our mind depending on how we listen to the music. This underlines the subjective nature of the phenomenon and, consequently, the problems confronted when trying to translate these phenomenon into a general symbolic language in for instance a graphical analysis. Therefore, in the graphical analysis of this work I have tried to the best of my extent to give the reasons for my choice of graphical symbols.

I have chosen to present the different textural objects as boxed entities in order to be able to show the processes between them (how they act and interact in relation to one another). The placing of the graphical symbols used within the boxes have no relation to register or melodic movement, i.e. the placing of one symbol above another does not mean that the first appears in a higher register than the second, and the representation of scales through the use of slanted lines of different directions (see version S5) does not mean that the directions of the scales appear in the order of the slanted lines within the box. In some instances directions are used to convey a particular subjective experience. One example of this is found in the first version of the Solve-parts which is presented by an unbroken line with a dynamic form beneath (figure 8). This line, which is used to show the general developmental tendency of the gesture, is not meant to describe the contour of its pitches. I have used a downwards arc to describe the more "chaotic" part of the gesture. However, in several instances the pitches played by some of the instruments actually describe an upwards arc or sometimes the gesture is created by a combination of instruments where some of them play upwards and some downwards.
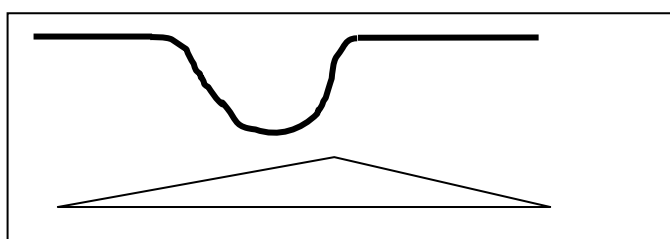
Figure 8. Version S 1.

The reason for the choice of a downward arc as a graphical presentation made here is based on the *auditiv impression* the gesture creates for me as a listener where the strongest sensation is that of a downward fall. This is of course also an obvious necessity when dealing with textural objects which by their nature consists of several layers. In addition to the line showing the duration and course of the sound of the gesture there is also a dynamic form beneath the line showing the main gesture's dynamic direction.

2.3.2.5.2 Defining features: The solve-parts
In this analysis I have defined the Solve- parts (or "dissolving" parts) as consisting of the following features:

- Combination of pertinent and non-pertinent pitch.

- Tonic and dystonic features in combination.

- Teeming or swarming sounds

The Solve-parts belong to the second category of textural objects and are recognized mainly by the dynamic contour of its parts and their sequence. The dissolving part of the gesture is clearly visible through the notation in the score. The flickering and swarming sensation is created by a combination of effects: the string players are given a specific spacing of their fingers which they then drag down the fingerboard while moving the bow rapidly across the strings, creating a continuing loud glissandi and a general downwards movement. Above this one of the tonic instruments play a quick arpeggio-like mirrored movement, either up-and-down or down-and-up. To add to this the percussion is often added as a complementing timbre and rhythm to the climax-part of the object. Through this vertical construction of timbre and complementing rhythms the gesture which we will name *textural object 1* or *version S 1* is created. The arpeggio-part of the object is often introduced by an introductory gradually increasing note played by one of the tonic instruments which concludes in the arpeggio-movement and then recedes quickly. This introductory note is omitted in the first appearance of the textural object (00:00 - 00:04/ bar 1 – 2) which is created vertically in the score in the following way: the string players play according to the aforementioned technique, the cello beginning, the viola following, then the first violin. At the bottom we find the double bass playing a strong glissando - shake, and at the top we have the alto flute, the bass clarinet and the second violin playing rapid patterns of notes all of which are leading towards the first note of the second measure. The percussion underlines the build up with a rhythm played on the bongos and congas. What you get, is the impression of a random yet highly dynamic crescendo-gesture with a kind of uncontrollable energy, beginning ppp and ending *marcato* at ff.

The first time the textural object appears it is played by all the strings, percussion, bass clarinet and flute (bar 1-2). The next time it appears in the double bass, viola, second violin, percussion and bass clarinet (00:25 – 00:30/bar 6 – 7), shortly followed by yet another variant played by all the strings save the first violin and percussion. This time the gesture start at bar 8 and finishes at bar 10 and is created in an overlapping fashion with the next following gesture where flute, percussion, first and second violin and double bass enter at bar 9 and finishes at bar 11. Within the solve-parts we find the following different versions of the gesture (the bar-examples given at each version points to one of the many appearances of the version in the score. The time-references relate to the recording found on track 10 on the enclosed CD)

2.3.2.5.2.1 Solve-versions
First version. Bar 6 – 8 (00:25 – 00:30). The gesture consists of a sustained, gradually increasing entry note that leads into a free abrupt movement or "outburst" and recedes in a sustained glissando with a diminuendo. (Note that the accent-note appears as the top point of the dynamic form)
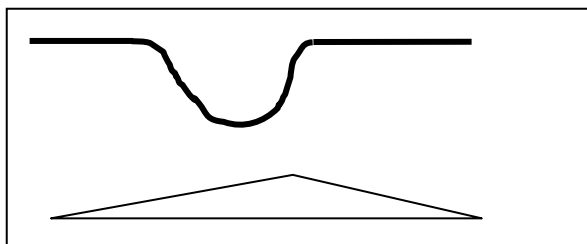
Figure 9. Version S1.

Second version. Bar 33 (02:20 – 02:26). This is a shortened version of the gesture in version S1. The entry-note is sometimes played as a shake (presented by a zigzag line on the main line) and the free movement ends sharply at the point of culmination. The dynamic is also different from version 1.
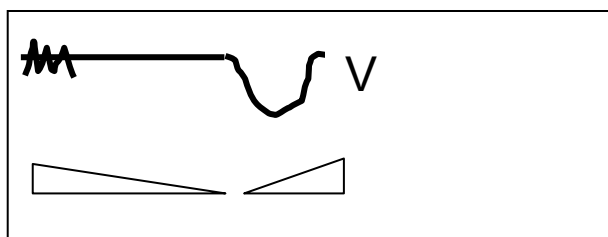
Figure 10. Version S2

Third version. Bar 157 – 158 (10:29 – 10:34). Here we have a condensing of the texture at the beginning and the end of the gesture. The gesture consists of several instrumental layers where the entry-note and the note after the free movement or outburst are made up by a mixture of shakes and repeated note-patterns (here the sign for iteration, a broken line, is used to show the repeated notes). The dynamic profile is the same as in version 1.
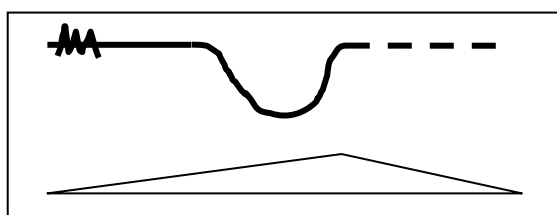
Figure 11. Version S3

Fourth version. This version consists of scales based on crystal-chords. These are used mostly in the manner of transitions, first in bar 59, then more massively in Bar 135 (08:47). Here we also see (as evidence of the crystal chord-basis of the scales) that the different notes are bound to specific scales which are not repeated in the octave. An example of this might be seen in the percussion voice (starting at bar 136 and ending in bar 149/ beginning at 08:50) where we are presented with one long evolving scale which is presented in fragments, a little at a time, revealing more and more of the continuing long line of the scale. As an element of the Solve gesture the scale-parts can be seen as a fragmentation of the chaotic part of the original opening version. Here I have chosen to simply use slanted lines of

differing direction and length in order to visualize the mixture of scales in several voices and the random effect they create aurally.
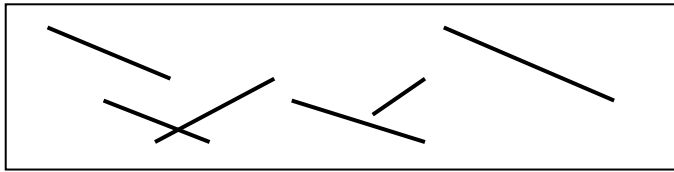
Figure 12. Version S4

Fifth version. Bar 170 (from 11:11) At the end of the work there appears a strange melodic-like part where some of the instruments play longer phrases of notes conjoined with slurs. During these parts some of the instruments contribute with long shakes. As these parts may be seen as a final development of the Solve part (where the melodic lines are experienced as related to the scales and the shakes triggers the memory of version S2 and S3) it is presented here as a solve-version although it lacks most of the characteristics of the original gesture (S1). It is as if the unorganized solve-gesture has somehow become less agitated and through this evolved into a more melodious expression. Here I have chosen to express the textural object through what I experience aurally as the most prominent elements: a combination of general melodic phrases and shakes. Consequently my focus has been less intended to decipher the specific pitch or a harmony content of the melodic phrases as I have not focused on them on a detailed level. Rather I have experienced them as larger entities where the main common denominator is that they are experienced as phrases in a musically horizontal way, largely because of the conjoining slurs. Consequently I have chosen to show these graphically through the use of slurs of upwards and downwards direction. Above these the sign of a shake that was used in version two and three has been used.
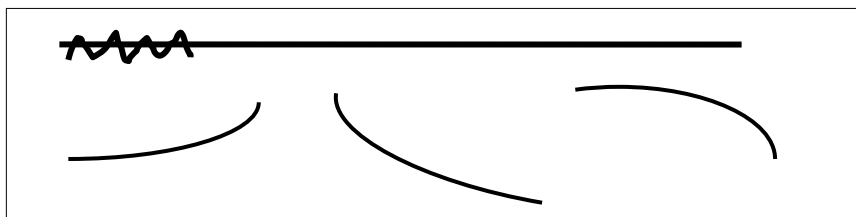
Figure 13. Version S5

2.3.2.5.3 Defining features: The coagula-parts

I have defined the coagula -parts (or the "coagulating" parts) as several versions sharing the following features:

- Pertinent pitch (meaning a sense of tonal gravity or centre-tone)
- Chord-like sounds
- Static blocks of sound where the main "frame" or general pitch-range is kept steady while changes occur within.
- Repeated patterns of varying types of rhythm and/or figuration.

The coagula - parts are textural objects that are recognized by their timbre and texture, not their dynamic profile. They belong to the first category of textural objects that can have their size and duration altered without it affecting their recognizable character. At the very beginning in measure 4 to 7 (00:13 – 00:23) we find a static layer of notes in the string players who are instructed from the score to "bow up and down, rhythmically free, but basically with a calm expression" on a continuous small second interval, creating a static field which at the same time contains movement and a congealed sort of energy. This same type of static field appears several places in the beginning, for instance bar 8 - 9, 10 - 13, 17 - 19 and 20 - 22.

As with the solve-gestures the coagula –gestures also have different variations; from bar 65 and through to bar 87 (04:35 – 06:06) the sustained notes are exchanged for repeated ones where the different instruments repeat their individual notes in repetitive rhythmical patterns. The static fields are constructed through the development of a rhythmical lattice where all the instruments combine in creating a shimmering, static block of sound by overlapping, varying rhythms (for example: in bars 72 – 73 the piccolo flute play semiquaver fivetuplets together with the cello, while the percussion plays quaver triplets. In bar 73 the piano enters playing quaver fivetuplets and the bass clarinet playing semiquaver sixtuplets.) Later again there occurs yet another change as the rhythmical layer organizes in an even rhythm with a common pulse (bar 115. 07:50). The changes which occur are all based on timbre, rhythm and differences of instrumentation, while at all times the block of sound is kept intact and un-developing; a coagulated state of sound. No single gesture leap out, rather we are faced with a homogenous web of threads which glitter and change but retains the same general form. As a graphical representation for the Coagula-versions I have chosen a two-pointed arrow in order to visualize the moving yet static energy of the gestures. The arrow is a symbol used both in Form- building functions, processes and transformations as well as in the indication of goal-attainment in dynamic forms, and it is chosen because of its ability to show directionality in a musical gesture.

2.3.2.5.3.1 Coagula-versions

First version. Bar 4 (00:13 – 00:23). This version consists of sustained notes in all instruments played with free bowing, creating a shimmering texture and an even dynamic. The lines of the arrows that are used are unbroken to show the sustained sound. The arrows are placed parallel and have equal length in order to show the homogenic nature of the sound object.
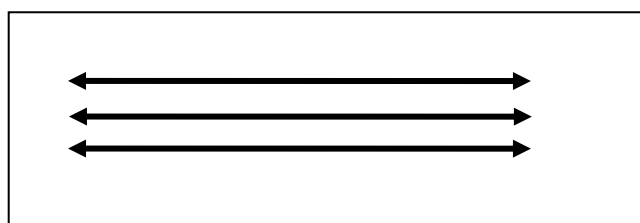
Figure 14. Version C1

Second version. Bar 70 – 87 (04:35 – 06:06). Here we find repeated notes in alternating motto-rhythmical patterns between the instruments. The dynamics and rhythms are Individual; therefore I have used several arrows of different length. The lines of the arrows have been broken to show that the sound consists of repeated notes and figurations instead of sustained sounds as in version C1.
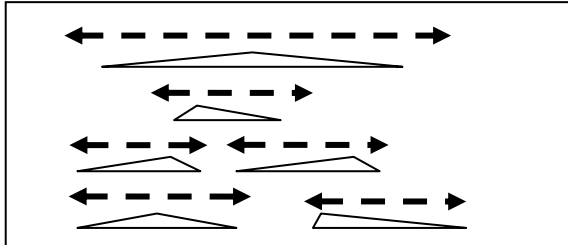
Figure 15. Version C2

Third version. Bar 115 (from 07:50). Here the repeated rhythmical patters are organized according to an even subdivision of quavers and the dynamics are mostly equal and in unison. I have therefore made use of parallel arrows of equal length. The equality of dynamics is shown in the single dynamic form beneath the arrows as opposed to version C2 where each arrow had its own dynamic form. The dynamic form used underneath the arrows points to a wavering energy shape as the dynamics tend to change and waver throughout the version.
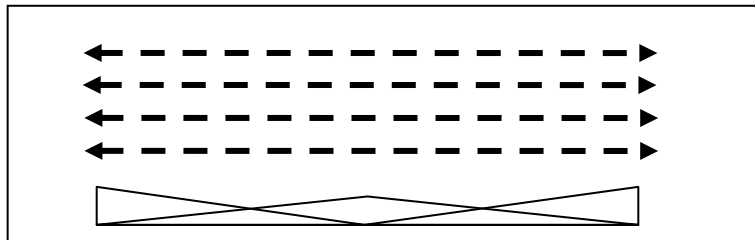
Figure 16. Version C3

Fourth version. Bar 89 (from 06:09). Here the gesture is further intensified by the adding of shakes. The instruments continue to form repeated patterns but now in the form of lines which begins with a shake and then iterates into repeated notes. The different instruments overlap each other creating an audible sensation of a vibrating, yet static web.
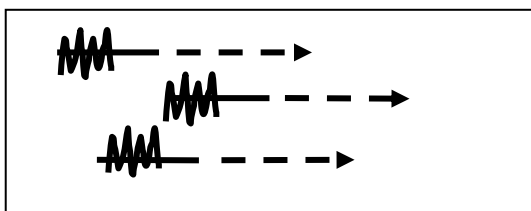
Figure 17. Version C4.

Fifth version. Bar 96 (from 06:37). If we were to look at the different Coagula versions as a linear development towards a gradually more static expression of energy then this would be the last phase. This version can also be seen as a condensation of version 4. Here the gestures of version C 4 are organized in a unified block with a stuttering sort of energy where the continuing web of sound is broken up as the instruments gather into abrupt chords of an irregular rhythm. The aural impression is that the energy is grinding into a more and more compressed expression, like the cogwheels of machinery choked with glue.
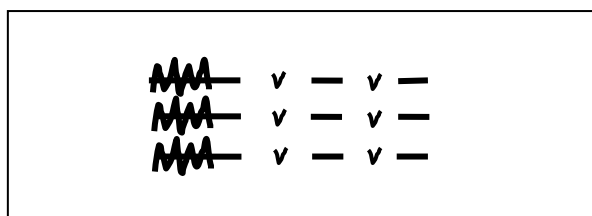
Figure 18. Version C5.

