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Sound is Multi-Dimensional

Parameter analysis as a tool for creative music making

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SOUND IS MULTI-DIMENSIONAL.

Parameter Analysis as a Tool for Creative Music Making

by Carl Bergstrøm-Nielsen
2006

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PREFACE (WITH SOME PRACTICAL REMARKS)

This paper has grown out of my engagement in teaching improvisation practise and composition at Aalborg University, Denmark. The use of parameter concepts for exercises has always played an important role here, and they were familiar to me both from previous music history studies and from practical compositional activity. It has been important to me both to clarify theoretical foundations as well as to document and describe the works of my students.

The term experimental music has been employed here for both European and Anglo-Saxon tendencies. While this term is most clearly established in the Anglo-Saxon tradition and the European one has several other names, such as "new music" or "contemporary music" (what is meant by this last one is, however, often music sounding closer to tradition), it has been deemed practical and not too disturbing to let the term include the radical tendencies of the European tradition.

When quotations from other writings are not in English, they appear both in original and in translation by the present author within square brackets in the text part.

Recordings are generally not part of the literature lists. With one exception, they have been stated directly in the lists of examples from concert music. In one case it was stated in a note.

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The recordings are available in mp3 format from the online html edition, both for streaming and download.

Only a selection from the archive of compositions could be included here. Access to the archive may, however, be given on demand.

INTRODUCTION. PURPOSE OF THIS STUDY.

In the 1930s, a Danish industrially produced lamp came into existence having the bulb hidden inside a lotus-flower like pattern of metal pieces, still well-known in its homeland as the "PH-lamp". Its inventor, Poul Henningsen, was concerned with the idea of avoiding sharp boundaries between dark and light and thus creating a more pleasant light environment. Moreover, coloured parts of the metal pieces had the effect that the light sent out was composed of mixed colour shades.

"Der Klang hängt nicht mehr grob in sich zusammen, sondern muss ... durch ein feines dicht gewebenes Netzwerk zusammengehalten werden"

["The sound does not stick together as a rough mass any more but must... be held together by a tight, finely woven network"],

said Karlheinz Stockhausen and Herbert Eimert in the first issue of "die Reihe" from 1955 about their new music

Both examples express an interest in creating shades and intermediary steps between extremes. This can be described with the German word *Vermittlung*. It is hard to translate but can mean 'putting extremes into connection with each other', 'finding missing links', 'mediating', 'creating understanding' and the like.

When such concern for the detail becomes systematic, it can be highly innovative. It can reflect a real need for breaking new grounds and cultivate new sensibility. Cubism in painting cultivating a variety of simultaneous perspectives could be another example. Spectral music as developed in the IRCAM context from the nineteen eighties and on could be one more example. The aim is, however, not to add details to well-known shapes but about satisfying an appetite for creating new shapes and qualities.

European serialism in the 1950s focused especially on parameter concepts allowing for new shades, nuances, combinations and their systematic construction - in the middle of having abandoned traditional forms and attempting to create totally new ones. This way of thinking was not absent in its contemporary American counterpart either. Since then, parameter concepts have remained common in contemporary music. The historic connections have, however, been blurred by political conflicts and ensuing polemics and this has to this very day, unjustly, made it difficult to see the overall perspective and, consequently to some degree, the usefulness of this approach.

It is a very modern idea that music is sound which can go in any direction, or at least, this is very much a re-discovery compared to mainstream developments in Western music for a thousand years or more, as they have existed prior to the new developments after the second World War. But this idea has come to stay and we deal with it in practise. The

composer, the improvising musician, the music therapy client playing with his/her therapist might be circumstepping all this cultural heritage in both playful and thoughtful ways, sensing the sound qualities, compiling them one after another according to immediate likings, exploring various fast and slow processes of sound and concluding the whole thing out of a feeling for what fits into the context.

This kind of music creation cannot just be explained in the classic terminology dealing with symmetries, metric structures, sonata forms and with intervallic and harmonic concepts. We need a practically oriented music theory oriented towards sound broadly conceived with which to put perspective into practise and inspire ourselves to new discoveries. It would also be practical if we, in this context, could deal with how new and old forms of material could combine - for instance, how traditional melodies and rhythms can be part of such open processes.

So these are the purposes of this study:

- to clarify historical backgrounds and underlying ideas of what I shall be calling parameter analysis, a method originating in European serialism and developed by me in teaching, preceded by compositional experience.

- to document compositional activity by students in my intuitive music classes at Aalborg University, Music Therapy department, which has dealt with both group improvisation and composition training since 1983, employing teaching based on the principles described here and outlined in more detail in Bergstrøm-Nielsen (1999)

- and in so doing, to systematically examine how each individual parameter has been used, to provide examples of precedent historical uses, and examples of how the awareness of it could be trained in practise. Further, to relate to relevant literature in those cases where specific treatment of the parameter in question has been found, so as to contribute to a common body of knowledge in this field.

The word parameter has been known in mathematics and statistics since the latter half of the 18th century. It comes from Greek, meaning "to measure against something, to compare". The mathematical meaning is that it is a characteristic variable which makes it possible to compare functions or systems. ⁽¹⁾

Helmer Nørgaard's statement (1962) is, as a general characterization, well-suited as a first introduction to what is dealt with here:

"...Stockhausens parameter-teori... kan kort beskrives som et komplementær-måleapparat - anvendt på al musik - som vil give en helt ny form for analyse"

[“...Stockhausen’s parameter theory ... may in short be described as a complementary measuring apparatus - which will yield a totally new form of analysis”].

Nørgaard also relates this to the open situation of expanded musical material and a new desirability of being able to overview and handle it:

“... ved parametrene’s hjælp kan [man] styre uden om de skær som altid viser sig, når perspektivet bliver større”

[“... by the aid of the parameters, [one] can circumnavigate the rocks that always emerge when the perspective grows”]

PARAMETER ANALYSIS. THEORETICAL BACKGROUNDS.

PARAMETER CONCEPTS IN EUROPEAN SERIALISM

Serialist music in the fifties was a movement centering around the Darmstadt summer courses which became an international meeting-point after the war and around the electronic music studio of WDR in Cologne, involving composers like Henri Pousseur, Luigi Nono, Luciano Berio, Karlheinz Stockhausen, Pierre Boulez and many others. Individual works could be very different, but there was a strong, common tendency to work systematically and to break away with classicist forms of composition. Composers took inspiration from Webern and the previous Vienna school of twelve-tone music (Schönberg, Berg).

Electronic music became a catalyst for approaching the description of musical sound in a new way. It seems natural that in the multi-disciplinary context of composers, sound engineers and still more kinds of people, basic acoustic concepts would be employed to describe the sound that came out of the generators, which was recorded on tape and arranged according to composition plans in the studio. ⁽²⁾ Sound was described with regard to frequency. Durations could be measured in centimeters on the tape, as one can still see it in the aural score section of Stockhausen's *Kontakte* performance score from 1960 ⁽³⁾. Timbre could be analyzed as a continuum between vocal/sound and consonant/noise, as Stockhausen did with *Gesang der Jünglinge* (1956) in which he mixed vocal sounds with electronic ones into a compositional universe in such a way that they appeared to be transformed into each other. Other parameters that could be treated systematically included dynamics, distribution of pauses, density of sound, ways of tone attacks, and placement of sound in physical space. Further examples are understandability of text, employed in Stockhausen's *Gesang der Jünglinge* and characteristics of form and degree of change, employed in Stockhausen's *Kontakte*.

For Stockhausen and others, 'parameter' was understood in close analogy to the mathematical variable. It should thus be possible to conceive of it as being in principle a continuum, a dimension which in itself is continuous. Frequency can for instance be conceived of from the highest to the lowest audible. A simple glissando will make a part of this continuum manifest. There are no a priori "steps" in a continuum. It is like the rails of a railway - they extend all the way with no interruption. But stations can be placed arbitrarily.⁽⁴⁾ Thus, conventions like scales, including of course chromatic and quarter-tone ones etc, specific rhythmic values as more "basic" as others become relative. The parameters are there like colours on the painter's palette - it is up to the artist to mix them in his or her own way and to choose colours from an infinite variety.

Stockhausen's early definition of serial method (1958 p.58) testifies to the central importance of the continuum:

"Alles Separate zunächst in ein möglichst bruchloses Kontinuum einzuordnen; und dann die Verschiedenheiten aus diesem Kontinuum herauszuarbeiten und zu komponieren"

["First, to fit all isolated phenomena into a continuum, and then work out and compose contrasting elements from this continuum".]

The word "parameter" was later often used in a less exact way, to denote just any characteristic of sound, but the exact terminological meaning and the continuum aspect was in focus here.

The antithetical concept to the serial view of parameters could be called a modal view. A mode is a fixed framework, for instance the way a scale is set up, maybe with additional rules for upward/downward movements etc. This is, as Maegaard (1964) rightly points out (p.25) not necessarily in any direct contradiction to the serial principle, since those parameters not varied can be considered modal. Continuing this line of thought, it is also relevant to note how the historic variation form can be seen as an interesting forerunner of the openness discussed here. For instance, such extensive works as Bach's two (!) collections of Preludes and Fugues through all keys, The Well-Tempered Piano I and II, his Goldberg variations, Beethoven's Diabelli variations can be said to perform extensive and systematic variation within a precisely defined framework. In such works, the variation may be felt to lead to a vast universe of different phenomena. Exactly a precisely defined framework or starting-point seems necessary for variation of a systematic kind. ⁽⁵⁾

Whether there are any "primary" and "secondary" parameters has been the object of disagreement. In music history, first pitch, then durations, then dynamics, later timbre became dimensions which were elaborated compositionally in detail - at least when judging from Western written sources during the last thousand years. Some composers (Boulez (1963)) would argue that those parameters not so elaborated on yet need more exploration to become really "serious" members of the core group. Others would maintain that they all have the capability to become really important and can thus be considered equal.

The traditional view is illustrated in a very down-to-earth manner in the following quotation taken from a discussion among German musicologists:

"De la Motte: Ich wollte noch einmal bei der Klangfarbe einhaken. Ich habe inzwischen Appetit bekommen und deswegen ist mir etwas zum Thema des Essens eingefallen. Mir scheint folgendes: Es gibt in der Kunst Grundnahrungsmittel, die Kartoffeln, Gemüse, Reis oder Nudeln vergleichbar sind. Es gibt dann ausserdem Verschönerungen, Reiznahrungsmittel: Curry, Paprika, Sambal-Olek und andere Sambals.... die Klangfarbe entspricht dem Sambal oder Gewürz, die Tonhöhe und der Rhythmus Reis oder Kartoffeln. Ich kann mir kein zwei- oder dreistündiges Werk, eine Oper z.B. vorstellen, die mit Sambal, also nach meiner Definition mit Klangfarbe komponiert ist. Das kann ich zehn Minuten lang

ertragen, und dann muss ich endlich eine anständige "kartoffel" essen. Etwas seriöser formuliert würde die Frage heissen: Ist die Klangfarbe tatsächlich ein Parameter gleichwertig der Tonhöhe und der Zeitdauer? Ich glaube nicht".

["I just caught appetite and so something occurred to me around the theme of eating...In art, there are basic articles of food comparable to potatoes, vegetables, rice or noodles. Then there exists also embellishments, stimulation foods: curry, paprica, sambal-olek and other sambals...Timbre corresponds to sambal or to spice, pitch and rhythm to rice or potatoes. I can imagine no work lasting two or three hours, for instance an opera which has been composed with sambal. I can stand that for ten minutes, and then I have to eat a decent "potato". A little more seriously formulated the question would sound: is timbre really a parameter equal to pitch and time duration? I believe not"] (Stephan (1969) p.70).