2.3.2.5.4 The use of transitional symbols in the graphical analysis

The textural objects have been presented in boxes showing only the appearances of the different versions of the objects (marked by part or bar- indications), not the particular course of each version (e.i. whether it is repeated several times or only played once, by one instrument or many, if it is varied, loud or soft etc.) It was also necessary with a set of symbols to show the types of transitions and relationships between the different textural objects or versions of textural objects. The following symbols have been used:

Type of transition	Symbol
The object is introduced gradually	≺
The object vanishes gradually	≻
A gradual transformation from one object to the next.	→
The object is continued	→
An abrupt change from one object to the next, no constructed transition	V

Here the symbols used are a mixture of general relation-symbols such as the ≺ and the ≻ to show the gradual increase/decrease of an element, and symbols used in modern score-notation (Stone, 1980) (here the straight arrow is used to show the continuation of an object and therefore as a contrast a wavy arrow is used to show a gradual transformation.) The ∨ indicating an abrupt stop or change is a symbol used in the notation of time-fields to show the separate position of two fields that have no transition between them.

2.3.2.5.5 Description of the graphical analysis showing the alternation between Solve and Coagula gestures

The graphical analysis shows the processes of alteration between the different gestures in the work not only between the two main textural objects but also between the different versions of the two types. In the analysis the different objects are described as either Solve (S) or Coagula (C) together with the number of the particular version (i.e. Solve, first version=S1). The analysis has been divided into 7 parts in order to better describe the different changes of texture that occurs. In the analysis the bar-number is also given at each new part.[58] The succession of the boxes is presented in horizontal lines. Sometimes in the music the textural objects (and therefore the boxes) create several layers that move simultaneously, therefore brackets have been used at both ends of the lines to show more clearly which parts belong together. The signs indicating type of transition are placed between the boxes. The size of the boxes shows their prominence in the soundtrack (e.i. a large box indicates that the version in it has a foreground function and a "strong intensity of profile" to use the definition from the analytical system of Musical layers[59]. The following is a description and explanation of the graphical analysis which is to be found in the appendix, 4.1.3.

Part 1 (bar 1-57/ 00:00 – 04:00)
The opening. First gesture: Solve, version 1. The S1 appears both as a single and as several overlapping gestures. In the beginning there is a constant change between the two gestures S1 and C1, then gradually less of the C1. The S1 and C1 have until now alternated but gradually the Solve-parts have taken over and gathered in unison, transforming gradually into S2 and creating one moving block which are clearly divided up by the use of pauses and where the time signature is frequently changing. This occurs between bar 37 – 57.

 Between part 1 and 2 a transition is made through the use of scales (the S4 version), particularly in the piano part (bar 58 – 65/ 04:00 – 04:30).

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[58] It is important to remember that this partition has nothing to do with the original partition designed by the composer with the help of the fractal algorithms mentioned at the beginning of the presentation of the piece but is based entirely on the aural impression of the music as heard.

[59] See Appendix under 4.3.3.3 *Layers.*

Part 2 (bar 66-102/ 04:34 – 07:03)

After the scale-transition (or gradually overlapping it) the Coagula part (C2) enters with its motto rhythms of repeated notes and figurations alternating between the different instruments, creating a static layer of shimmering textures. Parallel with this are Interspersed scales. (bar 66 – 94). From approximately bar 92 the C2 version is gradually transformed into the C4 version as shakes are added to the repeated lines of rhythm and figuration. This is further condensed into the C5 version as the individual voices are gathered into the same abrupt rhythmical patterns with a constant change of meter (5/4- 3/4- 5/4 - 7/8). As the condensation reaches its climax a small entry of the C1 version appears as a calming transition into part 3.

Part 3 (bar 103-113/ 07:04 – 07:50)

The C1 version continues as the S1 version from the opening reappears in a somewhat shortened expression. As the C1 version gradually disappears the S1 version continues, through a continual shortening of gestures and gradually transforms into the C3 version as we enter into part 4 at bar 114.

Part 4 (bar 114 – 134/ 07:51 – 08:46)

Part 4 consists of the C3 version where the static element is created through repeated rhythmical figures in all the voices. Towards the end the scales of the S4 version appears and gradually increases as the C3 version decreases.

Part 5 (bar 135 – 149/ 08:47 – 09:48)

At the beginning of part 5 the scales of the S4 version dominates with scales going in different directions and in different tempos. In contrast to the prior rhythmical texture this creates a strong sense of motion and dissolution. The C2 version enters and gradually increases until it becomes the dominant feature, the S4 version falling into the background and decreasing little by little while the C2 version gradually transforms into the C1 version at bar 150 where there appears a general pause of 12 seconds.

Part 6 (bar 151 – 165/ 10:04 – 10:58)

The general pause marks the transition into part 6 where the C1 version is continued and gradually transforms into or is overlapped by the C2 version. Then gradually this texture transforms into a mixture of the S3 version in combination with the scales of the S4 version. This continues until bar 165 and part 7 where the rhythm solidifies into the C3 version and a new time signature is given (crotchet =120).

Part 7 (bar 165 – 206/ 10:59 – 13:00)

Part 7 is the last part of the piece and consists of a continuing alternation between the C3 version and the S5 version. The part begins with the C3 version which ends abruptly as the S5 version enters with a new time signature (crotchet=60). There is a strong contrast

between the two different versions (the rhythmical organization of the C3 version and the strange melodic-like intermezzo coupled with frequent shakes of the S5 version). All of the S5 versions end with an accelerando or a crescendo leading into the following C3 versions; therefore I have used the symbol of gradual transformation to mark these transitions. The fourth appearance of the C3 version diminishes gradually as the piece is ended at bar 206.

3 Conclusion

When working on this Thesis it became clear that form and the understanding of the form-concept among performers and students of performance was a central element when it came to the problems connected with the presentation and understanding of contemporary music. Susan Sontag, in her essay "against interpretation"(Sontag, 1966/2001), claims that an emphasis of *form* must replace the constant emphasis on *content* used as a focus in many modern day-interpretations, discussions and music critiques. According to Sontag the tradition of interpretation has driven itself into a corner by neglecting the sheer sensual aspect of the art experience and by focusing solely on trying to explain *what* something means rather than to point out and describe *how* something appears. The focus of this thesis on the need for performers to understand and relate to form in the sense of an emergent organic form- concept is chosen in order to show that this ability is an essential ingredient in the decision-making process of interpreting contemporary music. It is a much needed counterweight to the traditional form-teachings given at conservatory-level which is mainly based on written material as supposed to music as heard.

The benefits of an organic form concept and an aurally based approach to the music in addition to the traditional form concept were discussed in *1.1 Understanding, interest and perception.* During the three analyses of this thesis different analytical methods have been used, all based on an aural approach to the music and with the intent to understand the organic form of the pieces. To develop an organic form-understanding takes time and demands practise which is gained mainly through listening, experiencing and analyzing; being able to hear and understand the functions and inner relations of a piece of music and eventually to be able to use this understanding in one's own interpretations.

3.1 Form-based choices (Black Angels)

When searching for a way to approach contemporary music that doesn't have tonality as its foundation a good question to ask is this: what elements of prolongation are found within the music? What functions helps the listener mentally link the different sections of the music together? In aural sonological analysis dynamic form, time fields and layers are some of the functions which we find creates prolongation in non-tonal music. With the kind of understanding that a focus on these functions might provide us with we can, as musicians, make informed choices concerning the relations between the different parts of the music and each part's particular function; function being, as we remember, a pertinent factor when it comes to organic form (see 1.1.3 Organic form). In the analysis of *Black Angels* by George Crumb the analyses have been based on several of these analytical systems. I will give some concrete examples as to how some of this material shows the formation of emergent organic form in the music and how this can be used to make the sort of informed choices mentioned above.

We hear in the first and second movement of *Black Angels* the same general construction: the tension of the movement is intensified gradually through repetitions and small alterations of the elements used and reach a top or climax a little after halfway into the movement (following the measures of the golden mean). In both movements the tension then decreases towards the end with a return of elements found in the opening but now at a lower level of intensity than in the beginning. This is a logical consequence if we imagine that the whole movement is one organic entity: after any outburst of energy we are left with less than we originally had; the last sentence-field of both movements has as part of their function to show the consequence of the just by-gone increase of energy. By doing this they become an organic part of what has gone before them.

In movement 7 the climax comes at the end of the movement with the clash of the tam tam and the shout "dreizehn!". This is a delayed climax because the general build-up of the movement points towards the middle of the last sentence-field at the time-marking 02:01. This is because the material found in the three preceding sentence-fields (beginning at 00:54, 01:24 and 01:48 in the analysis) have all been based on the same recognizable elements and it is therefore possible for the listener to notice a gradual development in them towards longer, more "melodic" expressions which eventually erupts at 02:01 with the shout "eins!". However, the fact that this outburst is followed later by yet another even stronger outburst it is important to sustain the energy between the two because the relation between them is that the last one is a consequence of the first one (the number dreizehn/thirteen is the last number of a gradual count from one to thirteen.) Therefore the tension in the last outburst is also a result of the subsiding dynamic in the counting because in order to have a new and even greater climax so short after the first one it is necessary to accumulate new energy fast. The decreasing of dynamics done during the counting from one to seven acts as a slow accumulation of tension (like the accumulation of water in a dam) and this is seen especially in the pronunciation of "sieben" which is to be whispered with the dynamic of *f,* making it clear that the expression is more fierce than subdued. In this way the functions of the different parts of the movement relates to one another and to the two climaxes at the end and their respective relation.

In the Seventh movement the particular emphasis that the analysis places on articulation signs is important regarding the choices of the performer as it points to inner relationships in the music. For instance the analysis shows the use of "point of release" and "point of affirmation"-articulations. The reason that these are experienced as such is due to conscious choices made by the performer. If an articulation is to be experienced as an affirmation it must relate to what has come before it, both in dynamics and expression otherwise it will not seem related and affirmative. The same goes for an articulation that is to be experienced as a point of release; the energy must be transmitted *intentionally* into the gap following the articulation, especially if the articulation is followed by a pause. This is a typical situation where the musician is responsible for consciously shaping not only the music but the silent spaces within it. If the focus of the musician is placed solely on the articulation itself and not

on the energy that the articulation is transmitting forward no relation is created between the different parts of the music and it is impossible for a listener to experience them as parts of an integrated whole. Through the aural analysis the musicians' conscious shaping of the pauses on the recording becomes visible and is therefore a clear reminder of this fact. The decision as to what kind of articulation the music demands must be read out of the score but also decided according to what function the part we are shaping plays in the totality of the piece. In the case of movement 7 the score gives the instruction to the musicians to play a sharp descending glissando with strong vibrato and an increasing dynamic. The glissando movement is cut short by a comma with a slash through it, a symbol explained as meaning an extremely short pause or "breath". This is followed by a sharp percussive pizzicato played ffz by the first and second violin and the viola, while the cello at the same moment begins its long shake, starting at ffz and receding subito to pp. Both the increasing dynamic in the descending glissando and the percussive pizzicato giving emphasis to the point following the pause creates a combined impression that these two elements are linked together and that the energy released in the descending glissando is transmitted through the short silence and into the percussive pizzicato following it. It also demands that the musician take particular notice at the ending of the descending glissando where it is necessary for he or she to "take of" in order to gain enough energy to span the following pause, almost as in the manner of the propelled motion of an athlete building up momentum before a long jump. One could argue that all of this information is given in the score already but what is *not* given is the knowledge that he performer has to consciously transmit the energy into the gaps to be bridged and that if this is not done intentionally the flow of energy is gone no matter how diligently and correctly we play the articulations and dynamics.

In movement 9 our use of form-building transformation-symbols revealed a play between tonal and dystonal/complex elements (version III of the analysis). The movement has the same construction as that described above for movement one and two; that of the golden mean. The central dystonic/complex harmonic element beginning at 00:34 is framed by a short melodic phrase played two times before and one time after it. The difference in texture between the melodic phrase and the harmonic element functions as a means to prolong the listener's interest; first the simple melody, then the melody doubled with pizzicato-notes and then something completely new: the harmonic dystonic/complex element after which we are transported back to the melody with the pizzicato. The entire movement is framed by the introductory and concluding note played with bow on the tam tam. In this construction it is the differences of texture rather than the differences of dynamics which creates the relations between the parts and it is through this difference that the movement gets its energy and identity without the need of any great range of dynamics provided that this difference is presented clearly. Particularly the relationship between the introductory/concluding element (the tam tam-note) and the harmonic dystonic/complex element is important as they are related in texture and stand in contrast to the melodic/tonic parts.

3.2 The musician as presenter (The Lady of Shalott)

This thesis started with the intent to discover ways of use for sonological analysis in the presentation of contemporary music to an audience. My focus was then originally on the concert-situation and how results and knowledge acquired through an aural sonological analysis might be used by the presenter/performer in the concert situation to present the music in a specific context, for instance in a combined concert/lecture. The question was: would any of the elements used in aural sonological analysis be of use in a situation like this? As my thesis moved along it became clear that the ability to use aural sonology in order to develop form-awareness in the sense of emergent organic forms would be a necessary and valuable prerequisite for any sort of presentation. Therefore the focus of the thesis was changed accordingly but as aural sonology consists of several analytical strategies some of these may also serve the original purpose and be of use in the presentational situation. In the case of the analysis of Bent Sørensen's work *The Lady of Shalott*, I feel that some of the results from the analysis yielded a positive result in this regard, first of all the element of Isotopy. As mentioned in *1.1 Understanding, interest and perception* the listener faced with a challenging musical landscape will automatically try to achieve a sense of mastering by searching for a way to "grasp" the music. Our main way of doing this is to search for something which can help us link the different parts of our experience together and in this the principle of isotopies can be used as a starting point for a presentation and explanation concerning musical functions. Because an Isotopy, as mentioned before, is an implied meaning which creates coherence in the music it is also a term which can be used to concretize what is actually happening within the listener in the listening situation. To search for isotopies can also be a method for finding possible angles for a presentation of a piece of music if we wish to make a presentation that encompasses more than general biographical information concerning the composer or the work.

In the case of *The Lady of Shalott* I made use of isotopies concerning the music as well as the poem and the painting related to the music. First of all, in a presentation of the work an equal presentation of the poem and the picture and their possible relation to the music would create an interesting concert setting, not the least because it is a way to point out the element of suggestive gestures in music (in this case the musical aspect of the Isotopy of reaching out/withdrawal) and how these may be used to create effects and associations in an audience regardless of whether the composer originally meant for these to be created (See appendix → 4.3.2 *intentional fallacy*).

When presenting music as a musician, through playing or by words, it is of course important to avoid falling into the trap of "customizing" the music to suit the listeners by reducing and simplifying it to a mere "illustration" of an underlying story, especially when the music has been created as an autonomous work and were not meant as program music. But at the same time we must not be afraid of underlining the fact that several understandings or interpretations of one and the same work may be equally valid and that as interpreters we are, in addition to our professional knowledge of style and general rules of trade, presenting

our personal understanding of what the music means to *us*. It is always possible for a listener to interpret certain elements of the music as representing specific emotions, episodes and elements. This type of interpretation is also described as "figurative listening", and "empathic listening."[60] Why then, should not the interpreter be able to share and present his or her own personal interpretations orally as well as musically with the intent of creating a particular angle on a presentation? After all, the main issue is to create an interest in the listener, an interest which hopefully will increase the appetite for more unusual musical experiences.

There is a wide interest in concerts which comprise some sort of oral presentation of the works played. We see this through the enormous popularity of concerts like the one's held by violinist and scholar Andrew Manze of which one of them (a concert in the church of Jacob in Oslo where he collaborated with KORK, the Norwegian broadcasting orchestra) won international acclaim during the Prix Italia. In several music festivals it is also common to place a rather strong emphasis on the presentational situation and an oral, or other, presentation of the music in the concert. The same thing is experienced in concert settings which combine different forms of media and which allows the audience to experience the music through a variety of different sensual stimuli, all of them adding layers and experiences to the music[61]. The ability to present music orally and through a personal angle might be an important ability for students of interpretation or theory that are likely to go into roles as music curators. In this case the ability for a musician to discover or construct Isotopies for the benefit of his or her own understanding and interpretation of a piece of music, is valuable as it can be used as aid in a musical presentation. In the analysis the isotopies of reaching out/withdrawing and of reflection yielded both in their narrative and in their musical aspect an addition to the experience of the music, both by creating associations linked to particular points during the course of the piece and thereby giving the memory of the listener points to hold on to during the course of the piece, but also by being an example of how figurative listening might be used quite effectively to launch our imagination in the meeting with a new work of music.

When it comes to the use that a performer might have from being able to form opinions and make choices concerning isotopies, the forming and concretizing of Isotopies is also a way to say something about how "something appears" in the words of Susan Sontag. When preparing an extensive presentation of a piece of music there is a wide difference between reading a biography of the composer and adding a few facts from a CD leaflet, and to be able

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[60] See 1.2 *Concerning Sonology and aural Sonology* for further information on listening intentions.

[61] At the Risør chamber music Festival this year (2009) the Norwegian pianist Leif Ove Andsnes and the video artist Robin Rhode collaborated in creating a concert which combined Mussorgski's *Pictures at an Exhibition* with large video installations encircling the stage and the piano in the concert *Pictures reframed.*

to present the music through a personal point of view with a possible isotopic point of reference to act as a door opener into the music[62].

By giving the audience an experience of getting closer to a piece of music by experiencing the wealth of interpretational possibilities that might be found in a work we are showing them that these possibilities are limited only by our own imagination. After all, we interpret everything we encounter in life in our own way. Sometimes our interpretations agree with the general consensus and sometimes we might differ from everyone else but to be made aware of our possibility of making different interpretations of what we are encountering, be it music or anything else, can only enrich our experience.

3.3 The balance of detail and unity (Solve et coagula)

Just like in the famous saying with the river we might also say that it is not possible to listen to the same piece of music twice. This is particularly important when it comes to making a sonological analysis. For each time we listen to a piece of music our mind organizes what we hear into new patterns, creating new associations, new ideas and new connections. This again becomes our new horizon of understanding (to use a quote from Gadamer) from which we now experience our next act of listening.

When making an aural sonological analysis we are organizing the music into patterns and by doing so we are threading a precarious slope that might easily lead us to project conveniently fitting patterns onto the music, patterns which might be more present in our own mind than in the actual music itself. This might be especially so if we personally tend to lean towards listening intentions that favors a search for a single unifying and organizing principle within the music or an extra-musical pattern of which the music itself is seen as a symbol and a mirror. Sometimes the experience we might get of grasping what we believe is "the hidden meaning" of the music might create such an amount of satisfaction that it will be equally difficult to discard later if the music itself, at a closer inspection, proves to contradict our theories. But this is only a problem if our purpose in using aural sonology were to gain this sort of "insight". As explained earlier the point of making aural sonological analyses in this context is not to teach musicians and students of performance a technique for deciphering "the true meaning of a work" but to use it as a way to learn about emergent organic forms and the formation of organic form in music, and by experiencing and recognizing how it is done this knowledge will gradually affect our own playing and performance. Through the knowledge of emergent organic form and the experiences of active listening we also become aware of how our own perception works when encountering music as heard.

In his book *A concise history of Modern Music* Paul Griffiths summarizes some of the paths of modern music as it diverged from its Romantic antecedents in the following way:

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[62] It goes without saying that it is necessary for any presenter to point out that this is only one of many ways to experience and interpret the music at hand.

"the abandonment of traditional tonality, the development of new rhythmic complexity, the recognition of color as an essential, the creation of a quite new form for each work, the exploration of deeper mental processes"(Griffiths, 1978).

Even though we might be skeptic to such generalizations it would be difficult to deny that what Griffith points out here are some important essentials concerning also contemporary music of today where "Plurality" seems to be the only singular distinctive feature to be found. Music which explores the parameter of texture and where words like *process, transformation* and *mass* are pertinent terms challenges our common attempts of mental organization. A focus on textural objects might here serve as a help to expand our aural *field of vision* so to speak as we then mentally translate large parts of the music into recognizable gestures. We mentioned earlier that in music which is not based on traditional tonality we often find the elements of prolongation within the texture of the music. In the work by Wallin both texture, rhythm and the dynamic contour of the textural objects play this part which is why textural objects was chosen as the main element of focus in the analysis. For a performer the focus on creating gestures as opposed to lines or melodies is quite a different experience. Physical gestures are something that most of us uses every day and which we know consists of a group of actions that together create a whole. At one time in our life we had to learn every one of these actions which we now, as adults, take for granted. The simple act of walking involves numerous unconscious decisions on our part concerning balance and muscle control. Most people are familiar with the joke of the Millipede who one day began considering which leg to move first and then were unable to move ever again. During the execution of a musical phrase a trained musician will make several semi-unconscious decisions which all contribute in the creation of the desired expression. When learning a new work it is however often possible for us to fall in the same trap as the millipede; we may get caught up in the details and by that, lose sight of the general expression. The troublesome balance between detail and unity is a central challenge for any musician. I mentioned earlier the importance for the musician to know *what* he is saying in order to know *how* to say it. Knowledge of this kind is the way to find this balance because if we have an understanding of what we are expressing we will automatically make all the detail-decisions necessary to create that desired expression. The understanding of what *function* the different parts play in relation to one another is a way of going from a detail-level to an expression level.

In the graphical analysis of Solve et coagula the musical experience has been described through a visualization of its aurally perceived gestures and objects, and transitional symbols have been used to visualize the processes of development among the different gestures. This has made it easier to see the possible functions of the different parts. The second line on the first page reveals a process of condensation where the C2 gesture transforms into the C4 and then the C5 and where the different parts all play their role or have their function in creating this condensation which again creates the climax of texture found at the end on line two. Here the small C1 object also enters to reflect and frame the outburst of energy that

has just occurred. Towards the end of the piece in part 7 it is also possible to interpret the function of the constant changing between the S5 and the C3 object more literally as an intensified pendulum-movement between solution and coagulation; as solve et coagula. The use of textural objects also gave us a possibility to experience a *textural thematic development* so to speak in the development of the different versions of the objects. This again is a way for our listening mind to be able to experience the different parts of the piece as related (and thereby aiding our memory) by pointing out the relations between the different versions. We learn to "simplify" our listening so to speak by recognizing relatedness despite obvious differences. For instance, we are able to recognize the relatedness between the different coagula-versions despite their differences in register, instrumentation, rhythm or technique merely on account of the particular energy which is their common denominator. This type of listening experiences gives us a sensibility towards the music where we become more able to experience (and thereby hopefully to express) the more subtle sides of the music.

During this Master Thesis I have tried to show how aural sonology might be a helpful aid in achieving a more organic understanding of music, an understanding which would be a support for students of performance approaching contemporary music. In order for aural sonology to work as a support for the development of form-awareness it is however necessary with a basic knowledge of the analytical systems of which it consists, something which already exists as a study option at The Norwegian Conservatory of Music in Oslo. The subject offered here at this point (2009) is compulsory for students of composition although it remains available as an optional subject for other students as well. Even so the focus of the subject is mainly on composition and the benefits it might have for students of performance are not particularly emphasized, neither in the program description nor in the tuition that is given. Being a former student of performance at the Conservatory I myself sensed the great benefits that laid in aural sonology when taking it as an optional subject several years ago. It is my belief that aural sonology with a focus on performance would be a valuable asset for students of performance who wish to expand their form-awareness and understanding of music, and thereby their expressive potential as conscious, individual musicians and presenters of music.