Another argument having been proposed in this direction comes from Adorno who points out that instrumental timbre historically "has not been processed by the human subject".⁽⁶⁾ That is, instruments are taken over as they are and their sound may therefore be considered as fixed modes, not as variable parameters. Obvious counter-arguments are that composers of electronic music are indeed able to control the timbre - and that advanced instrumentation, like that of Richard Wagner, Rich Strauss and on, before that time did something similar by melting together the sounds of several instruments in sophisticated ways. In more recent times, this was further developed in spectral music.

Since we are dealing with creative possibilities, not just with observing what has till now been usually the case, the statement of Hans-Peter Reinecke which followed immediately on the comparison with foods stated above appears striking in all its simplicity:

"Wenn man fragt: Ist die Klangfarbe etwas Gleichwertiges?, dann würde ich vielleicht auch sagen "nein". Aber die andere Frage ist: Kann sie etwas Gleichwertiges werden?"

["If one asks: is timbre something equal [to the other parameters]? then I might also answer "no". But the other question is: can it become equal ?"]

THE SERIAL COMPOSITION AS AN INTEGRAL WHOLE OF INDEPENDENT PARAMETERS.

Stockhausen employed the principles of serialism with great consequence. To him, equality of parameters was an important point, and this has led him to reflections on the nature of the new universes of sound. The equality means that *"alles zu allem überleitet"* [everything leads to everything].

"Für die jetzige musikalische Sprache ist das sehr typisch: keine Melodie mit Begleitung, keine Haupt- und Nebenstimme" [for the musical language of the present this is very typical: no melody with accompaniment, no main nor subordinate parts]⁽⁷⁾

This makes it possible to integrate seemingly very different types of material in a composition, as was the case in electronic works such as *Gesang der Jünglinge*, *Hymnen* and *Telemusik*.⁽⁸⁾

Listening adequately to this music is a more meditative kind of listening than traditionally according to Stockhausen. There are *"keine bevorzugten Höhe- und tiefpunkte"* [no favourite anticlimaxes and climaxes]⁽⁹⁾ (p.67), and this meditative way of listening is contrasted to the one known from radio programs playing music according to listener's wishes⁽¹⁰⁾

Considering the choice of parameters in which to differentiate and considering which divisions to make within them as something which is relative and which depends on the composition in question, as well as also considering parameters themselves as having equal importance, has deep-going and far-reaching aesthetic consequences. It is from this perspective that Stockhausen said *"...serial thinking... is relativity and nothing else"* as late as in the beginning of the seventies⁽¹¹⁾ (Cott 1974). Tonality and traditional form were means of maintaining hierarchies, centres of gravity as it were, in musical structure. As Maegaard puts it, the modern situation after the World War entailed a sceptical attitude to traditional melodic themes as musical elements, parallel to sceptical attitudes towards anecdotes in literature and figurative painting, he adds. (p.32). Relativity became the keyword of modern physics and replaced the notion of fixed laws of nature one had believed in since Newton.⁽¹²⁾ And a slogan then employed by Boulez was, according to Maegaard (1964) *"Man må akceptere kompleksiteten"* [one has to accept complexity].

The widespread use of rows not only for scale tones as in the times of Schönberg, Berg and Webern, but in other parameters as well, indicates that unified construction ideas and conceiving the composition as an integrated whole was common.

The concept of 'row' was programatically used as the title of the magazine of the serialists, but it is a popular misunderstanding to think that there was always only one row covering

the whole composition in all parameters.⁽¹³⁾ Laying down the design of a serial composition must be conceived of as a complex analytical process, involving a dialectical relation between the sounding material and the composers' intuition. Grelinger describes this in die Reihe 1 (1955) explaining the importance of choosing relevant divisions and proportions of material:

"Anzahl Herz, dB, cm/sek sind bloss abstrakte Bezifferung...Das Mass erst schafft unsere auf uns Menschen bezogenen Grössen, organisierten Grössen, die ein proportioniertes Nächstgrösseres, Nächstkleineres zur Seite haben...die Folgen einer Wahl...getroffen mit dem Willen zu bestimmter Form."

["... the number of Herz, centimeter per second, -dB are just abstract nominations... only the measuring unit gives us dimensions related to humans, organized units which have something which is the proportionally next bigger and next smaller step... the results of a choice...being made with the will to create a specific form"] (p.39)

The selection out of the infinite number of divisions of parameters, which parameters to focus upon etc. is strategic. After analyzing, the selections and decisions made as well as the working out of details combine to make the result a modal arrangement, but an individual one - out of the infinite possibilities has to be born something finite, even if it may suggest a vast perspective. Thus Stockhausen (1974) stated during a discussion with his audience in Darmstadt:

"... serial organisation is just a way of thinking that guarantees the equality of elements in a given form -- on a un maximum de variation et un minimum des éléments - c'est une organisation économique".

[one has a maximum of variation and a minimum of elements - it is an economic kind of organisation].⁽¹⁴⁾

It is interesting to note that the notion of serialist music as "pre-formed" or "totally predetermined" does not originate from the then young composers of the fifties themselves, but from older ones.⁽¹⁵⁾ From Eimert (die Reihe 1957) it becomes apparent that it had already become a pejorative one at that time - he defends the music against allegations that the composition is a mechanical process or even a symbol of totalitarian attitudes, which had appeared in the public debate. They have been alive ever since - see also the section "modern music and cultural repression" below.

As a non-biased alternative to this terminology, it could be instructive to look at the concept of "network", employed by the serialists themselves. It was used programatically by the editors, Eimert and Stockhausen, in the preface to die Reihe 1 (Eimert et al. (1955)): *"der Klang ... hält nicht grob in sich zusammen, sondern muss durch ein feines, dichtgewebenes Netzwerk zusammengehalten werden"*

["the sound is not staying together like a rough mass but must be held together by a fine, tightly woven network"]

Here, the aspect of differentiation is emphasized. And this may lead us to contemplate what could be the creative challenge for the composer, instead of the both pejorative and abstract label of predetermination mentioned before, which was furthermore imposed by critical colleagues, not coming from those who were themselves the originators of the serialist development. Eimert mentions the concept of network again in his article in Eimert et al. (1957) in a context stressing the unity of the composition (p.12) - this unity is guaranteed by the systematic character of the construction which does not, as in previous twelve-tone music according to Eimert, suffer from being only partial, still connected to romantic and expressionist traditional phrasing -

"stöhnend aufgesetzten Ausdrucksvaleurs der Seele" ["groaning expressive values of the soul being pasted on"].

Instead, the composer has to make decisions concerning all dimensions, or parameters, of the music. And instead of the pre-determination of style, there are individual differentiation and balancing of parameters for each work. Also Ligeti, in his analysis of Boulez' Structures, compares the composition to a network⁽¹⁶⁾

Serial method was based on combined analysis of the material and on synthesizing the chosen parametric properties into a whole. "Network" was a contemporary word for this procedure. Employing a term which then came into use and which has asserted itself as common terminology ever since, serialism was the start of parametric thinking. It has come to stay as a concept associated with composition, even through many different tendencies to the present day.

PARALLEL AMERICAN DEVELOPMENTS, DIFFERENCES, ENCOUNTERS, SIMILARITIES

American experimental music had a character different from the European one. John Cage was profoundly influential, putting forward his idea of indeterminacy, inspired from American traditions and from Zen buddhism.⁽¹⁷⁾ Paraphrasing the ideas of indeterminacy, Childs (1974) states, in his dictionary article on the notion of indeterminacy, that it involves the possibility of any sound and any relation between sounds being potentially musically interesting. This seems to describe widely accepted principles among experimental composers of the fifties and sixties. Cf. also the use of the term in such music history books as Bosseur (1979), Brindle (1986), Cope (1972), Feisst (1997), Nyman (1999) and Sutherland (1994).

This openness appears to be indicative of the typical American view of experimental music aesthetics. Indetermination endeavours to achieve both differentiation and new sounds and structures - but rather as a liberation of sounds and of the aesthetic awareness, not as symbolic of new constructions. The general cultural background was new currents of "anti-conformism" that gave birth to critique of modern society with threats coming from atomic weapons and pollution. These currents influenced the "beatniks" on the West Coast and their successors, the hippies. And one popular statement expressing this critical individualism was "to do one's own thing" (Hamm (1975)).

Indeterminate composition could certainly, however, take on systematic forms and also employ parameter concepts⁽¹⁸⁾. I am deliberately saying "dimensions" instead of parameters since this latter word does not appear with Cage, but the meaning here seems to be utterly synonymous. In "Variations III", cop. 1963, they are called "interpenetrating variables" - and here, they are not even specified, thus underlining the aspect of openness in a very perceptible way. Morton Feldman employed, as early as in 1950-51 in Projection I for cello solo, a coordinate system dividing registers simply into high, middle, low, and he arranged the tones to be played by observing the spatial sequence on the paper, not with metric notation. Details of exact pitch and exact rhythm were thus made indeterminate, including an opening up to the total possibilities beyond the 12 tone system as well as those beyond the metric notation. At the same time, the pitch parameter was given new basic divisions for orientation - cf., in the text above in the section "The serial composition as an integral whole of independent parameters" about the necessity for the serialists of choosing how to divide parameters.

Indeterminacy was an aesthetic view originating in the victorious nation after the World War. It presented itself with much less emphasis on seriousness and a much more immediate pursuit of freedom notions than did serialism. This must be understood on the background of the different political situations. Until 1955 there was not even a thing called West Germany yet, but an "occupied zone". The serialists emphasized visions of new, responsible construction analogous to the reconstruction process so vital to their society.

Their views could appear diametrically opposed, and with John Cage's visit to Darmstadt in 1958 and that of Earle Brown in 1964 there were great cultural clashes, even if the Europeans could not remain untouched after this. For the Americans, Europeans could appear pedantic, and for the Europeans, the Americans could appear shockingly hedonistic or even indecent.

But, as a creative strategy, both were practising parametric composition. For the serialists this was the central technique, for the indeterminationists it was one aspect of technique among others. There seems to be a common tendency arising out of a general need, whether European or American. Cf. also the approach of Kenneth Bruscia described below which came about even without previous knowledge of the significance his concepts has long had in music history. The idea of music as sound seems to be related to and even to be able to entail, the idea of a number of parameters or dimensions of sound as what to deal with in this open universe. It appears as a universal discovery in the latter half of the twentieth century.⁽¹⁹⁾

MODERN MUSIC AND CULTURAL REPRESSION

Life in Germany these days was unsecure: people were living in an occupied zone, and the invasion by Soviet in Hungary in 1956 arose fears that something similar might happen in other parts of Europe. The radical musicians had the pioneering spirit of building up something completely new from scratch. But in concert life there was also a strong current of turning to the music of older times.

Before the war, and especially after the Nazi occupation of Austria in 1938, a large number of artists, including composers like Schönberg, Eisler, Bartok, Stravinskij, fled to the USA. Under the depression of the thirties, support of modern music from private funds declined drastically and some composers survived by teaching and writing film music (Brincker et al (1983). Atonal music went into Hollywood film music and became known as background for horror scenes, which might still be the dominating association to such music by many music lovers. It is an ironic fact of history that this music to an important degree originated with exiled dissidents to entertainment culture and that their European successors after the war experienced additional resistance precisely because of their cultural ancestors' contributions to the film music of the nation now occupying them! To many people, the new music which was so different appeared scary, and film background music was a part of their background for thinking so.

It seems no coincidence either that around 1956, the culminating year of public anxiety because of the Soviet invasion into Hungary, there was a veritable "battle" in which the public music discussion also culminated in several pamphlet books and a law suit for slander (Bergstrøm-Nielsen 1980). As a result, composers had seemingly no choice but to give in verbally and admit that they were on a wrong path, but had now loosened up their systematic working method into something more "healthy". In the seventies there was often mention of a "post-serial" era, but it still remains to be demonstrated more clearly whether this label has any substantial, descriptive and analytical significance.⁽²⁰⁾

For such reasons, actual continuities in the developments from serialism and on have been less clear to music public and even to music historians than could be desirable. However, and even in spite of this, the parameter concept has not only survived but also gained foothold in music terminology.

PARAMETER THEORY IN MUSIC LITERATURE

While examples of uses of the word parameter are legio in music literature, there seems to be relatively few writings dealing in a comprehensive way with parameter theory.

One writer using "parameter" as a main concept is Landy (1991). This book is music analytically orientated, besides also discussing sociological issues. In "Part 1 – Introduction" he describes what he sees as the general background:

"As in the sciences where one became more acquainted with various minutely small and extremely large worldly phenomena, composers searched to expand their own dimensions." (p.8)

After summarizing a few developments within pitch, namely the equality of all twelve tones with Schönberg's dodecaphony and Haba's work with micro-intervals, he states that parallels could be found in other dimensions, too. And makes the reflection that

"Early avant-gardists were certainly aware of this potential, but lacking apparatus to make such expansion feasible, most early 20th century composers limited themselves to dreams and manifestos" (p.8)

This assumption could deserve closer attention, but it is not further elaborated here and documented. As to "apparatus", there are several examples of instrument building endeavours in previous instrumental music (Partch, Futurists). Of course, electronic music after 1945 played a major role in music history, both with the serialists and in the USA, but the question remains, exactly how decisive was that role. After all, instrumental composition remained crucially important for the serialists along with electronic music. One could imagine that "apparatus" just as importantly, or maybe even more, also included compositional devices - like, previously, the systems of Schönberg and Haba the author mentions. But also sociological issues contribute to making a sustained development possible at all - how marginalized the music is plays a role. - An accepted notion of "open sound" and of a suitable notion like "parameter" could thus seem to be possible parts of the "apparatus" making experimental music advances possible!

The author gives reasons for his use of the parameter concept:

"Although parametric research is not the only form of experimentation within recent music, it has been singled out for this introduction due to its relative importance in most experimental music along with its link to music tradition (studies of melody, rhythm, harmony, and so on)" (p8f).

And his definition of parameter is the following, quoting Josef Häusler from 1969:

"Musical parameters are all sound or compositional components which can be isolated and ordered"(p.9).

This is a very broad definition. It includes not only those dimensions that can be continuously varied, like pitch, duration etc, which can still be seen as analogous to a mathematical variable. It includes also those components the ordering of which falls into discrete steps or classes. This becomes apparent when the author mentions Olivier Messiaen's *Mode de valeurs et d'intensités* from 1949 as an example, a piece which is known as a forerunner of European serialist composing and which was an inspiration for the early serialists. He explains how each pitch has its own unique length, dynamic level and attack and views the resulting assembly of pitches with their individual characteristics as one parameter:

"In this case four parameters were fused into a single new one"(p.10)

After an intermezzo with characterizations of parameter approaches with some important composers, John Cage, Iannis Xenakis and Karlheinz Stockhausen, Landy proceeds to stating lists of parameters, with explanations and examples.

"Parameters of primary importance" are for this author *pitch, duration, tempo, dynamics, timbre, "sound types" and space*. *"Parameters of secondary importance"* then consist of *density, "simultaneity", "(dis)order", "energy"* (a special designation found with Xenakis), *"freedom"* (*"This term is an unhappy one but will be used as a heading for a number of potential parameters"* p.15), *"compositional bearing"* (polarity of rationalized-intuitive way of composing with Stockhausen), *form, "formel"* (from Stockhausen).

As these lists suggest, there are clearly elements of personal choice and selection - if not, as some would probably say, subjectivism.

To put this into perspective, one could quote Reinecke (1967) who advocates the view that parameter descriptions must refer to *"mathematisch erfassbare Eigenschaften"* [*"mathematically describable properties"*]. This could, as a counterpart, be called a strict, narrow definition.

Even if Landy, as we have seen, employs a wide definition, he nevertheless follows the tradition for putting the most objectively measurable dimensions first in the list - as *"Parameters of primary importance"*. With the possible exception of tempo it seems that they could all be made to fit into Reinecke's requirement.⁽²¹⁾

For the description of given, finite historical periods one might discuss the issue whether standardized criteria of description could be relevant. But dealing with creative strategies, as they are relevant to teachers, composers and musicians, it appears that the list of criteria, in this case parameters, cannot be finite, whereby it would assume a normative and confining status. By accepting to let the list be open, it can become an adequate tool for describing

strategies which aim at new developments. By following the tradition of marking out those parameters capable of exact description, an important area within which intersubjectivity is guaranteed is defined. Stating an exact definition of how the term is understood is also important, if the term is not to just mean any kind of "characteristic" and thus lose any general comparative perspective.

Christensen (1996) does not speak of parameters but of "basic listening dimensions". However, his theoretical model overlaps with traditional parametric views. Special attention is here given to theories about the ear and its biological functions.

He distinguishes between microtemporal and macrotemporal dimensions, thus connecting to the idea of the ultimate relatedness to each other of the parameters, the *"temporal continuum"*:⁽²²⁾ In one of several models, "Microtemporal listening dimensions" are *"Timbre, Harmony and Pitch height"* (p.15). This is so because space is *"the ability of localization and orientation"* and timbre *"the ability of estimation and identification"* - they are seen as basic because they are biologically essential for survival. We are equipped with the ability to hear immediately where something around us is going on and what kind of sound source - whether it is our own species or not, whether dangerous or not, etc.

Such first orientation having taken place, our attention may then move on to the *"macrotemporal listening dimensions"*, movement and pulse. The question "is it moving?" may be answered - again, as a requisite for survival: *"The listening mind is informed whether the sound source is approaching, passing by or receding, and has the chance to decide if it is necessary to run away or whether it might be a better idea to find and follow the moving sound source in order to fight, scare or eat it"* (p.13). Pulse, however, is *"awareness of regularity"* and also contributes, together with movement, to time experience (p.14).

Following and modifying Stockhausen (1963b) he assigns the dimensions mentioned to a time scale:

Timbre: 1/16.000 - 1/32 sec.

Pitch height: 1/6000 - 1/16 sec

Pulse: 1/8 - 2 sec

Movement: 1/4-5 sec

The qualities of the dimensions are further discussed in the remaining long parts of Christensen's book which is mainly dedicated to a large number of detailed analysis of music works following the models. It ends with some additional remarks and a concluding, composite model.

Christensen takes a new starting-point among parameter theorists, if he can be called that despite not using the word. Instead of sticking to classical acoustic notions, he builds his theory on human listening attention. It is thus quite logical that timbre is seen as "microtemporal" because *"All kinds of sound are characterized by their timbre ... But only*

certain kinds of sound are characterized by clearly defined pitch height" (p.16). We learn from acoustics that timbre is the result of several pitches combined but even so, we cannot hear those individual components. We only perceive pitches when they have been sustained a bit longer. It can be said to be thought-provoking that Stockhausen was already aware of this in 1961, but Christensen has put this observation into a larger biological/psychological perspective.

Wishart (1985) deals with fundamental problems of electronic music and its development. He undertakes an philosophical and theoretical, critical discussion of some traditional notions of acoustics. The very idea that properties should, at the best, be exactly measurable, is seen as a problematic dualism that may have originated in Descartes' distinction between "primary and secondary qualities of perceived natural phenomena" (p.18). Recent 'catastrophe theory' having lead to a new branch of mathematics called differential topology concerns itself, however, with studying systems in states of instability. In the realm of music, one has for instance focused on the stable sound produced by a flute after the initial attack - but it seems one has to some extent neglected the attack.

Specifically concerning the pitch-timbre continuum, Wishart attacks the widely accepted notion that sine waves are more fundamental than resulting timbres. Fourier analysis is an acknowledged mathematical procedure which can transform a graph of amplitude against time into a graph of amplitude against frequency - that is, an oscillogram, now commonly seen in computer wave editors into a spectrogram, the kind of diagram featured also by spectrum analyzers. One cannot argue, according to Wishart, that the first graph is more fundamental. If we are dealing with complex sounds, the second method is more lucid and less aperiodic than the first one.

The human ear carries out a Fourier transformation by synthesizing a composite sound from sine waves. Some research, however, suggest that this is not possible above 4Khz, but still we hear timbres. Still one more thing to consider is that extremely short sounds are ambiguous and indeterminate. The implications of this is discussed further on in the context of theories of modern physics.

Wishart's view thus converges to a certain extent with that which Christensen took on biological/psychological grounds, concerning the pitch/timbre issue. His scepticism also takes its starting-point in an experiential orientation (p.7ff), and it leads to a broader perspective on the acoustic and mathematical foundations of sound, pointing out the possibility of relevant theoretical description of sound which is unstable and complex. In other words, a more holistic view of matters seems possible without sacrificing descriptive methods.

Even if Brindle (1986) has a chapter on "Integral serialism", the term "parameter" does not appear to be in use with him. However, a number of specific dimensions are listed systematically in the index under "Indeterminacy": "form, pitch, rhythm and duration,

dynamics and expression" (p.218). He couples this systematic treatment of various characteristics with indeterminacy, which he takes as synonymous with "aleatory" (p.215). Thus, he gives up the division between those two concepts which refer to distinctly different geographically based traditions, procedures and attitudes. Notwithstanding the problems in doing so, one can nevertheless observe that he treats a number of dimensions independently which are often referred to as important parameters. He thus follows the general tendency of viewing musical sound as multi-dimensional and capable of variation within the dimensions. ⁽²³⁾

The discipline of Music Therapy has since the seventies been a fast-growing new one. It operates within a multi-disciplinary perspective in which psychology plays an important role, as well as musical disciplines. Since freely improvised music is in many cases the music medium in which the therapist and client work together, there has been a need for new music theory and terminology, and the literature features instances of descriptive systems with detailed terminologies.

Bruscia (1987)'s Improvisation Assessment Profiles utilizes "*scales*" to describe among other dimensions texture, timbre and volume - for instance "*Texture variability*". In this way he clearly employs parameter views, keeping to general properties appearing in a continuum. In addition to these descriptive elements in this terminology, categories are coupled to psychological assessments such as, in the case cited, "*Rigid*" to "*Random*". As this example shows, Bruscia associates the music characteristics with psychological characteristics in a one-to-one manner. The author discusses this procedure in Bruscia (1994).