4 Appendix

4.1 Graphical analyses

4.1.1 George Crumb: Black Angels

4.1.1.1 Movement 1. Threnody I: Night of the electric insects.
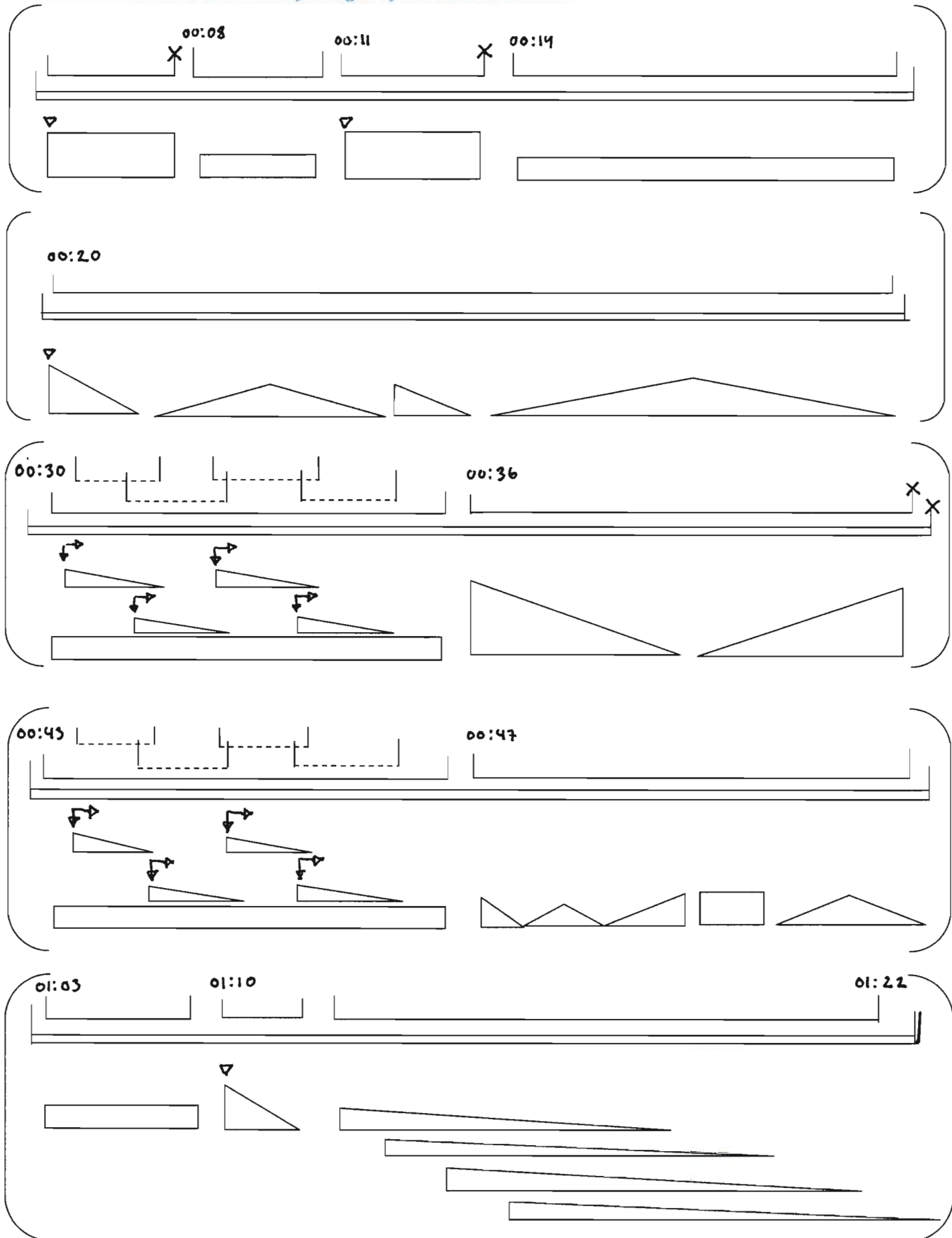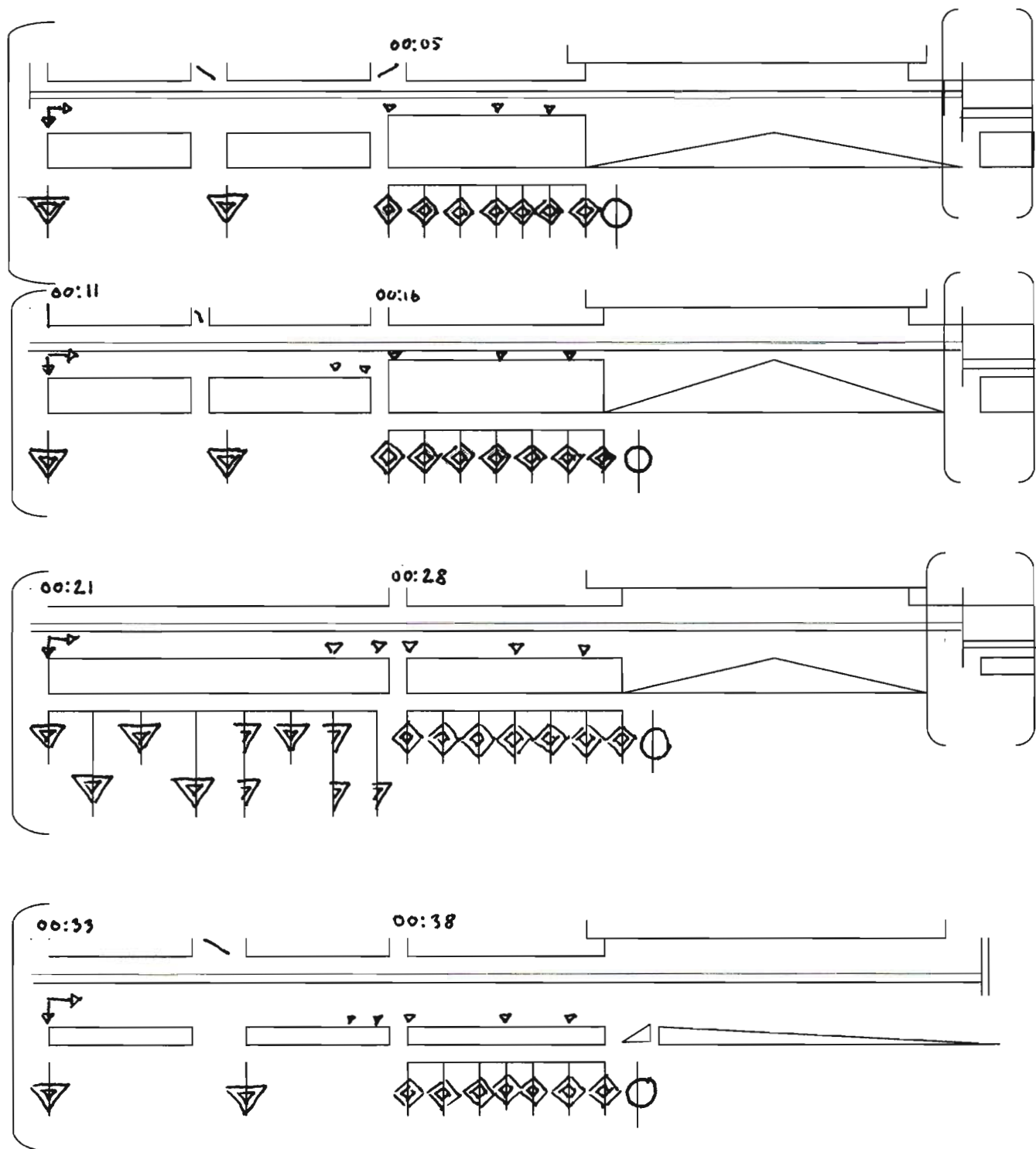
4.1.1.3 Movement 7. Threnody II :Black Angels. Overall analysis.
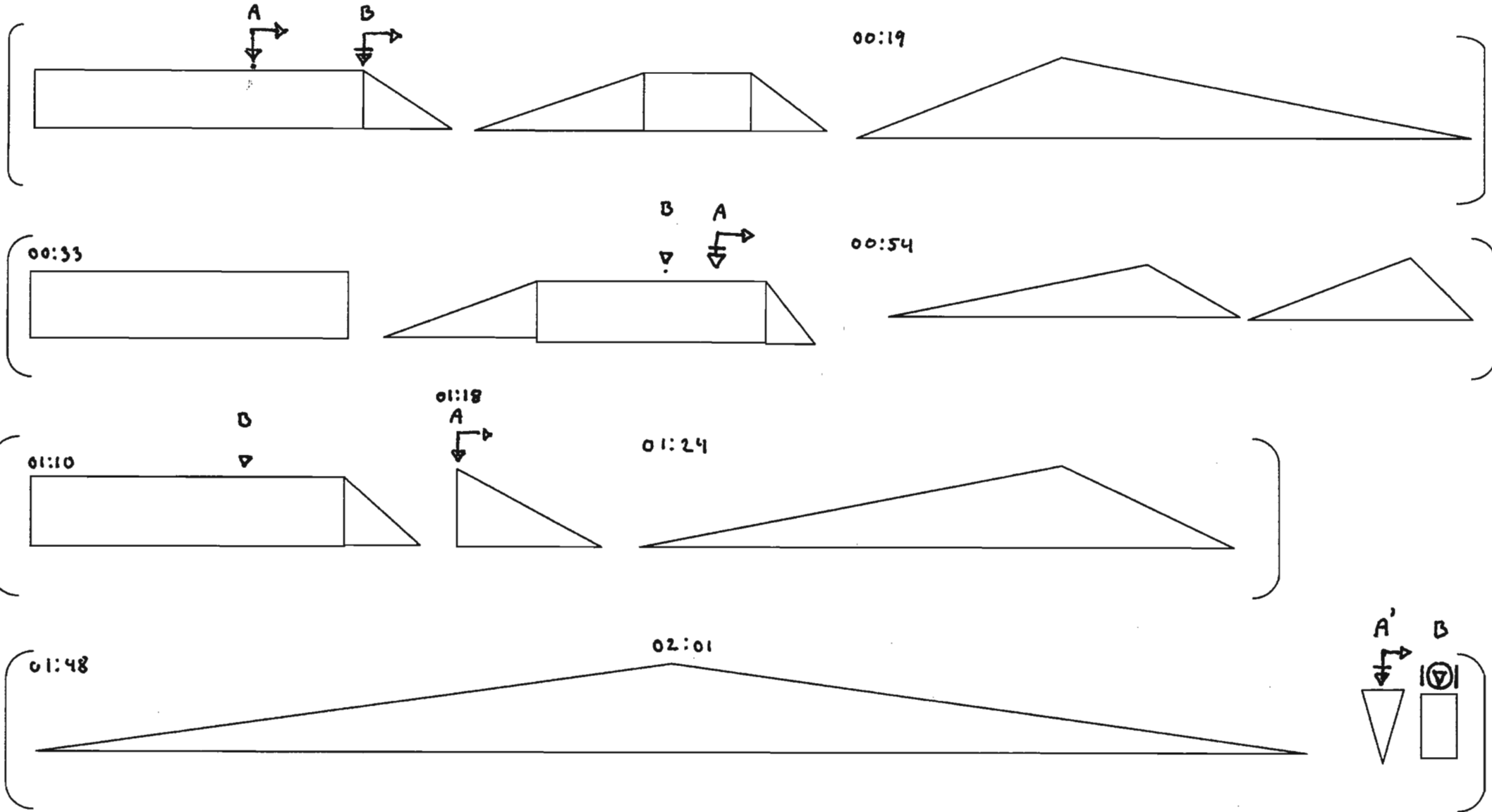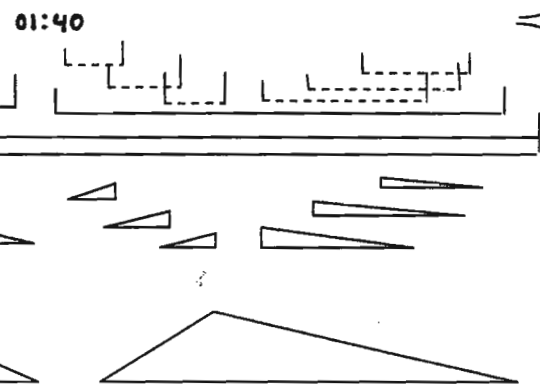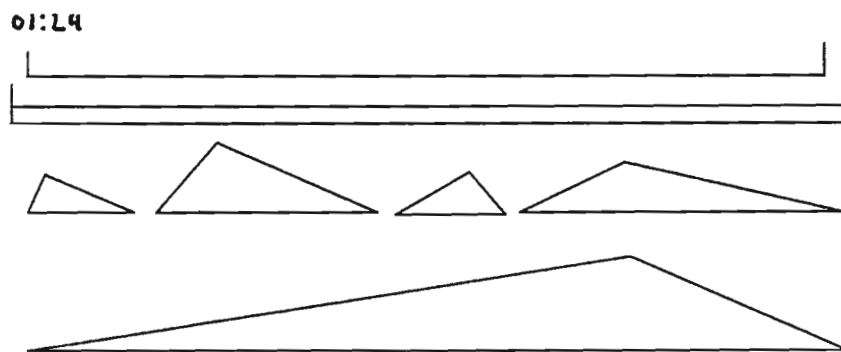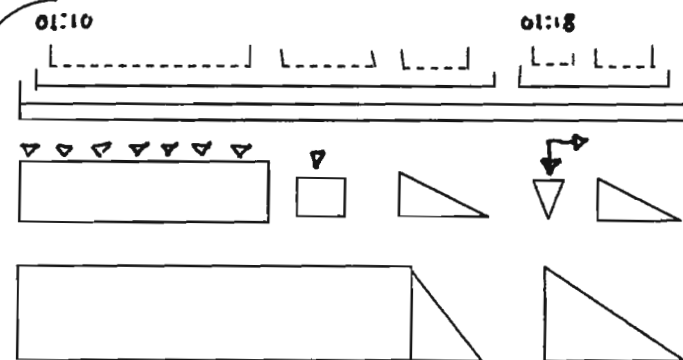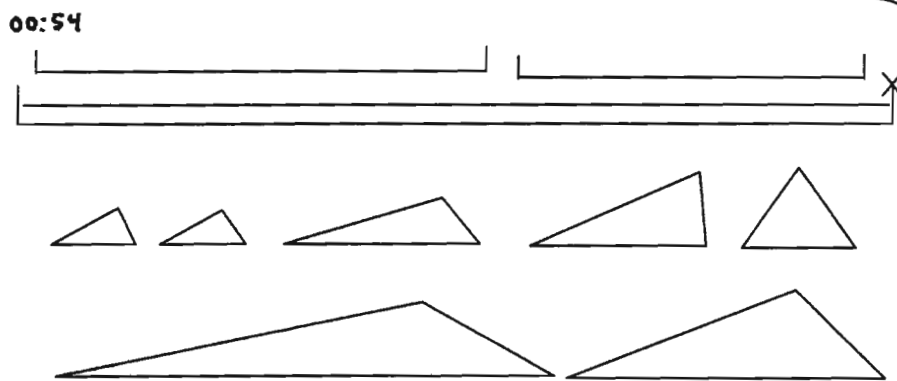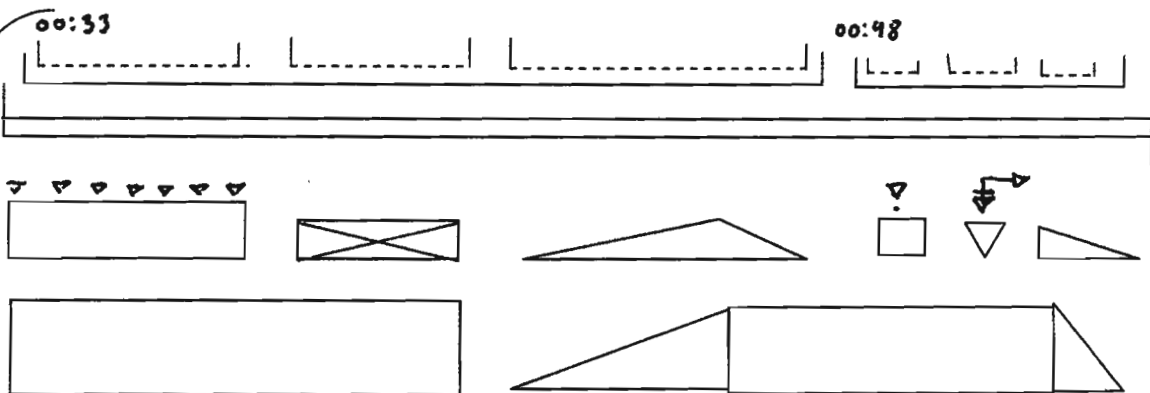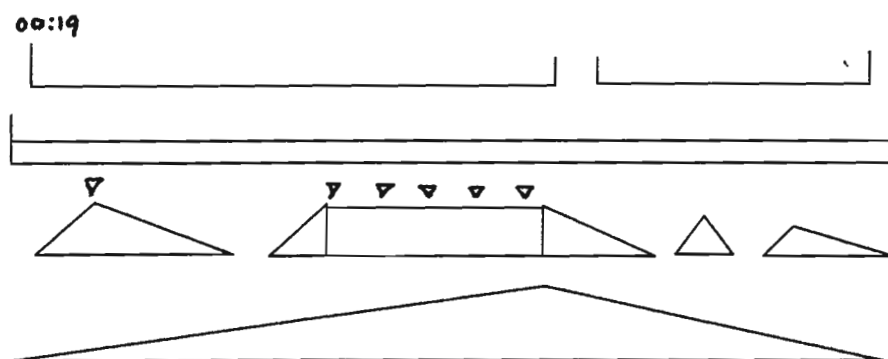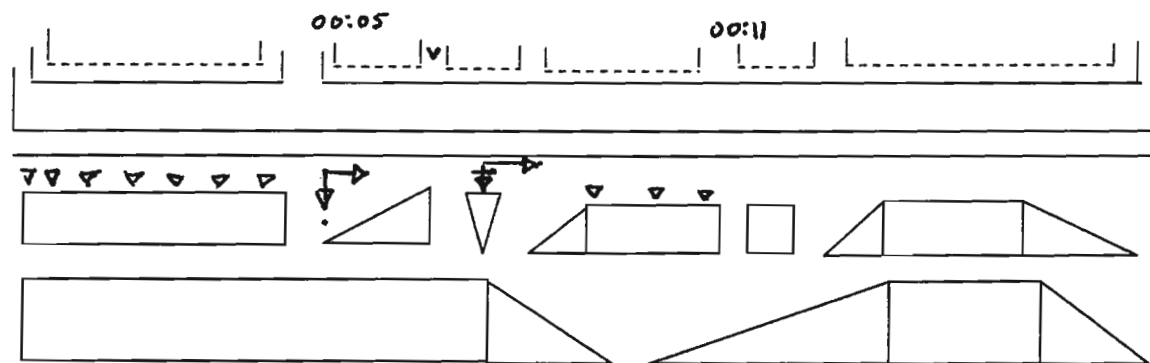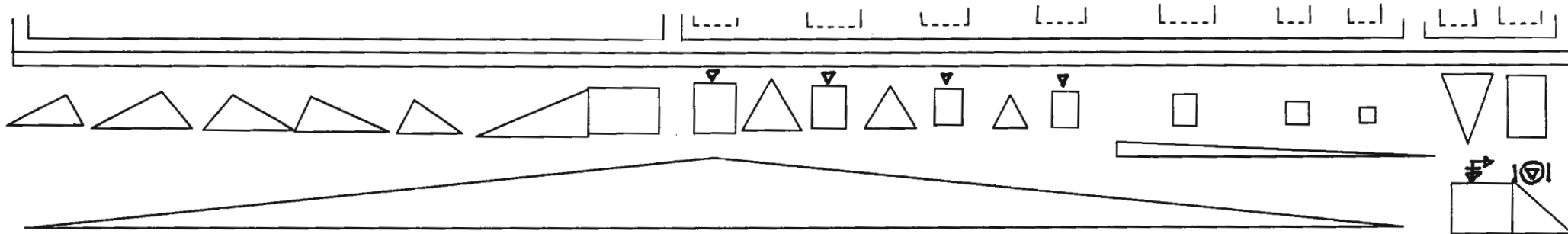
01:48   02:01

Version I

Version II

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F

B

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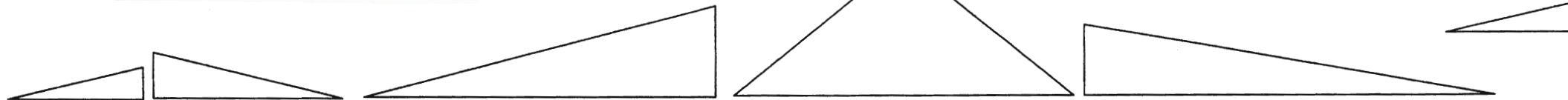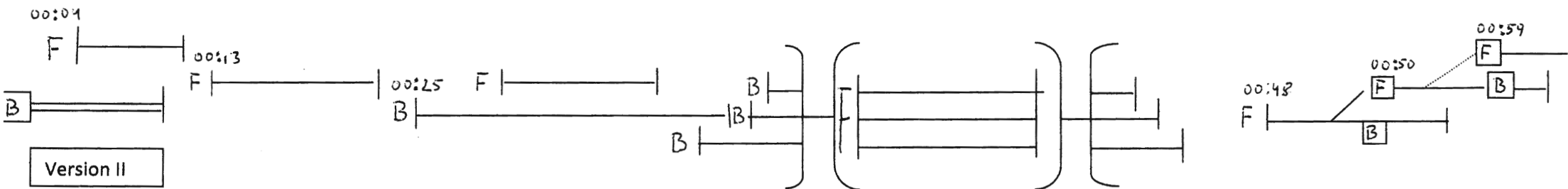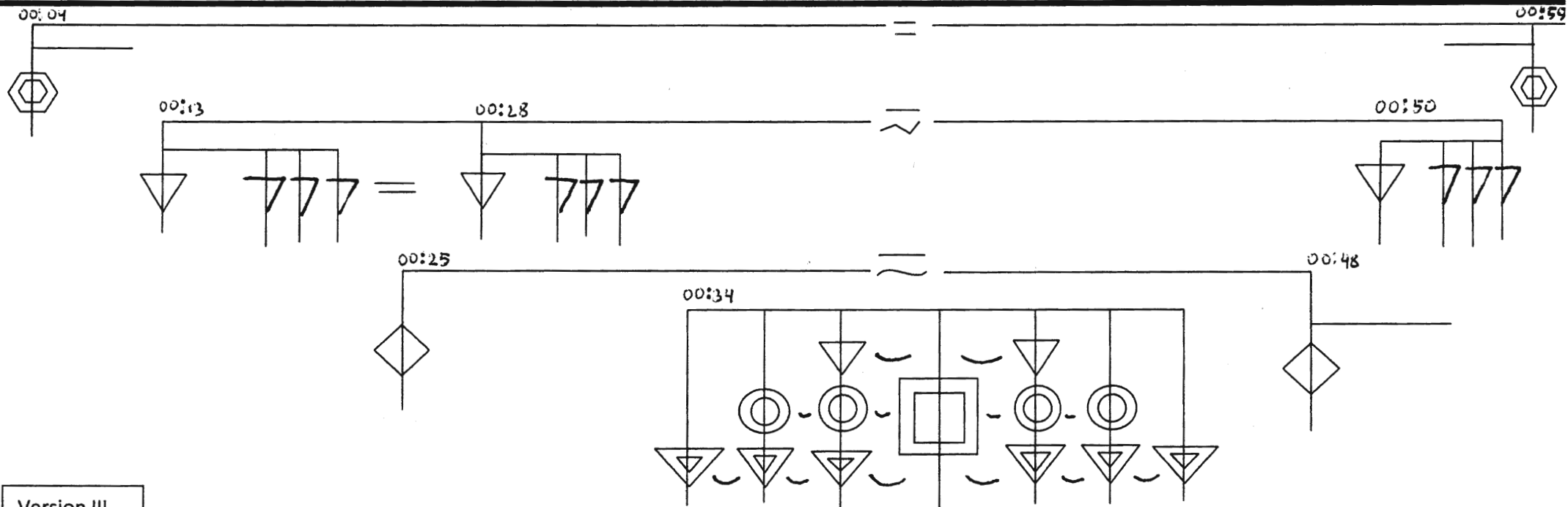
4.1.2.1 Diagram 1