It is especially worth noting here his reasons for employing such concepts:

"Obviously, there are many different ways of listening to or analyzing music already in existence, as we all remember from our early days as students of music theory. But my experience as a music therapist has been that these traditional methods of musical analysis are inadequate for clinical situations in several ways. First, they usually focus almost entirely on tonal and harmonic structures (which are not always present in client's improvisations), and consequently neglect the more basic musical elements such as rhythm, volume and timbre. (Even our definition of musical "form" is based almost entirely on melodic themes and tonal processes)." (Bruscia (1994)) p.2)

So Bruscia's endeavour could be said to employ such basic concepts which traditional music theory does not encompass. And then he turned to commonly known and more broad concepts. In this way, he discovered basic new knowledge which were common to the composers of experimental music dealt with here - without being aware of it!

Like Bruscia, Deuter (1998) is concerned at the same time with sound description and its psychological interpretation. Just one example is "*regularity*" versus "*multitude*", valid for

"*rhythm*". Such opposite concepts are seen as polarities with a continuum in between, differing from rigid oppositions. This is therapeutically relevant because pathologic phenomena very often result in rigid ways of personal being and expression, which is in turn reflected in the music. It can therefore be a relevant task for the therapist to support the client in finding ways of loosening up such rigid oppositions in improvised music playing. The continuum view is further reinforced by the author's endeavour to set up meta-polarities on psychological grounds which can serve to facilitate overview and to further systematize psychological interpretations.

Deuter also stresses the equality of parameters: "*In this, there is no hierarchy of the individual fields or a "first" and "then" of neither their appearance nor their meaning*" (p.84). Here, the clinical view of music therapy coincides interestingly with that of the radical serialists⁽²⁴⁾. In music therapy, there can be relativity and equality because there should be no pre-conceived rules for the music, but an acceptance of what the client plays.

While Bruscia and Deuter employ parameter concepts based on continua, that of Ansdell is different. It is rather based on oppositions, for instance with Ansdell's own words:

"rhythm is initially divided into structured or unstructured, with structured at this point the positive pole. However, at the branching of the structured pole in the map there is again a "positive/negative" polarity where the structuring of the rhythmic element in the client's display can either be "precise but flexible" or "rigid". In this way, there is a dialectical process of thinking in opposites and moving on to greater precision. The descriptive map presented includes "the basic categories of musical organisation (rhythm, melody, harmony, form, etc.) but also categories which pertain to the unconventional analytic perspective of listening to personal process through musical process. These are the categories of force, articulation, continuity, aspects of physical behaviour, facility in playing - focusing back from the qualities of the product to the state of the producer" (p.22)

Hegi (1998) concentrates on "*timbre*" (German: "*Klang*"), "*rhythm*", "*melody*", "*dynamics*" and "*form*". He does not provide lists of descriptive words but is rather concerned with general interpretations of their meaning and presenting case stories - and what is important here, the case stories are presented as illustrations of the ways of working of the individual components. It is also interesting, however, to note the connotative properties of the word "*component*" which, like "parameter", has the sound of something exact. In the case of dynamics, he also makes this systematic presentation of possible combinations with tempo:

louder and faster
softer and slower
faster but softer
slower but louder

The unifying and exact-sounding terminology of "components" as well as the author's interest in transformation processes suggest a view of the music material having points in common with both the serialists and Deuter⁽²⁵⁾.

Ansdell takes up a question of interest regarding the multi-disciplinary relation between psychology and musical disciplines. He criticizes "*a post-Freudian intellectual tradition where the process of interpretation can often mean that description is subsumed within explanation*" (p.18). In other words, there is a danger of jumping to conclusions without grounding the interpretation sufficiently in a precise perception of the phenomena. He states that the "'*what?*' dimension ... is the foundation for any further process of knowing" (p.18), the "*why?*". He also tells this story: "*The difference between our eagerness to explain rather than to describe is nicely illustrated by the story of the young boy who presented his mother with his latest painting consisting of vivid splashes of red, blue and green. "That's lovely, James. What is it?", asked his mother. "It's red, blue and green", replied James.*" In other words, he stresses the necessity of exact, descriptive terminology - his own motivation for setting up the system.

SUMMARIZING AND CONCLUDING STATEMENTS

- Thinking in musical parameters owes much of its current dissemination to the intensive work of European serialists in the nineteen fifties. Further backgrounds include similar American developments. The use of the word is widespread, also outside music, but it may mean almost anything, ranging from displaying the pure fashion of using a word having connotations to exact science to something very definite. One can, however, observe a common tendency in describing experimental music and in describing music therapy improvisations to employ a multi-dimensional thinking of music sound going beyond traditional concepts and taking inspiration from acoustics. Some of this activity employs the word parameter, some does not. It may derive from the established use of parameter concepts within experimental music or, as can be seen within music therapy, arise independently, out of a descriptive need and, presumably, of a common intellectual climate of the historic periods we live in.

- It is crucial to define exactly how the term 'parameter' is to be understood if it is to serve music analytic purposes. A narrow definition is that of Renecke (1967) who, following Meyer-Eppler, acknowledges only what can be laid down mathematically exact - this means in his interpretation *"frequency, amplitude, spectral composition, duration"* etc. - and such things as timbre and perceived dynamics etc. are then to be regarded as subjective dimensions. Following his line of thought, one could also argue that "pitch" is unprecise because it synthesizes perception of slightly different tones into an illusionary one and the same. Theorists may need to contemplate how narrow or broad they wish to make their criteria. - One more point to consider: A definition may stick to requiring that there is in principle a continuum between extremes if a characteristic is to be called parameter, thus staying with the analogy of mathematical variable, or it may not, like Häusler's definition which was employed by Landy (1991). And various criteria may be laid down for defining individual parameters.

- When making a list of parameters, there has developed a certain practise to state first those parameters being easiest to define in exact ways. Given the existing variety of approaches, this is a practical procedure, allowing for fast orientation and comparison and yet also for individual definition and selection of parameters. It allows for a synthesis of what has been handed down from historic experimental music practise and new developments and purposes of analysis.

- Some keywords of parameter analysis in a "classic", strict sense (taking Stockhausen serialism and certain works of Cage as models) are continuum, enabling all possible degrees and shadings, and independence or, depending on how radical the view, equality of parameters, hence the possibility to freely combine from a "palette" of a number of parameters. This openness may entail an individual analytic-synthetic procedure for each creative task - be it a music work to be written or analyzing what happened in a music therapy improvisation before making the next. The analytic-synthetic aspect

could also appear the form of alternating thought and intuition during improvised playing, as is relevant to the practise of improvising and the teaching of it.

- The concept of parameter is mentioned passim in music literature, often without going into much detail. And we have seen a focus on composite systems of parameters with the authors Landy and Christensen, rather than on the single ones; likewise Brindle employs such a way of thinking even with no mention of the word. Parameter theorizing, seen in the context of musicological disciplines, has affinity to musical analysis, but it is on the other hand also treated with less specific references to individual works. By virtue of this tendency towards overview, it has more affinity to general music philosophy and aesthetics. With the music therapy authors Bruscia, Deuter and Hegi, there is more focusing on individual ones, and especially with Bruscia, this is closely coupled with psychological characterization.

- Parameter analysis is, as the present writer sees it, best suited to describe general properties and their change - to describe outlines and developments, rather than details.⁽²⁶⁾ To describe melodic, rhythmic, harmonic aspects, more traditional tools are relevant, as Hegi and others also employ.⁽²⁷⁾ Parameter analysis might, however, put those other characteristics into an expanded perspective.

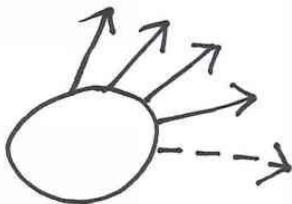
PARAMETER ANALYSIS APPLIED. CATALOGUING EXAMPLES OF PARAMETER TREATMENT

INTRODUCTORY REMARKS

THE CATALOGUE IN ITS THEORETICAL AND DIDACTICAL CONTEXT

Parameter analysis can be defined generally as a method of analyzing which divides the overall sound into specific dimensions. As we have seen, there is no general agreement as to how broad or narrow one must see the concept of "parameter". According to my choice, however, only dimensions which can be conceived of as variables qualify as parameters. Also, in my view the number of possible parameters is not finite. It has been natural to include pitch, durations, timbre, loudness which clearly connect to tradition in this field - as well as also other ones, pulse/no pulse, tempo, density, stylistic recognizability, tonal/atonal, contrast - which have also emerged as practically important in my work.

The open-ended quality of the parameter analysis in my definition can be illustrated by the figure below – the arrows represent individual parameters, and there is no finite number of them, nor necessity always to take a large number into consideration. The analysis is part of an ongoing exploration and is not bound to an unchanging scheme.



Analysis means dividing into parts but may serve different ends. The starting-point has not been finished works but our own activity as improvising musicians. Parameter analysis has been taught with the aim that students:

- get to know individual parameters through improvising exercises and composition exercises with special focus.
- critically observe what has been played after playing, with use of listening to high-quality recordings and discussion. The discussion may touch upon parameter properties and make participants more aware of the overall sound, not just of what they are playing themselves. It may also increase the awareness of variation possibilities in the overall sound.
- develop their ability to react and take initiative intuitively during playing.

There is an endeavour to both nourish the individual motivation and initiative for playing and also to train the ability to apply a critical awareness to the music produced. These concerns go hand in hand. If "interesting playing experience" is to arise, it is, in the present author's view, dependent on both. This is manifested from the very first lesson - success in making both ends meet typically entails feelings with the participants of having an exciting time playing together, while avoiding "making a mess" with its obvious perspectives of possible

boredom and/or frustration. It is a way of being free together without blocking the way forward.

It is crucial to find out how to alternate in a productive way between thinking and following the impulses of playing. Too much thinking while playing may kill the creativity, but it is certainly also required at certain points to stand back, be it for a split-second or much longer time according to the situation, and come back with new inspiration, maybe now knowing what would really be needed in the situation. Never thinking critically at all may also be bad for the creativity by giving habit too much to say. If a process in which thinking and playing alternates gets dynamic, it can be a learning process that develops the persons' own creativity.

My system is intended as a mapping of large-scale dimensions of the musical universe. On the background of the theory discussed in the last chapter, it seeks to treat the most important parameters in so much detail that a new outlook on the music material could be sensed from it. It does not go into a detailed use and discussion of more traditional concepts. Emphasis has been here on stressing the "macro-level" of musical geography. From this perspective, however, a way of viewing how to combine old and new is proposed.

DESIGN OF THE CATALOGUE

The catalogue seeks to exemplify all the parameters having appeared important till now in my intuitive music classes by references to students' compositions. The properties of each parameter are discussed. For providing information pointing to the didactical perspective, examples of practical exercises are added. For the historical perspective, references to concert music are also included⁽²⁸⁾.

The selection of compositions here was undertaken from a special point of view originating in the cataloging purpose of this study. It does of course not directly reflect which compositions were the "best" or got the highest notes. However, there has been a view to including interesting compositions that convey the strengths of this composition form. The selection basis has been the roughly complete archive of examination papers from the first exam in 1985 through 2006. (After this year, intuitive music teaching became to some extent more centered around the individual student and the main instrument. Materials from the last examination in 2007 have not been considered here). In two cases, this has been supplemented with other material in order to have all parameters exemplified.

Because the theoretical context here is parameter treatment, composition technique within our special form has not been commented upon in great detail. Hopefully, examples themselves will both yield a comparative perspective and demonstrate individual points and subtleties in handling the composition form.