Graphical analysis of opening bar 1-3. (main gesture, dynamic form and tone colour)
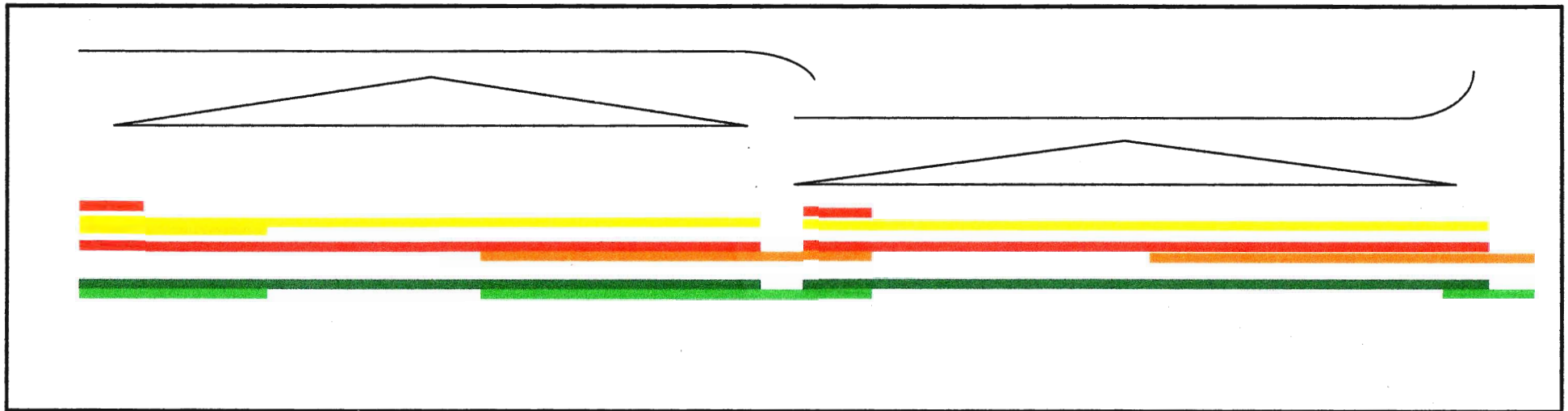
1. Narrative part: Agitated part bar 26-32. (Main gesture, dynamic forms, tone colour and given dynamics).

| (p) | (mp) | (mp) | (mf) | (mf) | (mf) | (f) | (f) | (f) | (f) | (ff) | (ff) (ff) |
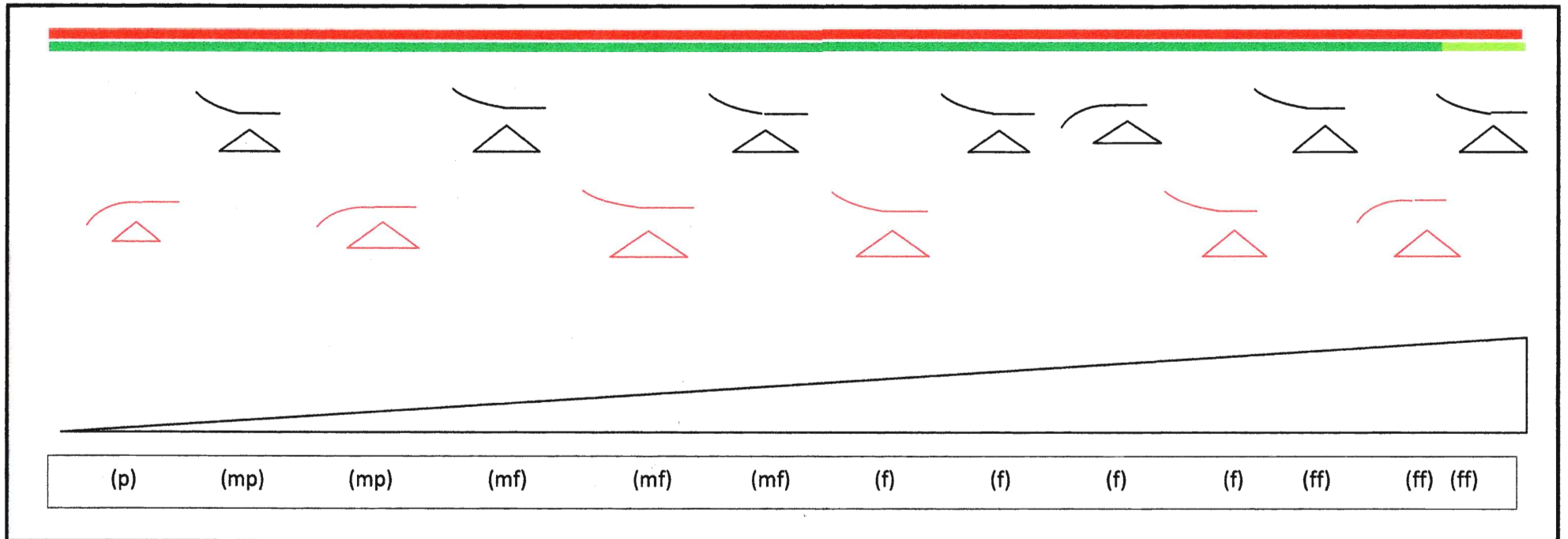
Solve et Coagula. Graphical representation

Part 1. bar 1 - 57
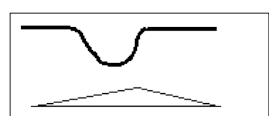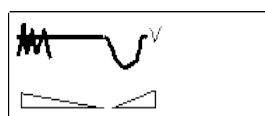
Transition. Bar 58 - 65

S1. < → S2. γ v C2. <

C1. → > S4. →

Part 2. bar 66 - 102

C2. → C4. → C5. v

→ S4. → S4. > C1. →

Part 3. bar 103 - 113

Part 4. bar 114 - 134

S1. → C3. >

C1. > S4. <

Part 5. bar 135 - 149

S4.   →   S4.   >   **GP 12'' bar 150**

C2.   <   C2.   →   C1.   →
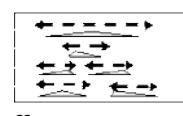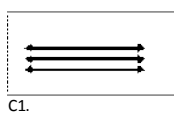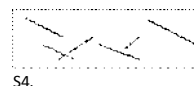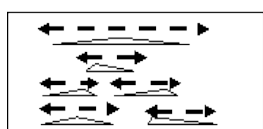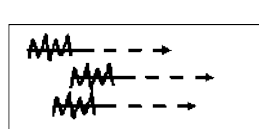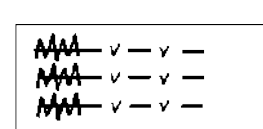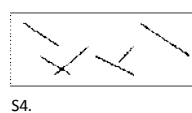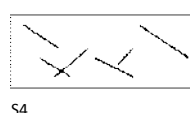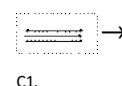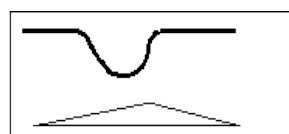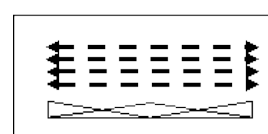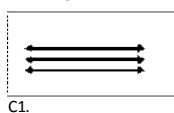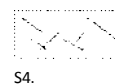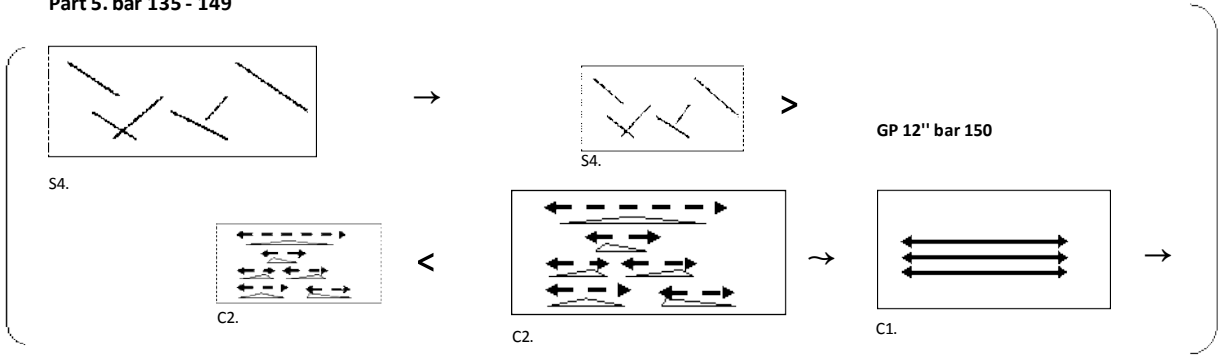
Part 6. bar 151 - 164   **Part 7. bar 165 - 206(end)**

→ C1. → C2. → S3. → C3. v

S4.

S5. → C3. v S5. →

C3. v S5. → C3 ‖
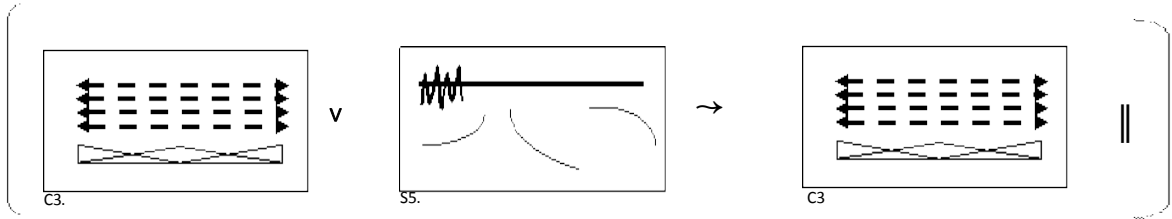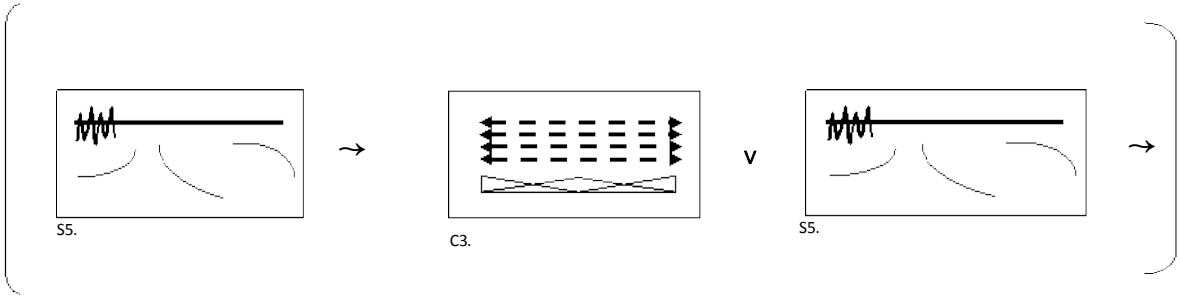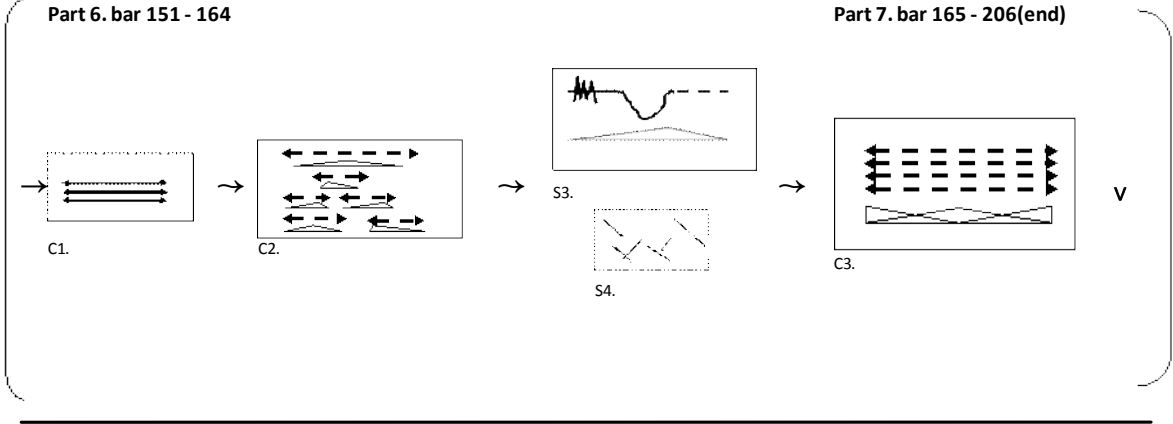
4.2 Poem. The Lady of Shalott

The Lady of Shalott

By Alfred, Lord Tennyson

Version of 1842

Part I

On either side of the river lie
Long fields of barley and of rye,
That clothe the wold and meet the sky;
And through the field the road runs by
     To many-towered Camelot;
And up and down the people go,
Gazing where the lilies blow
Round an island there below,
     The island of Shalott.

Willows whiten, aspens quiver,
Little breezes dusk and shiver
Through the wave that runs for ever
By the island in the river
     Flowing down to Camelot.
Four gray walls, and four gray towers,
Overlook a space of flowers,
And the silent isle imbowers
     The Lady of Shalott.

By the margin, willow veiled
Slide the heavy barges trailed
By slow horses; and unhailed
The shallop flitteth silken-sailed
Skimming down to Camelot:
     But who hath seen her wave her hand?
Or at the casement seen her stand?   25
Or is she known in all the land,
     The Lady of Shalott?

Only reapers, reaping early
In among the bearded barley,
Hear a song that echoes cheerly
From the river winding clearly,
     Down to towered Camelot:
And by the moon the reaper weary,
Piling sheaves in uplands airy,
Listening, whispers "'Tis the fairy
     Lady of Shalott."

Part II

There she weaves by night and day
A magic web with colours gay.
She has heard a whisper say,
A curse is on her if she stay
     To look down to Camelot.
She knows not what the curse may be,
And so she weaveth steadily,
And little other care hath she,
     The Lady of Shalott.

And moving through a mirror clear
That hands before her all the year,
Shadows of the world appear.
There she sees the highway near
     Winding down to Camelot: 50
There the river eddy whirls,
And there the curly village-churls,
And the red cloaks of market girls,
     Pass onward from Shalott.

Sometimes a troop of damsels glad,
An abbot on an ambling pad,
Sometimes a curly shepherd-lad,
Or long-haired page in crimson clad,
     Goes by to towered Camelot;
And sometimes through the mirror blue
The knights come riding two and two:
She hath no loyal knight and true,
     The Lady of Shalott.

But in her web she still delights
To weave the mirror's magic sights,
For often through the silent nights
A funeral, with plumes and lights
     And music, went to Camelot:
Or when the moon was overhead,
Came two young lovers lately wed;
"I am half sick of shadows," said
     The Lady of Shalott.

Part III

A bow-shot from her bower-eaves,
He rode between the barley-sheaves,
The sun came dazzling through the leaves,
75
And flamed upon the brazen greaves

Of bold Sir Lancelot.
A red-cross knight for ever kneeled
To a lady in his shield,
That sparkled on the yellow field,
    Beside remote Shalott.

The gemmy bridle glittered free,
Like to some branch of stars we see
Hung in the golden Galaxy.
The bridle bells rang merrily
    As he rode down to Camelot:
And from his blazoned baldric slung
A mighty silver bugle hung,
And as he rode his armour rung,
    Beside remote Shalott.

All in the blue unclouded weather
Thick-jewelled shone the saddle-leather,
The helmet and the helmet-feather
Burned like one burning flame together,
    As he rode down to Camelot.
As often through the purple night,
Below the starry clusters bright,
Some bearded meteor, trailing light,
    Moves over still Shalott.

His broad clear brow in sunlight glow'd;   100
On burnished hooves his war-horse trode;
From underneath his helmet flowed
His coal-black curls as on he rode,
    As he rode down to Camelot.
From the bank and from the river
He flashed into the crystal mirror,
"Tirra lira," by the river
    Sang Sir Lancelot.

She left the web, she left the loom,
She made three paces through the room,
She saw the water-lily bloom,
She saw the helmet and the plume,
    She looked down to Camelot.
Out flew the web and floated wide;
The mirror cracked from side to side;
"The curse is come upon me," cried
    The Lady of Shalott.

Part IV

In the stormy east-wind straining,
The pale yellow woods were waning,
The broad stream in his banks complaining,
Heavily the low sky raining
    Over towered Camelot;
Down she came and found a boat
Beneath a willow left afloat,
And round about the prow she wrote 125
    The Lady of Shalott.

And down the river's dim expanse
Like some bold seer in a trance,
Seeing all his own mischance —
With a glassy countenance
    Did she look to Camelot.
And at the closing of the day
She loosed the chain, and down she lay;
The broad stream bore her far away,
    The Lady of Shalott.