BACKGROUND OF STUDENTS' COMPOSITIONS

IMMEDIATE BACKGROUND

Through the years 1985-2007 as mentioned above, students have passed an examination of "intuitive music" by presenting small compositions for improvising musicians. This both documents the students' ability to create playing rules and also, in an indirect way, it documents the student's feeling as a musician with this kind of playing situation⁽²⁹⁾.

Even if it may be a requirement when starting composition exercises, it was not a requirement for the final examination that compositions concentrate on one parameter.

The basic composition form is that of designing three or a different number of sections which characterize the music in such a way that the individual musician will both have reasonably specific instructions and enough freedom to participate creatively in improvising. At the same time, the sections should be so arranged as to realistically be understandable for the group as a whole, which usually moves through the stages in a gradual process - they should, for instance, be different enough to signal clearly that some musicians have moved into the new section, meaning a new stage in the process is beginning. This is often referred to as the "picnic principle", of which a more formal description could sound "heterophony on the formal level". Balancing the concern for the group process and the overall sound, and the concern for the individual musician's playing is a challenge for the composer.

THE USE OF "STORIES" AND THE PROGRAM MUSIC TRADITION

Students' liking for "stories" and for illustrating them in a basic, cartoon-like manner seems to have exercised a decisive influence through the years and to have combined in a unique way with the parametric thinking I have proposed!

Program music is a tendency known from music history using suggestive motivic figures and other musical means to hint at objects and actions in the outer world, as well as depicting specified moods. It was especially cultivated in the romantic period, and "Symphonic poems" could specialize in this in detailed ways in late romanticism by composers such as Liszt and Richard Strauss - so to speak film music before the film, as many musical details could connect to the story. "Absolute music" is used as a term for the opposite view of music - that music has its own formal world, that it can not be pinned down to this kind of references which can be said to originate in the listener, not in the notes.

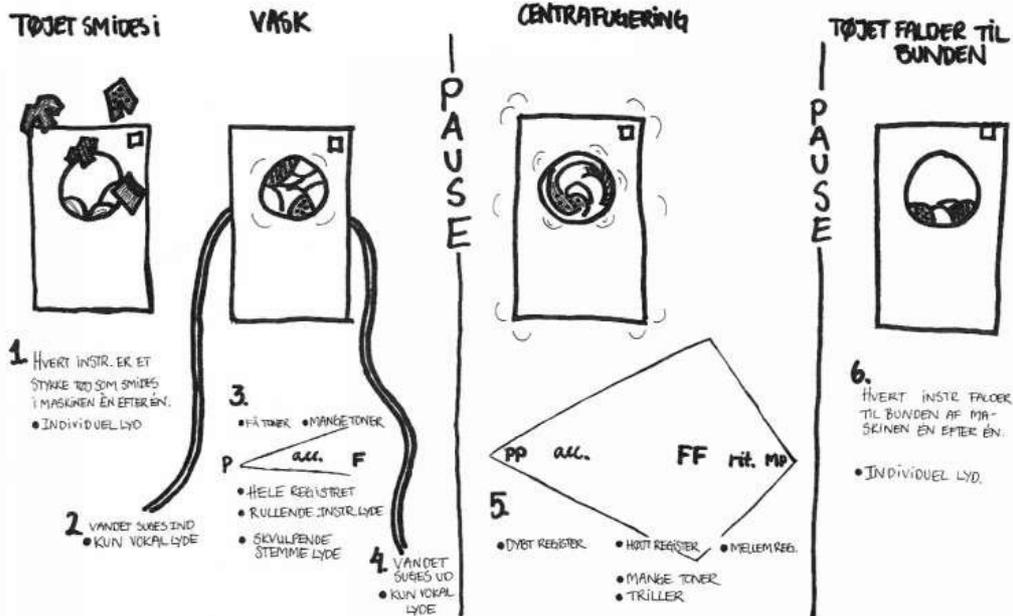
While these issues can only be hinted at theoretically here, they could be of far-reaching interest for further research. A common view among practitioners of active music therapy seems to be that therapy music can directly reflect states of mind and mental processes. The obvious background for this view is the necessity in the therapy to interpret what is going on

in the client and between client and therapist, psychologically, and the music seems indeed to give strong cues for such interpretation.

From a critical point of view it could be stated that the "truth" of a given interpretation in music therapy is relative and dependent on a dialogic process - not on unchanging properties in the music, and that those who listen have their own personal associations. The study of how interpretations come about and how they may be methodologically secured is known as hermeneutics or phenomenology. The music in question here was not originating from a therapy context, but from free creative work. Nevertheless, going fast from music impression to psychological interpretation is a common way of thinking in our music therapy context. From an artistic, creative point of view it can be said that a one-sided thinking of "illustrating the story" without sufficient consideration to the ways it is done can lead to a cliché-like use of the material. This is of course not psychologically effective either. The right way, seen in this perspective, seems to be to consider your musical material with the greatest awareness, putting both hands into it and its combination possibilities and taking it to visionary use (like the serialists did). It's very much how, and how musically illuminating you tell the story that counts, if you so wish.

When the storytelling succeeds in original ways, it seems to have the ability to, on the other hand, to make any kind of musical material alive and fascinating to the reader and listener. The present writer believes that these compositions, with their semi-popular use of advanced musical means, while at the same time being down-to-earth in their way of communicating, possess extraordinary charming qualities that illuminate what the great discoveries of new and experimental music were all about and that this music form could be used with benefit by others, too, within the field of music teaching and training.

KULØRT-VASK 60° Margrete Bach Madsen 2002 Impro. opbyg. Interaktiv musik.



Margrete Bach Madsen: Colour wash 60° (2002). This piece seems to celebrate the programmatic idea in an especially detailed way!

Please refer to Appendix B, number 1, to see the whole composition with translations and to the Index of recordings to listen.

THE TREATMENT OF INDIVIDUAL PARAMETERS IN STUDENT'S COMPOSITIONS

PITCH

Pitch is measurable in an exact way as frequency (cycles per second). In practise, single frequencies hardly exist, as instruments produce spectra of sound and as sounds collect additional frequencies in any environment which has any degree of reverberation, but we may perceive the fundamental tone as a definite pitch.

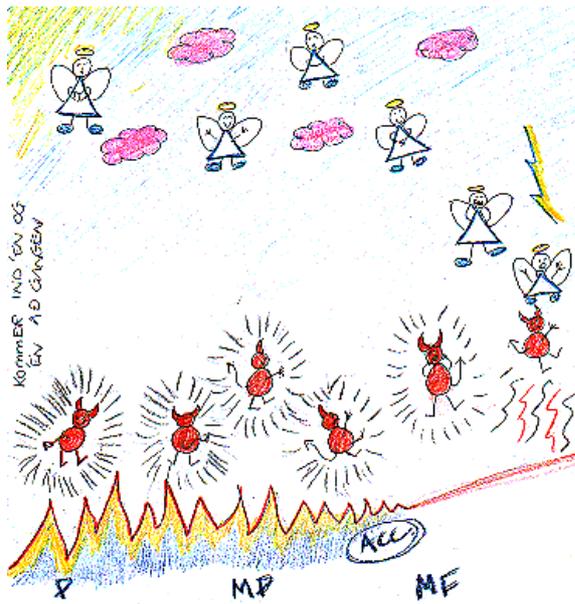
Jelinek (1952, p.4) points out a special distinction of pitch: in its pure (here=clearly discernible) form, it is specifically musical. It it, for instance, not to be found in spoken language. While Jelinek, as a composer working in the "classic" twelve-tone way of Schoenberg, is arguing to establish pitch as the most important dimension of music, the "signal-like" quality of clear pitches can also be viewed as something notable from a "sonic" view of music connected to electronic music - Danish composer Bent Lorentzen also notes this in Bergstrøm-Nielsen (1979b).

The use of pitch comprises both melodic and other phenomena. Melody was long connected to a harmonic system. However, many simpler uses of one pitch which seems to come up free improvisation again and again, are possible. I thus like to speak of "one-note-tonality", which can have the form of traditional drones and the like. Closely related to this is "interference-tonality", using fluctuations from one (maybe spontaneously agreed upon) note. Both allow for combinations of stasis and change.

Cole (1974) describes with a striking metaphor how the emancipation from systems of chord progression, which demanded exact synchronization, lead to a new situation. It became possible to perceive the musical sound more in terms of, for instance, timbre, or, like Cole describes it, more polyphonically:

"It was the necessity of avoiding discord that made exact synchronization into a vital organizing principle. (In the same way - trains have to run to a timetable partly because they must not be allowed to collide. Make trains of soft rubber, and the timetables can be relaxed)" (p.151f)⁽³⁰⁾.

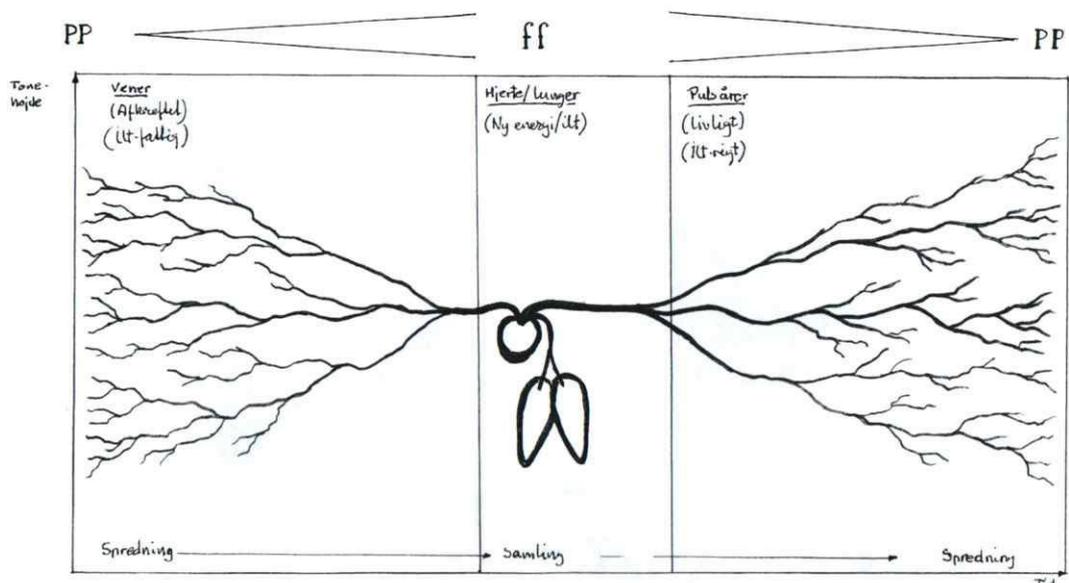
The traditional melody has more than one note and is a microcosmos, a formula of intervals - hence, it is also transposable. There is, however, also a different, "orchestral" use of the pitch space. Virtually all music for symphony orchestra exemplifies this in some way by the very fact that instruments have different ranges and are combined in changing ways. In a context not governed by traditional harmonic rules, the significance of individual intervals has naturally diminished. There can be a different experience of pitches with their vicinities and contrasts, their going together or standing apart. Different registers can stand out in their own right, and one can take the entire audible pitch range into possession⁽³¹⁾. Perla Leifsdóttir illustrates "high" and "low" by little angels and devils descending and arising...



Perla Leifsdóttir: [Angels and Devils] (2003)

Please refer to Appendix B, number 2, to see the whole composition with translations and to Index of Recordings to listen.

The spreading out into pitch space and narrowing down again is the theme of Arne Kokborg's "Blood circulation" (1992):



Følg en vene til hjertet/lungerne.

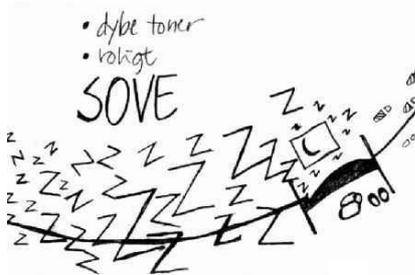
Følg en pulsåre.

Improvisations oplæg: Blødetets kredsløb

af Arne Kokborg. 6.sem 22.juni 92.

Please refer to Appendix B, number 3, to see the whole composition with translations.

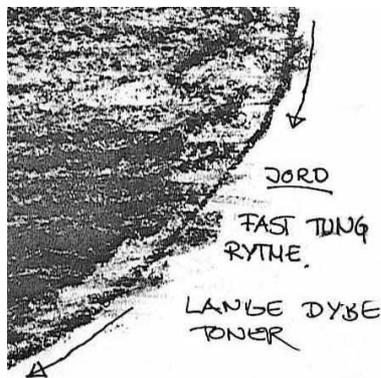
Focusing on one register can have a profound effect in itself, as is the case with deep tones in this excerpt from Mette W. Nielsen "A day and night", (1999):



- deep tones
- quiet
- SLEEP

Please refer to Appendix B, number 4, to see the whole composition with translations.

- and in Karina Fanø (Kristiansen)'s "No title (Four elements)" (1994):



Please refer to Appendix B, number 5, to see the whole composition with translations.

- EARTH
- Firm, heavy rhythm
- Long deep tones

The next example goes further into the alternatives to the well-known use of pitch in solo melody in a different way: A narrow focus within pitch space could comprise just one slowly moving pitch as a point of reference within a musical universe - as in Bolette Daniels Bech's "Voice improvisation: Tone and rhythm in breathing" (1990):

STENHEIMIMPROVISATION: tone og rytme i åndedræt 7/12-90
 1990-1-1-10

FOR HVERT ÅNDEDRÆT (UDÅNEN) SINGER I EN NY TONE
 SOM GRADVIS OG GLIDENDE GÅR TIL GRUPPENS FÆLLES TONE.
 DEN FÆLLES TONE OPTYRER VED AT LYTTE TIL HINANDEN,
 DEN KAN GØRT FORANDRE SIG.

HER BEGRYNDER
 TONERNE AT BEVÆGE
 SIG TIL RYTMER
 LAVET AF LUFTEN
 I UDÅNEN

IMPROVISATIONEN
 UDFØRES UDEN
 BILLEDET, MED
 LØKKERE ØJNE

"For each breathing (expiration), sing a new tone which gradually slides its way to the group's common tone. The common tone is created by listening to each other. It can change [its pitch]."

Please refer to Appendix B, number 6, to see the whole composition with translations.

One can define general (global) characteristics of melodic movement giving shape to overall structures, as in Anette Mailand: "No title (Noah's Ark)" (2001):

OPADGÅENDE TRINVIS BEVÆGELSE (UPWARD STEPWISE MOVEMENTS)

"- upward stepwise movements /- opadgående trinvis bevægelser (...)

- downward stepwise movements /- nedadgående trinvis bevægelser "

Please refer to Appendix B, number 7, to see the whole composition with translations.

Examples from concert music:

Beginnings of Beethoven: 5. Piano Concert and of Grieg: Piano concert in a minor (piano solos comprising the entire range of instrument).

Xenakis, Iannis: Metastasis (1955)

Ligeti, György: orchestral works: Atmospheres (1961), Lontano (1969) and Volumina for organ (1961-62 rev. 1966), Continuum for harpsichord (1968) (use of all registers)

Stockhausen: Telemusik (1966) (electronic music with high pitches)

Wagner: Prelude to second act from Siegfried (focus on deep register with tuba solo)

Exercises:

a) Register exercise: improvise over extreme high or low pitches (free alternating).

b) Special Pitch Exercises

1) Imagine (silently, in your fantasies) fluctuations in loudness for approximately 15 seconds. Then sing or play music with fluctuations in pitches according to this imagination for approximately 20 seconds. Thus, the fantasies about loudness fluctuations in the imaginary music are transformed into pitch fluctuations in the real music. Let these pitch fluctuations be the most important thing in this music. Repeat the process. This works well if the teacher times the various segments and gives signals for pausing and playing. The purpose is to move past habitual melodic ideas.

2) Improvise while focusing on different aspects of pitch: a) high-low; b) movements up-down (a terminology that I prefer over the word "melody," the employment of which will probably result in a different musical product, although the two instructions are identical); c) the coming together of sounds, which I also recommend over using the word "harmony." (1) may be done with other parameter combinations and (2) with another parameter other than pitch. In this case, find out for yourself and call the exercise by a more appropriate name.

Recorded exercise:

Please refer to the Index of Recordings.

DURATION

Predominantly short --- predominantly long.

Durations can be viewed as the durations of individual tones or sounds, or as the statistical distribution of duration in a group of tones or sounds. In much traditional music, durations follow metrical patterns and appear in mixed lengths. Within metrical patterns, the range of note lengths is usually limited. New concert music since 1945 went beyond the range limits in a number of cases, into very short and very long durations - thus making new forms of time-awareness possible. Erhard Karkoshka (1971) wonders at the new universe being opened up here especially by improvised music:

"...in classical music, perceivable time structures remain restricted to a limited number of models. ... attempts at describing what time in music could be hardly exist, neither do attempts at describing to what extent it can be an immediate musical expression and how we perceive divisions and correspondences of time under given circumstances. Now, my own work which often occupies itself with these questions has found many interesting answers by improvising⁽³²⁾."

It is no coincidence that a large enquete with many answers from improvisors, some of them in great length and touching on weighty philosophical matters, could be made from the question "What happens to time-experience during improvisation" (Riley (1976))

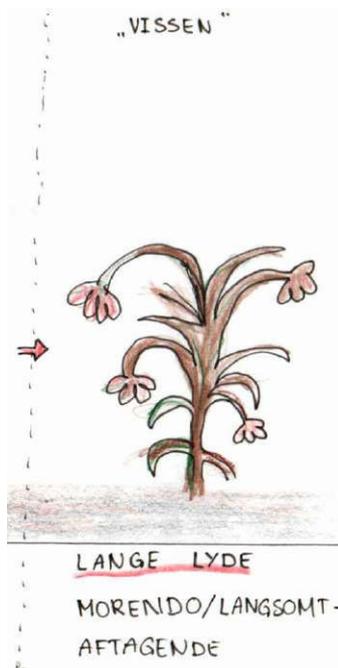
One way in which new time-experience was achieved was by means of pointillistic music in which individual tones could appear in their own right without being part of a continuous melody - this is common to both much American and European experimental music. Here is a characterisation by Henri Pousseur - one can safely say he sees this quality as a positive one:

"es [handelt] sich um das aufmerksame Erfassen eines jeden einzelnen "Hier und Jetzt" in seiner Partikularität, um die wundersame Erfahrung einer hervorschiebenden Zeit ... um den Eintritt in eine Welt, die resolut offengehalten, auf unbestimmte Zeit unvollendet, unaufhörlich im Aufbruch ist [this is about the attentive grasping of every "here and now" with its particular quality, about the wonderful experience of time moving forward ... about entering a world which has been resolutely held open, unfinished for an undetermined time, incessantly breaking up]" (Pousseur (1959))

A different way was by composing long, static structures. Even though this procedure is known from traditional and popular musics with drones, Sabbe's consternation at the existence of notes "which sometimes exceed 8 seconds" in music by Ligeti is interesting because it shows that there is indeed a perceptual difference to the metric rhythms - even if he interprets it as something destructive:

"Pour affaiblir, voire supprimer la conscience critique [la méthode de Ligeti] se sert... de l'éscamotage de la perception du temps, en utilisant ...des sons dont la durée dépasse parfois les huit secondes...[In order to weaken or rather to repress the critical conscience [the method of Ligeti] employs a hiding away of time perception in using ... tones the length of which sometimes exceed eight seconds...]" (Sabbe (1972))

In the first two following examples "long tones" stand for negative states - in the last one it is the other way round. This could be a good illustration of how abstract the language of music is - both can work perfectly. First, long tones depicting the withering process of the plant:



Sine Baggesen: "Sprout - Flowering - Withered" (1993)

Please refer to Appendix B, number 8, to see the whole composition with translations.

- and here are long tones depicting a plaintive state...



Randi Aaberg Boldsen: "Complaining - Cheering up - Accept" (1994)

Please refer to Appendix B, number 9, to see the whole composition with translations.

In the last example especially featuring long tones, they depict a joyful state.



Ulla Setterberg: "Thin - Dense - Long sounds" (1996)

"Long sounds"

Sounding astonishment over meeting the world

Please refer to Appendix B, number 10, to see the whole composition with translations.

Regular ----- irregular

Furthermore, the metrical system strongly favors ratios of division like 1:2, double or half-length with the exceptions of punctuated rhythm and occasional polyrhythmic divisions - "Rhythm octaves" are preferred, as Stockhausen (1957) so rightly puts it.

Composers emancipated themselves from this situation by constructing irregular rhythms by means of complicated polyrhythmic structures, by means of notating in new ways and by means of letting musicians improvise. In jazz, musicians had long improvised irregular rhythms by feeling, not by counting. Non-idiomatic, freely improvising musicians⁽³³⁾

also did so on new grounds, in some, but not all, cases adopting a "pointillistic" practise.

Still one more meaning of "duration" may be mentioned, the duration of the entire piece of music which may also greatly inform time-awareness.

Examples from concert music:

Short durations: Stockhausen Kontra-Punkte (1953) - Bailey/Stevens/Watts: Dynamics of the Impromptu, Entropy CD 004. Recordings from 1973/74 with Derek Bailey, John Stevens and Trevor Watts

Long durations: "Sederunt" and "Viderunt", 4 part organa by Perotin (12th cent.) with drones

Händel: Pifa from Messiah (with drone)

LaMonte Young: Composition 1960 #7 "To be held for a long time".

Eric Satie: Vexations (conceptual piece, very long like LaMonte Young above)

Exercises:

1) improvise with very long tones only. Preliminary exercise: practise tremolo on percussion instruments in order to make this possible at all on these instruments, trying to make it as even as possible (both with pitched and unpitched ones).

2) Play freely for an agreed-upon long time (not less than half an hour, and it may be much longer)

Recorded exercise:

Please refer to the Index of Recordings.

DYNAMICS

Dynamics are measurable in an exact way by decibel. The most common variety is dB(A) which takes into account the fact that human hearing differs in its sensibility towards different registers of pitch. While 3 dB change means double or half sound pressure physically, perceived double or half level is approx. 6 dB. Within acoustics, dynamics are also called amplitude and can be visualised as the vertical size of the waveform.

Dynamics could seem to be an eminently accessible parameter to vary, including for people with no special musical training. With small children, there is often a direct proportion between intensity of emotion and loudness, and for grown-ups this relation still has a basic importance.

But during music history, the compositional use of prescribed dynamics came only into use at a rather late stage - with Giovanni Gabrieli's Sonata Pian e Forte from around 1600 as a famous early example. Even though Baroque music built on the very basis of affective melody, dynamic change was still practised here in the form of so-called terrace dynamics, with forte and piano strictly juxtaposed.