Lying, robed in snowy white
That loosely flew to left and right —
The leaves upon her falling light —
Through the noises of the night
    She floated down to Camelot:
And as the boat-head wound along
The willowy hills and fields among,
They heard her singing her last song,
    The Lady of Shalott.

Heard a carol, mournful, holy,
Chanted loudly, chanted lowly,
Till her blood was frozen slowly,
And her eyes were darkened wholly,
    Turned to towered Camelot.
For ere she reached upon the tide 150
The first house by the water-side,
Singing in her song she died,
    The Lady of Shalott.

Under tower and balcony,
By garden-wall and gallery,
A gleaming shape she floated by,
Dead-pale between the houses high,
    Silent into Camelot.
Out upon the wharfs they came,
Knight and burgher, lord and dame,
And round the prow they read her name,
    The Lady of Shalott.

Who is this? and what is here?
And in the lighted palace near
Died the sound of royal cheer;
And they crossed themselves for fear,

All the knights at Camelot:
But Lancelot mused a little space;
He said, "She has a lovely face;
God in his mercy lend her grace,
The Lady of Shalott."

The picture "The Lady of Shalott"(1888) by John William Waterhouse can be seen at the following web address: http://www.jwwaterhouse.com/view.cfm?recordid=28. The picture resides at the Tate gallery in London, England.

4.3 Key terms and definitions

4.3.1 Aural Isotopy

The following additional definitions are clipped from Lasse Thoresen: *The Musical Phenomenon* from *Emergent musical forms: Aural explorations*:

- An *aural isotopy* is founded in a consistent strand of aural gestalts perceived to contain features essential for the organization of long stretches of the musical discourse into contraries and opposites in functional relationships. The perception of such a strand of aural gestalts, requires a corresponding, selective listening intention. The gestalts can then be reformulated in structural terms. The number of contrary relationships in an aural isotopy goes beyond the binary ones most often used in the semiotic square. Recurrence is one of the basic criteria for deciding about musical isotopies.

- *Generalized aural isotopies*: In our analytical method some common place musical isotopies are articulated as theoretical models (Time fields, Layers, Dynamic Forms etc).These are all Level III isotopies. However, aural isotopies may also be identified on the Level II – e.g. Tonality, as used in the works of classical Western 18th century music, is a generalized formalized isotopy – containing a number of contrary terms (tonic, dominant, subdominant, mediant etc) and functional implications.

- *Actual or pertinent isotopies*: In a given piece, particular generalized isotopies may be pertinent, while others may not; in music - particularly European music after Beethoven, each individual piece may frame a particular musical isotopy, or a particular constellation of isotopies into the status of a thematic problem field, or subject matter for musical discussion. The identification of pertinent isotopies presupposes an hermeneutical process in open dialogue with the music; the generalized isotopies formulated can only form a potential reservoir of descriptive possibilities, so that analytical application of them do not guarantee that results are relevant or adequate.

4.3.2 Intentional fallacy

Intentional fallacy is a term that points to the often common assumption that the conscious and declared or assumed intentions of an author or creator of a work are a necessary basis needed to decide on the value or meaning of the work.
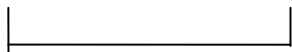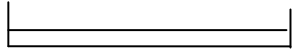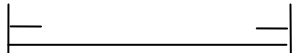
Wikipedia gives the following definition on Intentional fallacy: "*Intentional fallacy in literary criticism, addresses the assumption that the meaning intended by the author of a literary work is of primary importance. By characterizing this assumption as a "fallacy," a critic suggests that the author's intention is not important. The term is an important principle of New Criticism and was first used by W.K. Wimsatt and Monroe Beardsley in their essay "The Intentional Fallacy" (1946 rev. 1954)*". Wimsatt and Beardsley claimed that once a work had been published (or in the case of music: presented and played) it belonged to the audience and took on an objective status unrelated to any original intent by the author/creator. They also went so far as to say that the intent of the author was neither available nor desirable when judging value or meaning of a work.

4.3.3 Taxonomical analysis
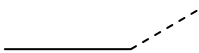
The analysis of George Crumb's *Black Angels* uses mainly a taxonomical view and a set of analytical techniques known as *Time fields, Dynamic form, Layers and Form-building elements, processes and transformations* briefly explained in the analysis itself. The main typologies of different symbols used in these four techniques of analysis are given here. For a more thorough explanation of the individual analytical systems and the theory of each: see the following articles by Lasse Thoresen: *Layers and their functions, Dynamic form, Time fields* and *Form-building transformations: an approach to the aural analysis of emergent musical forms* (Thoresen, 2007a and 2007b).
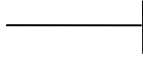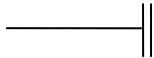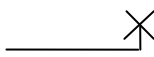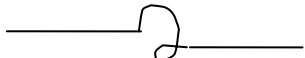
4.3.3.1 Time fields

In the article "Time fields" Thoresen defines a time field as: "(...) *a subdivision of a larger musical entity into smaller units or segments that are perceptible as such to the listener. Accordingly, a time-field is mostly composed of several sonic objects, or of shorter time-fields* (Thoresen, 2007a)." As mentioned earlier in the analysis of *Black Angels* a time field consists of a grouping of musical elements based on audibly recognizable and logically related units. There are four different time levels: Object-fields, phrase-fields, sentence-fields and form-fields
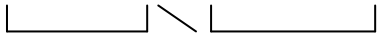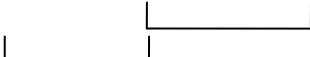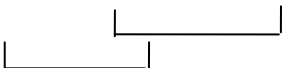
Level	Symbol
Object field	
Phrase field	
Sentence field	
Form field	

In a time field analysis after having identified the different time fields, we look at how fields on the same level are connected to one another. There are two different elements which we look at, time field demarcation and time field positioning. Time field demarcation tells us something about how the fields are concluded and whether the ending is open, abrupt, unexpected etc. Six different possibilities are proposed:

Timefield demarcation	Definition	Symbol
Vague demarcation	It is not clear exactly where one field starts and another ends.	

Open demarcation	A more or less 'rounded' ending suggesting a continuation.	
Conclusive demarcation	The ending communicates a definite ending of the field, e.g. with a complete, authentic cadence.	
Cut demarcation	A sudden time-field ending or an unexpected abbreviation.	
Disjointed demarcation	A very abrupt, fragmented time-field ending.	
Deferred demarcation	A time-field is unexpectedly prolonged.	

Time-field positioning focuses on the proximity of the fields and how they are connected to one another. Seven different cases are proposed:

Time-field positioning.	Definition	Symbol
Separate positioning	Two time-fields are separated with a noticeable silence	
Bridged positioning	Two time-fields are joined by the help of a transitional passage or by an uninterrupted background	
Joint positioning	The next time-field begins just after the first one is ended	
Close positioning	The second time-field takes over in very tight succession	
Hinged positioning	The end object of the previous time-field coincides with the beginning of the next.	
Overlapping positioning	The second time-field begins before the first is ended.	

4.3.3.2 Dynamic form

Dynamic form deals with the large-scale directions of energy found in the music. The energetic tendencies which are at work in a piece of music can be experienced on all three levels of the musical spectrum; level one: sound objects, level two: elementary musical gestalts and level three: formal gestalts.

"*On level one (that of sound objects) we trace the energy in terms of the intensity of the single sound and its energetic shape, on level two (that of elementary musical gestalts) energy is traced both in terms of general Dynamics (...) and in terms of tempo. (...) When tendencies on level one and two rise to shape the formal disposition of a piece we are dealing with dynamic forms on level three (that of formal gestalts* (Thoresen, 2007a).

Dynamic forms are created through a mixture of *tendencies* and musical *functions* found especially on level two in the musical discourse. Here we find both metric functions, such as upbeat and a downbeat, and harmonic functions such as tonic, dominant etc. Both of these types of functions create small-scale tendencies of energy. However, the analysis of dynamic forms are mainly concerned with the emergent, overall design which occurs on level three when the directional forces which are at work on level two combine with dynamic tendencies and rise to shape level three. We might say that an analysis of dynamic form seeks to uncover the *energy- architecture* of a piece of music; a knowledge which might be of great importance both to conductors and performers because they both exert such an influence upon the construction of such architecture.

The three main form building functions which are all related to the element of directionality is:

forward-oriented   presence-oriented   backward-oriented
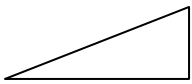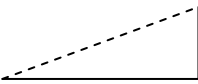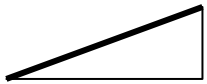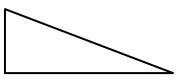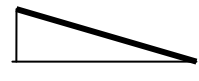
In the article *Dynamic form* the following definitions are given to the three functions:
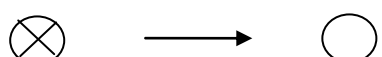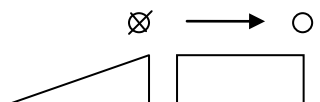
- The *forward-oriented function* is characterized as being directed towards a future point in time and/or by an increasing tendency.
- The *backward-oriented function* is exactly the inverse: It is characterized by being directed away from a past point in time and/or by decreasing tendency.
- The *presence-oriented function* is characterized by having a stable (or no) tendency and, consequently, by neither being directed toward future nor past.

As the emphasis or weight of the different functions may vary, they may be categorized as average, faint or emphasized. Visually this is marked in the upper line of the form:

Function	Average	Faint	Emphasized
Presence-oriented (static tendency)			

Forward-oriented (increasing tendency)			
Backward-oriented (declining tendency)			

As we are dealing with directionality another important point is that of *goal attainment,* whether or not a directed movement attains its goal. The following symbols are linked to the four possibilities that we have:

Degree of goal attainment	symbol
Goal attainment: A forward-oriented function attains its expected goal.	
Blunted goal attainment: A forward-oriented function attains its goal but different dimensions arrive at different points in time.	
Suspended goal attainment: The expected goal of the forward-oriented function is first suspended, but arrives later.	
Goal evasion: in full goal evasion the goal is not reached (goal cancellation). In partial goal evasion it is not reached fully or not in the way one expected (goal evasion).	
Example	
The symbols are placed above the dynamic forms. Example of suspended goal attainment:	

In combination with dynamic forms we also find the use of accent symbols. By accents we mean intensified points in time, something which stands out from its surroundings, catching the listener's attention. An accent might stand out for the listener by being louder, having a brighter spectrum, having a sharper attack quality or in other ways deviating from our expectations. In a dynamic form analysis accents serve to articulate the dynamic forms, and their function is to mark features which are important pertaining to form-functions and time-field articulation. The accents-symbols are divided into seven groups according to their function:

Accent functions	Sign
General sign for accent; a weighted point.	

Goal point. An accent can mark out a goal for a musical movement, such as at the end of a forward oriented form-building function.	
Separation point. An accent can mark the border between successive time fields, setting them apart from each other.	
Release point. An accent can mark the beginning of a time field e.g. by the launching of a movement.	
Termination point. An accent can mark the ending of a time field or a form-building function.	
Affirmation point. An accent can affirm, repeat or reinforce another accent or previously stated musical element (thus referring back).	
Warning point. An accent can serve as an alert or warning directed towards a future event.	

4.3.3.3 Layers

In the article "layers" Thoresen defines musical layers as: "*layers are counterparts to time fields – time-fields being successive (and composite) units, layers being simultaneous (and composite) units in a texture. Fields and layers form, so to speak, the warp and woof of the texture, the sonic fabric of music.*" (Thoresen, 2007a).

In the analysis of *The Lady of Shallot* we mentioned different angles through which it was possible to examine layers

- The function and profile of the layer
- The width of the layer
- The articulation of the layer
- The interrelation of the layer

Some of these (width, articulation, interrelation and the different entry and ending-modes) are formalized into graphic notation which will be given here.
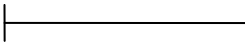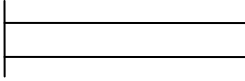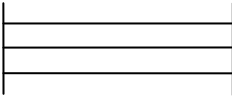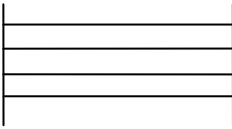
4.3.3.3.1 Function and profile

In a musical discourse certain elements or layers of the music will present themselves as being more prominent. They stand out more in our perception. We say that these layers have a *strong intensity of profile.* If this element or layer continues in having the same strong profile for a certain time it might be said to have *a foreground function.* In the same way layers with weak intensity of profile with duration over a certain time might be said to have *a background function*. In certain works of music we might encounter a third layer or function where the intensity of the profile is more undetermined and ambiguous or constantly changing. These might be said to have a *middleground function*. The functions of the layers are given in the analysis through the use of the capitals F, M and B placed at the beginning of each layer or, in the case where a layer might change its function, at the point of alteration.

4.3.3.3.2 Width

In the article "layers and their functions" the following explanation is given to the term width:

"layers may have a different width: one melody line alone gives a narrow layer, whereas a chordal setting of big ambitus would give a wide layer. For the purpose of analysis we differentiate between four degrees of width, graphically represented in the following way "(Thoresen, 2007a):
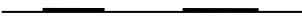
Designation	Graphic notation
Narrow	
Expanded	
Wide	
Ample	
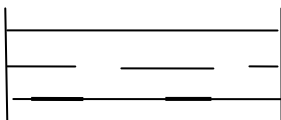
4.3.3.3.3 Articulation

In the same article mentioned above the following explanation is given to the term articulation:

"The profile-intensity of a layer element can be stable or changing. Sometimes the element or layer may come and go interrupted by breaks."(Thoresen, 2007a)

The articulation of the layer concerns the degree of stability in the layer; whether we are speaking about a layer of *continuous articulation* like a steady sustained note with an even dynamic profile, an *alternating layer* where the intensity comes and goes or a *discontinuous layer* where the articulation is broken. A continuous layer is presented through an unbroken line, an alternating layer through an unbroken line of alternating thickness and a discontinuous layer through a broken line.

Designation.	Graphic notation
Continuous	
Alternating	
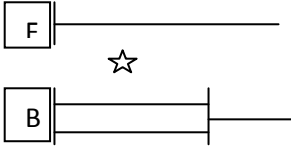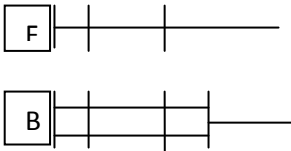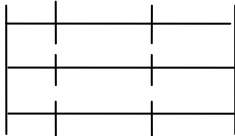
Discontinuous	
Example: combined configuration	
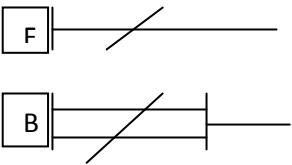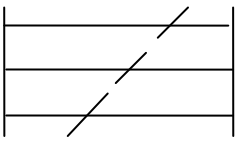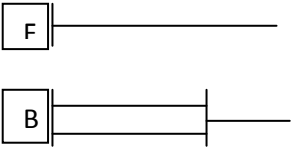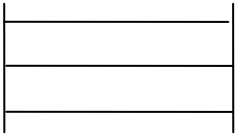
4.3.3.3.4 Interrelation

In the same article mentioned above the following explanation is given to the term interrelation:
"*The sounding contents of various layers in a given piece may be relatively synchronized, or relatively unsynchronized. Synchronized layers are said to have a vertical interrelation (an analogy to the score). Independent layers are said to have a horizontal interrelation –i.e. the layers have little interaction. A third case is when the contents of one layer pass to another or when one layer heralds, initiates, releases, answers or echoes an occurrence in another layer. This kind of interaction we call diagonal interrelation (again, an analogy to the score).*"(Thoresen, 2007a)
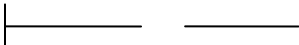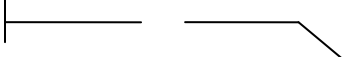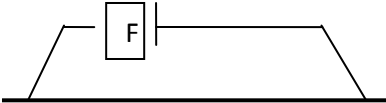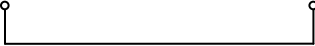
The element of interrelation says something about how the content of the individual layers are synchronized or unsynchronized. This is relevant when dealing with expanded layers where a layer may consist of several elements. In the analysis of *the lady of Shalott* I have made use of the terms vertical and diagonal interrelation. While vertical interrelation occurs when the contents of the layer are synchronized and follow one another, a diagonal interrelation happens when elements are passed from one element to another in an imitation or when one element initiates, answers or responds to another. Vertical interrelations are shown graphically by vertical lines drawn across all the lines of the layer, while diagonal interrelations are shown as diagonal lines drawn across in the same manner.

Designation	Graphic Notation	
	Interrelation between layers	Interrelation between layer elements
Horizontal interrelation		
Vertical interrelation		

| Diagonal interrelation | | |
| Neutral | | |

4.3.3.3.5 Entry-and ending-mode

The analysis and the graphic notation of entry-and ending-modes in layers have great similarities to the area of *field demarcation*

Designation	Description	Graphic notation	
		Entry	Ending
Neutral	Used when entry-and ending-mode is not indicated, otherwise to designate the "normal" cases not covered by the following ones		
Fading	A layer enter/ends gradually		
Emerging/merging	A layer emerges from another, or merges with it		
Cut	A sudden beginning or end		
Disjoint	A very abrupt beginning or end		

4.3.3.4 Form- building functions, processes and transformations

In aural sonology we deal with three aspects of form-building elements: form-building *functions* i.e. dynamic forms, form-building *processes* i.e. forms based on recurrence and contrast, and form-

building *transformations* which deals with the degree of complexity found in either texture or melodic lines in the music and the transformation between different degrees of complexity.
The typology of symbols used is given below. The partitioned elements given to the right in the diagram are used to suggest the re-occurrence of either the opening or closing features of a pre-gone integral element (the element from which they have been partitioned).
The symbols used can apply to any level of the musical structure, like a theme, a rhythmical pattern, polyphonic texture etc. Examples of this are given below the diagram[1]

Melodic elements, lines				Textures		
Complexity	Integral	Partitioned		Integral	Partitioned	
Very complex	⬦	⬦	⬦	⬦	⬦	⬦
Relatively complex	⬜	⬜	⬜	⬜	⬜	⬜
Medium complex	◇	◁	▷	◈	◁	▷
Relatively simple	▽	⊻	⊽	▽	⊻	⊽
Very simple	○	○	○	◉	◉	◉

- -Very simple elements. Examples: repetitive figures with a couple of pitches and even rhythmical values such as very simple accompaniment figures (lines); monophony or basic homophony (texture).

- -Relatively simple elements. Examples: articulated yet simple figures such as scales/passages or refined accompaniment figures (lines); heterophony, or homophony with slight polyphonic elements (texture).

- -Medium complex elements. Examples: a classical, simple theme (lines); a two- or three-part simple polyphony (texture).

- -Relatively complex elements. Examples: complex themes with great diversity of pitch and rhythm (lines); complex polyphony (texture).

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[1] These are clipped from the article: Thoresen, 2007b.

- -Very complex elements. Examples: extremely asymmetric lines using a large number of values in an unpredictable way (lines); accumulations in electro-acoustic and avant-garde music (texture).

In a musical context some form-building elements will naturally possess a higher articulation and be more in the forefront of our awareness. In order to denote this, a horizontal line is drawn through the symbol signifying its emphasized articulation.

In the diagram above the symbols are placed on a linear scale from very simple to very complex. However, this arrangement can be organized in another way by taking into consideration that when a musical structure becomes sufficiently complex our mind tends to interpret it in a simplified matter by grouping together the individual parts into larger, simpler structures. One example is what happens when we experience something as moving very fast in a hectic tempo and receive a mass of information over a very short span of time. After a short while our mind will most likely gather up the information and in one way or another re-group it into larger units in order to better classify it. These units will seem simpler in form and might therefore be identified by a simpler symbol from the typology. Therefore it might be better to organize the symbols in a circular diagram where we will also encounter and use a new symbol denoting the transition from complex to simple (this symbol is here found at the bottom of the circle):
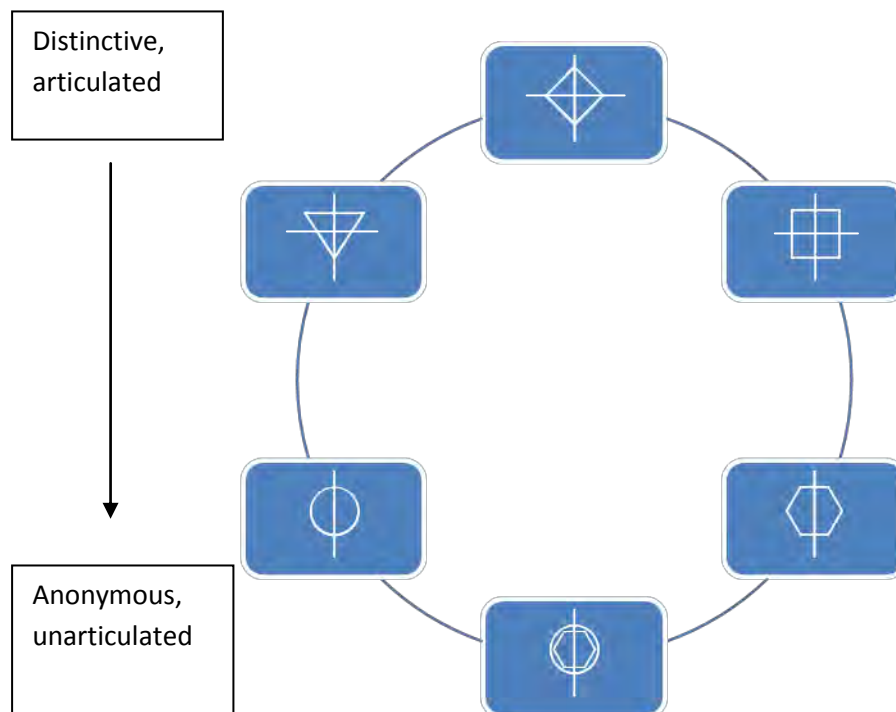

There are three possible relationships between form-building elements: recurrence, variation and contrast. This tri-partition has here been augmented into six possible degrees of similarity/dissimilarity:

Degree of similarity/dissimilarity	Description	Symbol
Recurrence	the exact repetition of an element	=
Recurrence/variation	a slightly varied but easily recognizable repetition of an element	≈
Remote variation	a much varied and not easily recognizable repetition of an element	≈
Related contrast/medium contrast	the element presented is perceived as a contrast but at the same time related to the previous element	≉
Great contrast	the element presented is perceived as very different and without any evident relationship to the previous element	≠
Unrelated contrast/incompatibility	the element presented is perceived as entirely unrelated to the previous element	≠
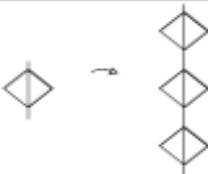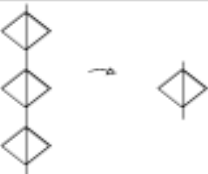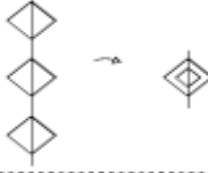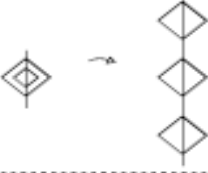
Form-building elements are grouped together into form-segments through the use of horizontal lines. These are used to indicate segments where several symbols combine in creating a sequence or a phrase of some duration. These are often used to denote melodic lines or themes. In the article *Form-building transformations: an approach to the aural analysis of emergent musical forms* the opening phrase of Beethoven's piano sonata op. 2 nr.1 is analysed by a form-segment where particularly the partitioned symbols show how the opening and ending parts of the motif are used in the construction of the phrase:
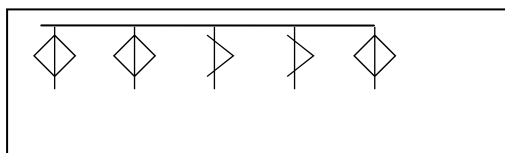
Equally, when several form-elements are superimposed and in combination form a complex texture this is also shown by the use of segment-lines. An example of this is found in the analysis of movement 9 in *Black Angels*:
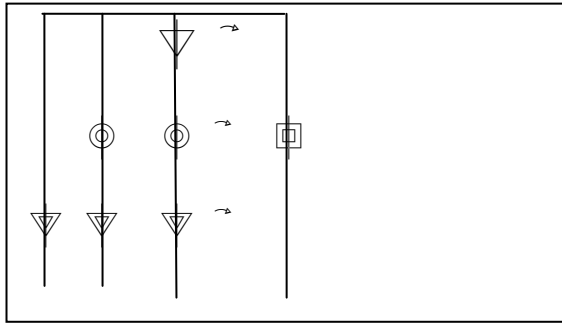
Form-building transformations are concerned with transformations from one state to another between polarities like simplicity – complexity, wholeness – division and distinction – anonymity. Under each of these pairs of opposites we find sometimes several examples of the different processes that might be used to create transformations from one opposite to another, like proliferation – collection, fusion - fission etc. See the diagram beneath.

Designations of form-building transformation	Examples of notation	Designations of inverse formbuilding transformation	Examples of notation
Simple vs. Complex			
Simplification		Complication	
Part vs. Whole			
Partitioning		Integration	
Fragmentation		Synthetization	
One vs. Many			
Proliferation		Collection	
Fusion		Fission	
Anamorphosis		Catamorphosis	
Distinctive vs. Anonymous			
Liquidation		Crystallization	

4.3.4 Tonic, dystonic and complex sound objects

- Tonic sound objects are sounds with a clearly perceivable pitch.

- Dystonic sound objects are ambiguous sounds which consist of a mixture of pitch elements and non-pitched elements. In this category we find mostly percussion instruments which, although they might be tuned in a specific pitch, carry such a wealth of overtones and non-pitched elements that they disturb our sense of pitch. The sound produced by tubular bells is a good example of a dystonic sound object.
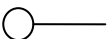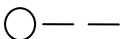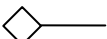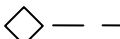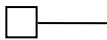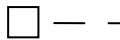
- Complex sound objects are sounds where one is not able to discern a clear pitch. The crash of a cymbal is a good example of this.

These three criteria might be seen as points along a developing line rather than as separate categories as a sound might develop between them.

From the moment a sound is created, unless it immediately stops it creates a specific energy profile through the manner in which it is prolonged. The energy articulation of a sound object might move in two possible directions, both emanating from the starting point of an impulse, the point where the sound begins.

- In one direction the impulse is prolonged into a *sustained sound*. This sound may be sustained in an unbroken tone or crack up and become uneven in which instance the energy is still sustained, but unpredictable and with an ever-changing energy.

- The other direction is that of *iteration* where the object is still prolonged but this time by repetitions as in a *tremolando*[2]. Just like the first direction mentioned, this might also be brought to the extreme in that the iteration pulse or occurrence as well as the pitch of the sounds are made unpredictable. This might be compared to the sound of a handful of marbles scattered on the floor or raindrops falling on a tin roof. What is constant is the sound that is used. As in the examples given (the sound of marbles hitting the floor or the raindrops hitting the roof) the type of sound they create are essentially the same.

The spectromorphological terms used here might be visualized in simple graphic symbols which might be helpful in an analysis of works containing textural objects, where the categorization of tonic, dystonic and complex sound objects are necessary[3].

Term	Sustained	Impulse	Iterated
Tonic	○—	○̇	○— —
Dystonic	◇—	◇̇	◇— —
Complex	□—	□̇	□— —

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[2] The fastest possible repetition of one or more notes or parts of chords.

[3] An expanded diagram of this typology is found in the article Thoresen, 2007c.

4.4 interviews

4.4.1 "I never believed in purist systems". Interview with George Crumb

"Mahler was always an inspiration for me, especially his use of imitation and the way he borrows from other composers like Bach and Beethoven. For me the collision between different musical worlds has always been fascinating as I never believed in purist systems. I think all music can coexist like that, enriching each other." American composer George Crumb is not one to compartmentalize music of different traditions or eras. Elements such as African thumb piano, Indian sitar, bowed water-filled crystal glasses and excerpts from the well-tempered clavier by Johan Sebastian Bach all belong inside his musical world, making up his rich sound palette. One should think that this multitude of different sounds would give a fragmented and unfocused impression, yet, the strongest impression one gets is that of unity; the unity of one governing idea. This is largely due to what the composer refers to as "the ability of stealing"; stealing in the sense of taking something and making it your own, something which the American composer is well accustomed with.

Although the music is highly emotional it is yet logical in a structured way. Crumb once stated that most of his music is Mosaic in expression and construction, with prism-like developments. One central idea, often of a modest proportion, can make up the core of the piece, the treatment of it resembling a continuing stream-of-consciousness development. The music speaks clearly, conveying its own form and structural logic. Ironically, the element of form has often represented a problem for the composer. "To get the right form has always been the hardest thing for me" Crumb says. "The form has its obvious importance, but at the same time the fire in the belly has to come out." The ability of the music to speak directly to the listeners has always been the most important element in the music for Crumb. "If the music speaks, I think it automatically reaches people. I've never understood the Darmstadt traditions' emphasis on constantly presenting music polemically and argumentatively. It's so pretentious, music should not need that. At the same time, there are definitely several advantages to explaining the music on different levels, as long as this doesn't get in the way of experiencing the music directly."

Speaking of form; in Crumb's music we often find the juxtaposition of seemingly unrelated musical elements without any clear transition between the different parts, though the parts themselves are highly individual and sophisticated in their timbral layout. "My teacher once said: if you can't make a plausible transition, don't make it. I think I took him literally" Crumb laughs. "In my music there is much juxtaposition, but the listener has to bridge the gap himself. I have always found it hard to construct plausible form, timbral explorations on the other hand has always come easy for me."

Something which contributes in creating Crumb's rich and exotic sound palette is the frequent use of non-Western instruments. Crumb was raised and trained within the western classical tradition and studied the European composers. In the 1940's a lot of recordings of music from non -western traditions became available and Crumb relates how he and his colleagues listened to and were influenced by this a long time before the subject of ethno-musicology was ever established.

The use of non-Western instruments or the creations of unorthodox sounds on traditional instruments are frequently used in Crumb's music to create a sound or sound world out of the ordinary. It is never the instruments themselves which dictate the sound, as the composer rarely feels bound to use non-Western instruments in their traditional way. In the work Makrokosmos III, an African thumb piano is played while held against the crossbeams inside a grand piano. In the same way, the sitar used in the work Lux Aeternam is not used in its traditional fashion. "I borrowed the sound and transposed it into my world" Crumb says, relating how he sat experimenting with the instrument and what sounds could be made on it.

Writing ones´ life
To George Crumb music is sponge-like in its ability to pull into itself all the surrounding elements of its time, whether they are political or artistic. "Whatever you say in your music is the result of every experience you have ever had as a human being. It is the result of your total musical experience" Crumb says. He has earlier been quoted claiming that every work he has written might be seen as parts of one total work. However, this does not imply that there have been no development and change in Crumb's personal style of composition. In Crumb's case a definitive change occurred with the two works Night Music I and Four Nocturnes (Night Music II) which he wrote in 1963 /64. As he puts it: "These works were the first time in which I felt that I was writing my own music instead of someone else's". The works written after this have all shared part of his general language and exuded a strong sense of homogeneity, while at the same time standing out as clearly individual entities. It may seem as self-evident that the works of a composer all share the same general language but, as Crumb states, there is a clear difference between composers such as Beethoven who continued to re-invent himself again and again in a constant change of form-language, as supposed to the strong sense of homogeneity of sound found in his own musical output, where the exploration of an established musical landscape, rather than re-invention is the main focus.

Dance and gesture
During the Trondheim Chamber music festival 2007 where George Crumb was composer- in-residence, Crumb's Cello sonata was performed with the addition of a solo dance choreographed by the Norwegian choreographer Ella Christina Fiskum, especially commissioned by the festival.