This notwithstanding, very different instrumental loudnesses existed. Trumpets and timpani were used solely by army leaders up to a certain point in history, maybe most often outdoors. A three-manual church organ existed already in the fourteenth century. The clavichord, which is said to have been a favourite instrument of J.S. Bach, on the other hand had a tiny sound, suitable for small rooms. Renaissance and baroque string instruments were more quiet than the modern ones.

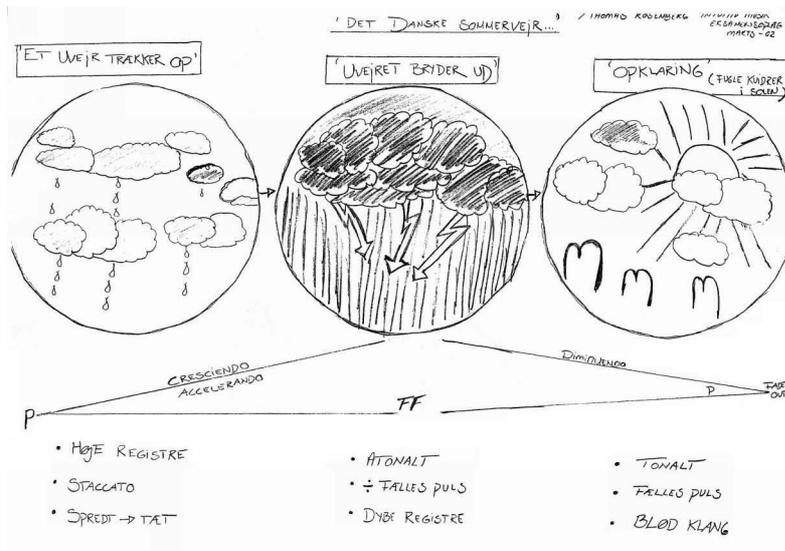
Compositional use of both sudden and gradual change of dynamics became common from early classicism and on. By that time, music had become essentially homophonic. Dynamic changes were cultivated further on this basis in romantic music. Only in new music after the second world war we begin to encounter examples of music having individual parts with different dynamic profiles.

If one tries to think in terms of counterpoint again, dynamics could contribute greatly to the differentiation of the parts in the overall sound. This is a different situation from that within the harmonic system where the norm prevails of "balance", that is, parts melting together by being equally loud, except, however, for melody and bass receiving more emphasis than the others. But in a polyphonic context which is a natural state of affairs in freely improvised ensemble music, parts may stand out against each other and interact through dynamic change, polyphonic structures may become highlighted, and there is a perspective of "space", analogous to different distances of sound sources. To achieve such qualities in improvised music, players must have an open ear for the overall sound rather than be absorbed into competitive behaviour.

A peculiar feature of recent developments is the cult of loud music since electric instruments became common in the nineteen-fifties and sixties as a stimulus in itself in popular music, even at the expense of hearing health - and, as its counterpart, the cult of quiet dynamics found in the Feldman cult of the nineties, and the Swedish "Low Dynamic Orchestra"⁽³⁴⁾

The following example features the well-known gesture of overall crescendo to a climax followed by a calming down:

Thomas Rosenberg: "Danish summer weather" (2002).



Please refer to Appendix B, number 11, to see the whole composition with translations.

Examples from concert music:

Giovanni Gabrieli: sonata pian et forte (two instrumental choirs playing forte when they join together)

Händel: Arie "Ev'ry Valley" from "Messiah" (terrace dynamic changes)

Haydn: Second Movement of "Surprise Symphony" (sudden loud chord)

Ravel: Bolero (very gradually louder)

Sh: Gesang der Jünglinge (1956) (very differentiated / polyphonic dynamics)

György Ligeti: No. 1 from Ten Pieces for Wind Quintet (1968) (polyphonically changing dynamics).

Exercises:

Try simply to play with polyphonic dynamics. It is important not to be afraid of "disappearing" and "not being hearable". In fact, rest assured that your part will emerge all the more perceptively when there is, as must come, an opening in the overall sound. When everybody changes dynamics (gradually and suddenly) over time and plays a sufficient amount of piano, there will be no "locking" of the overall structure. Make pauses also.

Recorded exercise:

Please refer to the Index of Recordings.

TIMBRE

Timbre is usually defined as the spectrum of partials belonging to a sounding tone. It could, however, also be understood as the sounding quality or sound colour of composite phenomena, like for instance the timbre of a specific orchestral or ensemble sound. Different vocals sung on the same tone are different exactly because of their different timbres. Just two tones merging into one sound may create an unique timbre, and the concept of timbre thus overlaps with that of harmony, both tonal and atonal varieties. See, however, the citing of Cole (1974) above, in the section about "Pitch", who compares harmonic systems to rigorous train traffic - there is, not least, an important practical difference between a "harmonic" and a "free timbral/polyphonic" structure.

But also for the theoretical consideration timbre can be regarded as a more general phenomenon which includes pitch: *"All kinds of sound are characterized by their timbre ... But only certain kinds of sound are characterized by clearly defined pitch height"* (Christensen (1996) p.16 - following an observation from Stockhausen (1963b). Likewise, Hegi (1998, p.61) states that *"Der Begriff 'Klang' wird hier dem musikalischen Begriff 'Harmonie' übergeordnet. Harmonie ist dann ein Aspekt des Klanggeschehens, genauso wie 'Disharmonie', 'Geräusch' oder auch 'Lärm' / 'Under the concept of [German 'Klang', meaning both 'overall sound' and 'timbre'], the musical concept 'harmony' will be subsumed here. According to this, harmony is an aspect of [Klang] occurrences, just like 'disharmony', 'noise' or even 'racket'."*

Room and other context acoustics also contribute to the timbral qualities. The importance one can attribute to this parameter can be illustrated by the fact that a cheap violin or other string instrument can play exactly the same tones as one costing several million Euros or pounds or dollars, but the expensive ones are famous for their more interesting timbre!

Physically, all sound consists of vibration patterns. These patterns can be studied by means of oscillograms which depict waveforms, or by means of spectrogrammes which depict pitches. Resonating bodies produce spectra comprising several or many pitches at the same time, whereas pure sine waves are not found in nature. We humans orient ourselves in the world by hearing spectra as "sound objects", just like we perceive objects in the visual world. When showing oscillograms or spectrograms, the computer acts like a microscope, showing us details which our hearing perception alone cannot discern - "inner microstructures".

Timbre has long been dealt with in intuitive ways. The development of the symphony orchestra and instrumentation for it is a historically important example. While one view of the orchestral instruments saw their "families" basically as individual groups, another view saw the orchestral sound as a whole which could be modeled and transformed by the composer - certainly an influential tendency. Thus, Richard Wagner mentioned the "art of transition" as important for his own music. By this he seemed to mean, among other things, his instrumentation which, as Voss (1970, p. 366) points out, obeyed the formula of *"making the contrast as big as necessary and the mediation as detailed as possible"*. This is close to

the definition of serial, parametric thinking proposed by Stockhausen (1958), with its orientation towards polarities and continua. It was cited above under "Parameter concepts in European serialism". There is an overall design with both minute nuances and contrasts, and the design may be different for each composition. Thus, the individual contrasts of a work as well as their modes of differentiation - or, with Wagner's word, "*illusions*" (cited by Hesselager (2004)), are relative and exchangeable seen in the context of several works. But the "art of transition" remains a fundamental prerequisite for realizing this.

The harmonic overtone series is an especially simple and well-known instance of a sound spectrum. Some harmonic systems relate to it, taking the triad as a basic element. Composers and improvisors have sometimes related directly to it in its simple form. One can work with selected parts of the spectrum, in melodic (vertical) and harmonic (horizontal) dimensions and mixtures of both. A number of instruments can produce the tones of such a spectrum by means of flageolets. It can also be done by vocal techniques⁽³⁵⁾

Spectral music, a term which designates a direction in composed new music originating around the French electroacoustic music institute IRCAM in the eighties, went further. Here, instrumental sound can be analysed, emulated and transformed on the basis of scrutiny of its spectra. Such procedures were also at the basis of the commercial development of sampling technology. In spectral music, instrumental compositions of any complexity employing also very complex sounds may be carried out including dimensions of systematic, dynamic change and juxtapositions of spectra.

As the examples of spectral music and the symphony orchestra suggest, timbre has both strong integrative and strong differentiative powers - unity and diversity in a musical process may be determined to a large extent by this parameter and they can have a subtle interaction. On the same line is Reinecke's observation that timbre is that which makes vowels consonants different in Stephan (1969, p.70).

A number of writers recognise the importance of timbre especially for freely improvised music. As Karkoschka (1971/1999) puts it, after having mentioned the "timbral melody" (Klangfarbenmelodie) of Schoenberg as a historical forerunner, as well as the more recent exploration within improvised music of dimensions hitherto repressed by notation:
"Compared to earlier we use a listening microscope, as it were... even if we do not at once analyze the formant spectrum as such, we do take in more of its existence than earlier generations did."

Keller (1971) notes an important issue about the timbre parameter being apt for nuanced and spontaneous actions from the players: *"Gerade im Bereich des Geräuschs etwa kann ein Spieler weit differenzierter agieren, als sich notieren lässt." / "Exactly in the field of noise, for instance, a player can react in a much more differentiated way as could have been notated"*

It should be noted that the classic concept of timbre elaborated on here, though a useful abstraction, has the obvious shortcoming of suggesting something static. Real sounds are

not quite so, and for a more complete description, concepts dealing with the changing process of the sound from its start to its end must be considered. Envelope means a curve describing loudness of different constituting components, such as partials, commonly used in synthesizer technology. It has the standard stages attack, body and decay. Grain is an attempt to describe a pattern-like quality of a sound, coined by Trevor Wishart (1985, p.40). This may appear as a special case of what he calls "dynamic morphologies" (p.52)

Establishing continua of timbre, especially exactly definable ones, is not an easy task. Departing from acoustical considerations as well as from common language usage one can, however, propose some:

Tone --- noise

Even though "noise" in the acoustical sense would need to be differentiated from "complex sound" if it were to be treated in a physically exact manner (for instance, to which extent is "colored noise" still noise...), there is no doubt that we have a polarity here. It is possible to describe a given passage of music according to how relatively "tone-like" or "noise-like" it was.

Light --- dark

Light sounds have a predominance of high partials et vice versa.

"Sunrise" (1996) by Dida Abrahams maybe speaks for itself:



Please refer to Appendix B, number 12, to see the whole composition with translations.