The element of dance and ballet is not a new thing in connection with Crumbs music. He mentions how, in his earlier years, quite a lot of his music was combined with ballet although he himself never wrote specifically for the ballet stage. "I believe there was simply space enough in the music for them that they could use it" Crumb muses. "And in the same way there is often in my music an element of dance which makes demands to the movements of the musicians." This comes particularly to the fore in the first work on the program at the same concert, where the pianists Lambert Orkis and James Primosch with the assistance of unusually active page-turner Jan Orkis performed the work *Celestial Mechanics (Makrocosmos IV)* for 1 piano, 4 hands (occasionally 6 hands as the page turner is called on to contribute at certain points with more than his or her usual turning). This piece calls for an extreme level of cooperation and choreographed movements between the pianists in that they share the inside of the piano as well as the keys and constantly have to cross hands and give each other room to perform the many unusual and sometimes

awkward techniques which the piece demands of them. The importance of well-choreographed hand movements becomes evident, not only for the musicians sake but just as much for the audience who are witnessing a sort of dance-of-gestures as well as a musical piece for piano.

Live performance
 "There is never such a thing as a definitive performance. Every work becomes a new piece with every performance and this is something which I have always enjoyed; the fact that there are nothing definite in music" Crumb says, referring to the advantages of live performance as supposed to recordings. The advantages of recordings on the other hand is of course that they allow for the circulation of works which otherwise would not be known because a live performance not only calls for performers with skill and willingness to venture into a territory of unusual techniques and roles but, as pianist James Primosch jokingly points out in an interview with the composer "..The sheer rental charges of instruments are enough to scare anyone away from attempting to perform some of your larger orchestral pieces."

The changes that occur when a piece is transposed into a purely aural experience is perhaps more obvious in Crumb's music than in others as some of his works places specific demands on the stage-performance, both in lighting, placing of the musicians and their movements on stage. In the trio *Vox Balaenae* the musicians are instructed to wear black half-masks and the stage should preferably be set in a blue light. In the orchestral piece *A Haunted Landscape* the musicians move across the stage in ceremonious movements according to specific patterns. All of these elements are lost in a recording.

Angels and helicopters
At a midnight concert in Nidarosdomen Cathedral in Trondheim, Crumb's string quartet *Black Angels* is performed in combination with the Gregorian schuola (or Choir group) Schuola Sanctae Sunnivae who performe a requiem after Gregorian traditions. The requiem includes the famous medieval Dies Irae melody that Crumb himself has quoted on several places in *Black Angels.* The string quartet, written at the time of the Vietnam War, centres around the ultimate polarity of good and evil, represented through a strong use of symbols and numerology, not to mention an enormous amount of different instrumental effects, creating associations of everything from a whirling swarm of malign helicopters (Night of the Electric Insects), to the serene "voice of God" (God-Music), where the musicians play on water filled crystal glasses. At the concert in Nidarosdomen the Gregorian requiem and the string quartet were intertwined into each other, creating strong contrasts and again: juxtaposition between two seemingly highly different works succeeded in creating a new musical experience. The combination of the old and the new allowed for the pieces to take flavour from one another, and while the string quartet grew tangible roots backwards in time to the polarity of good and evil which was so strongly present in medieval times, the Gregorian requiem reached forward intertwining in a strangely logical way with the intense and poetic sound world of the quartet; a true and highly successful `collision' between different musical worlds.

Article/Interview by Miriam Hlavaty. Trondheim Chamber Music Festival 2007

4.4.2 Cycles of songs. Interview with Bent Sørensen

"To me, a sure sign of quality in a composition has always been the work's ability for application in the confrontation of other art forms; a work which retains and enriches its identity in combination with other forms of art is a work of quality." Bent Sørensen, Danish composer-in-residence at the Festspillene in Bergen 2007 is not one for shielding his works from outer interference.

During his career there have also been other examples of cross-fertilization between Sørensens's music and other expressive art forms and at the Festspillene in Bergen in 2007 one of these collaborations are presented in a performance which explores the meeting between music, musicians, and dancers, where the music of Bent Sørensen meets with the choreography of Ingunn Bjørnegaard and the modern dance ensemble Carte Blanche. The performance centres on the piece *The Lady of Shalott* which is used as a cornerstone both in its version for solo violin and in the version for string quartet. At the concert, the musicians shift between playing on and offstage, but are at all times visible to the audience, giving the music a prominent place as a visual as well as an aural companion to the dance.

In the performance several of Sørensens's works were played, some of them in their entirety others only as fragments, creating together a new cyclical work. The same cyclical concert-concept was also used in a portrait-concert of the composer, performed by the Athelas Sinfonietta Copenhagen a few days later. In the concert, which was given the title "Songs in rings of bells," the composer was presented through ten compositions which were organized into a sequence, where the different individual works were fused into each other. Some of the works were solo pieces, others were written for chamber ensemble. Most of the musicians were placed at the center of the stage but some of the soloists were placed in different areas of the room, encircling the audience. According to Sørensen the challenge in organizing the concert laid in discovering the coherence and connection between pieces which were composed at different times but which still held the same subconscious element of connection, something, he stated, which had always been there. It was only a question of "... Finding the entry point to common ground..."

In these cycle-concerts the use of the performance space and the placing of the musicians in the room has always been of vital importance, according to Sørensen, underlining the cyclical element both through the joining of the different pieces into one long evolving piece and using the space actively to underline musical elements, but also by constantly forcing the audience to change the direction of their focus as they find themselves literally surrounded by the music. The fact that the music is moving continually without audible intermissions between the pieces also eliminates the possibility for applause and allows for the music to develop its mood uninterrupted through the entire concert. The construction of these kinds of cyclical concert forms can be seen in connection with Sørensens's view on the presentation and performance practice of contemporary music. "The presentation practice of music today with two pieces before intermission, and one after, is a typical classical model, likewise, the tradition for applauding between the pieces, and this set up is not necessarily the best way to present contemporary music" Sørensen states. "Indeed, much can be missed in the musical experience by presenting contemporary music in the mould of a classical performance practice."

The composer within the music

The strong sense of integrity residing within each of Sørensen's pieces is, according to the composer, not dependent on the totality of each piece. There is no need of treating the piece like a holy relic, untouchable and unalterable from the notation. Indeed, in his cyclical performances, fragments of compositions are frequently used in combination with complete works. The important point according to the composer is that the music "works" in its present setting and with consideration to what kind of performance the musician or the artists have in mind. The Norwegian accordionist Frode Haltli where once to perform Sørensen's solo piece *Looking on Darkness* in complete darkness. As the piece has a durata of about ten minutes both Sørensen and Haltli agreed that this would not work as a performance; therefore Haltli extracted four minutes from the composition and played these, which turned out to work quite well, both according to the audience, the musician and the composer.

As we talk about the problem of form in connection with contemporary music, and the many different choices involving form, which composers are faced with today, Sørensen stresses the importance for a composer to actually have something to express *within* the form he or she chooses. "Music is not to be understood, but to be experienced. When you listen to a fugue by Johan Sebastian Bach it is not the fugue form you are listening to but Bach *within* the fugue form. Whether a composer chooses this form or that, the importance lies in his ability to actually express something of himself through the chosen form. And, subsequently, what is being expressed must be present in the very identity of the music allowing the music to keep its identity even though being altered in duration."

Singing musicians

Bent Sørensen is a composer of layers. In his music parallel segments and tone layers walk side by side, merging and diverging. He talks about his affinity for developing different musical layers that occur simultaneously in the music, moving in parallels and sometimes also blending into each other and switching places. Sometimes they may occur to the listener as transparent sheets, placed one on top of the other; different, yet visible through each other. This is an element which is found in many of Sørensens's pieces. Another element is the use of voice as a layer within the music. In several of his works, the musicians themselves are instructed to sing or hum during the piece. This, Sørensen explains, is to make the song or voice create a layer within the music and the already existing layers, allowing the singing to emerge in the middle of what is already there and not as some foreign, un-instrumental element. The effect is quite different from having a singer placed in front of the ensemble. In Sørensens's case, the sound of the humming or singing seems to emerge out of nowhere, as it is sometimes difficult to see which musician is actually singing, and this creates the strange effect of giving the voice a strongly instrumental character. " I believe the voice has become one of my favourite instruments" Sørensen says and relates enthusiastically how he developed a deep fascination of the human voice especially after his work with the opera *Under the Sky*.

Many of Sørensen's pieces also display a careful use and manipulation of Tempi. "I'm greatly fascinated by the fact that when a musical material moves sufficiently fast enough, it actually creates the impression of moving quite slowly" Sørensen muses. "It's something of the same thing

that happens when you look at a wheel turning rather fast. At a certain point, the main spokes of the wheel will seem to turn rather slowly, while the rest of the wheel is blurred by the speed. If I create a musical layer of tiny elements moving at a fast speed and in a confined register, the listener will often get the impression of a larger musical form, moving slowly. This is an interesting way of switching between different kinds of tempi."

A certain affinity for the high register, and the occurrence of and fascination with elements which seems half dissolved and erased is other elements which seem to run as a red thread through Sørensens's works. Sørensens's emphasis on the importance of the composer expressing himself through his chosen form is illustrated clearly in his own compositions and their sense of inner connection, sometimes due to the fact that fragments of certain compositions exists within other compositions, often vaguely and as a partly erased imprint. Other times the impression of a connection between the pieces is made because several of the pieces contain elements which share some sort of common feature; something to trigger our memory and make us think we have heard it before. The Norwegian composer Arne Nordheim's comment of Sørensen's music that "it reminds me of something I have never heard before" is indeed fitting.

The balance between understanding and amazement
Although many of Sørensens's compositions may evoke a sense of nostalgia, (something which titles like *Funeral Procession*, *Shadowland, The Birds of Lament* and *The Deserted Churchyards* can demonstrate) the composer states that this is not the main theme of the work, nor his main purpose and that the reoccurring focus on these elements in previous publications concerning his works is somewhat misgiving. "What matters really" he says "is the process and the exploration involved in the composition. Like for instance: a compositional technique for me in dealing with vagueness or silence in my works would be to exaggerate the vagueness and silence, to bring it to its saturation point, so to speak and to see where it leads".

Explorations of this kind is what is important, along with the endeavor to constantly stay in the balance between understanding and amazement, a balance, Sørensen claims, which it is crucial to nurture in all forms of art

 Interview/article by Miriam Hlavatý. Festspillene in Bergen 2007.

4.4.3 To do or not to do.. Interview with Rolf Wallin

Rolf Wallin is a composer whose music erupts through a highly fruitful combination of playfulness and control, both due to his background in improvisational and experimental jazz as well as traditional classical compositional training and a thorough knowledge of computer programming. His music displays a magnitude of different forms and it is therefore natural to talk about the concept of form both in relation to performance and composition.

Miriam Hlavaty: In my master thesis I am very interested in the experience of music and form, with a focus on the subjective experience of the individual, not on finding the one and true meaning of a work and its "correct" form. During this time I have often come to feel that the notion of form and the ability to experience emergent form in connection to music has become a somewhat neglected art in our time.

Rolf Wallin: Indeed, something which *I* feel is one of the most important abilities to have when it comes to music. Form is really the greatest challenge in contemporary music today, and I believe that what has alienated contemporary music and the audience the most in our time is not mainly the increase of dissonance but problems related to form. This can either happen if the form is too challenging (for instance that it moves "too fast" like in the music of Brian Ferneyhough or "too slowly" as in the music of Steve Reich) or that it simply is not very well constructed; that the composer has not had a clear idea concerning his or her form and that there is really nothing there to understand.

MH: Could it also be a third possibility, namely that a decisive responsibility lies with the performer and that he or she is not always conscious of their responsibility as form-conveyors?

RW: That also of course, absolutely, that's why it is so important to have a clear idea of what a piece of music is about, dramaturgically speaking. According to Leonard B. Meyer (author of the books "Music and Meaning" and "Music, the Arts, and Ideas") it is the fulfilment or disappointment of expectations related to music which creates emotional or musical meaning for listeners and this is closely related to form. Meyer only considered music written up to the age of romanticism. I have myself been interested in this line of thought and at one time considered if this way of thinking could be relevant in relation to contemporary music and modern composers such as Stockhausen and Reich. What I found out was that it could.

Wallin explains, however, that relating to the listeners expectations is not the same as giving the listeners what they expect.

RW: It is more about relating to the phenomenon of expectation in different ways. For instance: in the music of Steve Reich the things you are expecting do not happen, that is, they happen over such a long period of time that you are unable to hear them. This affects you as a listener. What happens is that your *expectation* that something is going to happen is challenged.

Hypnotic intentions
Wallin talks about how he often has played the part of storyteller with his music but how he never the less enjoys taking listeners to other places than they perhaps had expected.

RW: As a composer I enjoy making sure that what happens is not obvious. Sometimes what I aim at can be compared with what a hypnotist does with a patient; trying to get the person that is listening into a certain state of mind. Hypnotists have a particular technique where the hypnotist starts by speaking gradually slower and slower and eventually more and more incoherently until the pulse of the patient consequently is slowed down. I used something of the same technique in works like Ground, Id and in the Rilke-songs. Towards the end of the songs there comes a section that is much too long which works as a sort of mental slowing-down-process. It is as if I'm repeating "no, nothing happens here... Still nothing... Nothing is happening". The goal is to get the listener into a particular state of mind. You might say that the composition has as a goal to alter the listener's state of mind.

What not to do
Wallin has a past as performer within experimental improvisational music as well as being a classically trained composer, something which has given him a creative and varied relationship to his own compositional practice. The balance between improvisation and structuralism in his compositional process is always challenged, especially when it comes to using mathematical formulas like fractal algorithms to create new material for composition, a technique he has used in many works such as ning, Solve et coagula and Stonewave just to mention a few.

RW: Until a few years ago I was using mathematical formulas in order to construct a form as a starting point for a composition. Then, with the Clarinet Concerto (1996), I started gradually composing more intuitively, along the lines of improvisation. For instance, even though it might sound as being a conventionally controlled form-development the work Act is written in this way without any particular external influences such as computer programmed material or a preset form. This is an attempt to return to my more improvisational parts so to speak.

MH: *In my experience composers who manage to do this successfully, meaning to create music in this way which is actually interesting to listen to, already have a very well integrated experience and knowledge of form in order to be able to do this.*

RW: Yes definitely and I would probably not have done this had I not had the experiences that I have. At the same time I feel that I soon must find a new external influence before I grow tired of my own gut reactions. This is where computer programmed material and mathematical formulas can help to bring forth new and fresh material. Much of my compositional development has sprung from being confronted with new material procured through calculations. In this situation the challenge is making use of the material that is given but at the same time not changing and shaping it according to usual ideas and strategies. I must always decide on what to do and, more importantly, what not to do.

MH: *It is interesting to see how music based on such abstract elements as mathematical equations and formulas even so may end up creating such an organic expression and a form recognizable to*

the listener. I'm thinking in particular on your fractal works such as ning, Stonewave and the work Solve et coagula where the title also points to alchemical processes.

RW: Sometimes as for instance towards the end of Stonewave the music sounds very organic without me having very much to do with it. This was something which came from the mathematical algorithms used, only with some large-scale choices from my part. Other times I can participate by underlining or exaggerating elements already placed in the music by the program. It is almost like saying "there! Did you hear that?" In a way this type of music is related to Bach in that the music is scrupulously faithful to the system on which it is based. The challenge is to create an expression which does not *sound* controlled. At the time when I was using fractals I was looking for a strictness and firmness in the music which despite all its calculations did not *sound* strict and firm. This can be heard in Solve et coagula where the strictness contributes in underlining the alchemical tendencies, the constant change between opposites; the music exists in a way somewhere between life and not-life, after all it is only mathematics and yet it sounds as if someone is sitting and improvising.

Oral or textual presentations
MH: *In many of your CD´s you have written extensively yourself about your music and some of the processes behind it. Sometimes it almost seems as if the text is a part of the work itself. Is it important for you to include text in the conveyance of your music? How do you feel about the practise of oral presentations in connection with music performances?*

RW: First of all: although the written texts sometimes very well might be seen as part of the work it is always important that the work has the ability to stand on its own legs, as Bibalo once said. If something is to be written it needs to be relevant for the process of listening. In the same way text and words used in connection with a concert performance must balance between guiding and opening the music so that the many-faceted essence of the music is not lost, something I, for that matter, don't believe can happen. Unless one gives the audience an unambiguous concrete interpretation of the particular parts of the music I believe the ears of the audience will go where they wish. You can listen for Napoleon or Russian troops in the 1812 Overture by Tchaikovsky as much as you wish, it is nevertheless great music and the audience will hear it as great music no matter what the interpreter might tell them.

Interview by Miriam Hlavaty, Oslo 2009

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