(The development goes from "many dark sounds" to "many light sounds")

- as does probably also Lone Warncke's untitled piece about "Mother Earth" (1992) with "black sorrow" transforming into many "coloured children":



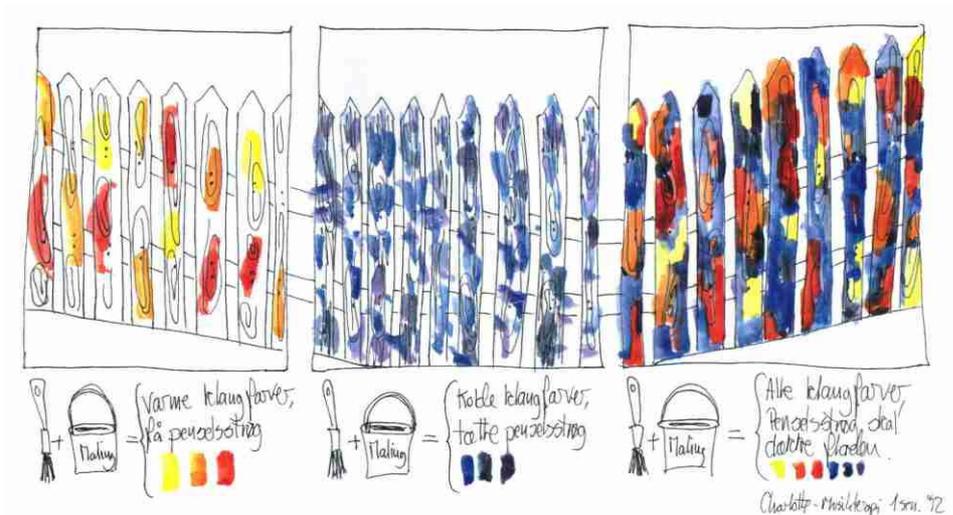
Please refer to Appendix B, number 13, to see the whole composition with translations.

Hard --- soft

This seems a bit more of a psychological matter, even considering strictly timbre, not also dynamics as the important parameter - a quiet tone could also sound hard. But it could seem that the presence of some strong high partials (which might automatically entail a certain degree of noise-like character) and maybe more (irregular spectrum? less harmonic character of spectrum, i.e. ratio not exactly 1:2:3 etc.?) could contribute to a hard character.

Within one and the same degree in these continua, an infinite number of individual timbres are imaginable.

Charlotte Dammeyer Fønsbo contrasts "warm" and "cold" timbres in "Painting the fence" (1992), comparable to colours:



Please refer to Appendix B, number 14, to see the whole composition with translations.

In "Fish-Shoals" (1992) Dorthe Bergholt also uses the analogy of colour:



(Play the densities and timbres of the fish-shoals)

Please refer to Appendix B, number 15, to see the whole composition with translations.

Examples from concert music:

Debussy: various orchestral works

Schönberg: "Farben" from Orchesterstücke op. 16. Illustrates this composer's idea of "timbral melody". (1909)

Per Nørgård Journey (1968) ... 2 Symphony (1970) Canon (1971)

Stockhausen: Kontakte für elektronische Klänge, Klavier und Schlagzeug (1960) (slow change throughout the piece towards lighter timbres)

Stockhausen: Telemusik (1966) (light and transparent timbres predominate)

The Harmonic Choir (dir. by David Hykes) - cassette recording from Danmarks Radio 1984. Overtone singing.

Madam Press: ""Lydlandskab 4" klang". CD MADAM PRESS. Out of the Cage. Carl Nielsen Academy, 2002. Part of a four-movement piece - this movement focuses on changing composite sounds.

Exercise:

make different timbres through varying playing techniques and ways to use the instruments.

Recorded exercise:

Please refer to the Index of Recordings.

DENSITY

With this parameter, we enter into those that must be operationally defined in some way. This was already the case with the various subdivisions of the concept of timbre for practical, compositional use. Timbre as a dimension, could, however, still in principle be described in an exact way as a physical phenomenon in itself. This is not the case with density - we need to ask, "density of what?"

It could appear reasonable to take density as both how many sounds per time unit and, at the same time, how "heavy" they are, measured by both their dynamics, timbre and maybe even more. Thus, maximum density would "fill up" completely the perceived musical space. While such efforts could be useful for other purposes, such as individual analysis of works, designing of electronically generated pieces etc., a simple and pragmatic approach is taken here: density as how many musicians are playing within a given time unit. This definition is both manageable for improvised playing within the framework of open compositions, easy to remember and easy to employ in the playing situation. As a measure of perceived thickness it is obviously not very exact, yet it grasps the strategic dimension of how many parts are into play in a polyphonic structure. Note also that of course this definition is relevant only to music produced by a group of persons - not to solo music or electronic music (unless it has specified 'parts').

Density became an important parameter of orchestral music since romanticism with composers using many and varied sub-divisions of the total ensemble of instruments.

With density, we enter into those dimensions that seem to lie beyond traditional concepts of "basic musical elements". Yet its impact is no less elementary. While loudness could signal intensity of emotion and long durations could signal endurance, increasing density (following the definition here stated) could signal increasing power of group expression, as some of the following examples demonstrate.

Density is a key parameter for group functioning and thus for the flexibility of the music.

"In Love" (2004) by Stine Lindahl Jacobsen starts with growing density of "tickling" sounds...



Please refer to Appendix B, number 16, to see the whole composition with translations and to Index of Recordings to listen.

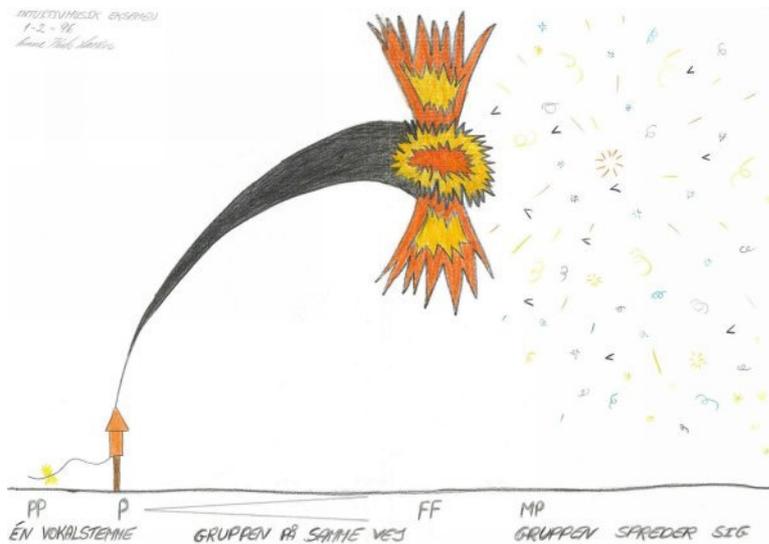
"Fish-Shoals" by Dorthe Bergholt (1992) which was already quoted under under "Timbre" above is one out of several compositions which uses flocks of animals to illustrate the point.



(Play the densities and timbres of the fish-shoals)

Please refer to Appendix B, number 15, to see the whole composition with translations.

"Untitled" (1996) by Anne Kirk Larsen calls for a sudden transition from maximum to lesser density, together with a big change from homophonic to something which is polyphonic in a pointillistic way.



Please refer to Appendix B, number 17, to see the whole composition with translations.

Majken Zoffmann's "Migrating Birds (1997) clearly makes the different characters of changing density the main theme of the composition:



Please refer to Appendix B, number 18, to see the whole composition with translations.

In Lise Høy Laursen: "A guess at the development of human communication" (2004), the story starts in prehistoric time, moves quickly up to present time with various fast electronic communication and finally describes a future in which intuitive and cosmic thought-reading seems to have replaced the former states. It is interesting to note how the piece in its last two stages contrasts two different kinds of high density, consisting of short and long sounds respectively.



Please refer to Appendix B, number 19, to see the whole composition with translations and to Index of Recordings to listen.

Examples from concert music:

Beethoven: 1. movement from Piano Sonata op. 57, "Apassionata". (During the first 24 measures there are from one to 8 tones sounding simultaneously. Density changes often, this contributing to the dramatic qualities of this music)

Various music for symphony orchestra (alternation between solo/few/many instruments)

Exercise: Attempt to collectively vary the density so that all degrees from zero (no one playing) to maximum (the number of participants) are equally represented. Attempt to let this happen not so much through gradual increases and decreases of density, but through letting spontaneously shifting groups of shifting size play during shifting time-lengths (also solos and general pauses, of course).

This may be very difficult when trying it the first time and require repeated attempts with critical comments in between before it succeeds to some degree. Yet the impact can be a dramatic heightening of the collective awareness of what is happening in the music as a whole and a resulting much greater flexibility of the music - instead of a rather uniform, ever-so-slowly changing common sound the individual potentials of players and their

combination can start to show off in endlessly fascinating ways.

Exercise practising to keep density so low that the music remains transparent for both listeners and players - and which at the same time employs a more sophisticated definition of density:

Participants are divided into two groups who play for each other, in turn, using the "Taximeter Principle." This principle is that the duration of sound multiplied by the dynamic intensity of sounds equals "consumption" of musical material. From the perspective of the participant: if you play for some time without pausing, if you play loudly or if you do both, it must be balanced by being proportionally quiet at other times. You may imagine that the music offers you a certain amount of space and you are responsible for your own household. And you may imagine a taximeter which is influenced by both duration and by how loud you play.

The listening group points out when the musical process is clear to them and when "over-consumption" occurs, producing a "muddy" sound. This may be done by each member raising a hand, the higher the more overcrowded they think the music becomes. This procedure ensures that ears, not the motoric impulses govern the music and forces the necessary discipline on players from outside - which may open up for a few surprises!

Should some players be clearly dominating at the expense of others, this can and should in many cases be pointed out by the instructor or by a common discussion. If this problem prevails, it can block the flexibility and multitude of the music.

As a part of both exercises mentioned here, it is recommended to listen to recordings of takes which succeed well. Even if an immediate success works in itself to reveal more about what are the real possibilities, listening ensures that it is well memorized, and it expands the experience further.

Recorded exercise:

Please refer to the Index of Recordings.

PULSE - NO PULSE

So much music in the world has a more or less regular pulse. But experimental music and improvised music has often not. Neither have nature sounds such as those from wind and water in most of their many different forms. Many bird songs and human conversation does not have any clear pulse either.

It could be added that even if there is a pulse in classical music it is not always very marked. If it is polyphonic, the superposition of many parts may also blur individual pulses to a high degree. So-called "New Age" style in music often means that sound is very continuous and flowing and a slow tempo contributes to this character. The role of a metre here and even more with much contemporary music may shrink into a purely coordinative device. With contemporary composers and musicologists studying their music it is almost universally regretted that metric notation is no more an adequate tool⁽³⁶⁾, still it is also often, paradoxically, considered pragmatically imperative to use, and only some more markedly experimental composers has as of yet taken the step to use other means of notating music. Both for purposes of composition and theory, however, pulse and its opposite may be conceived as a dialectical polarity - they throw each other into relief.

Non-pulsed music may have meditative qualities which pulsed music does not have because pulse strongly acts as a figure throwing itself into the foreground and imposing a certain rationalization, like a ruler, of the perception. Metre makes the figures much easier to grasp and remember, but not to perceive in their utter differentiation.

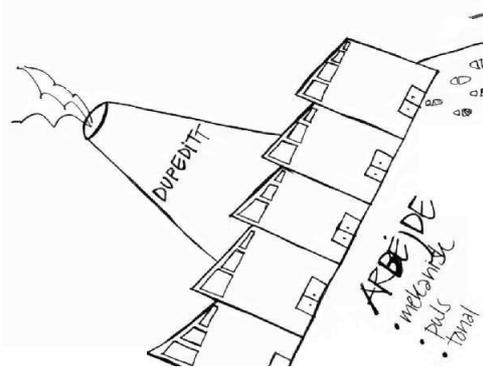
Working with and without pulse has its special, different delights. In our improvised music, both kinds are common, and so is also conflicts among players, especially beginners, some of who might have the expectation that there must be a pulse (or who cling to it because they do not know what else to do) while others expect that it should exactly be avoided because it tends to entail a sticking to traditional ways of playing which could be limiting the music.

It has sometimes been argued that pulsed music is more natural because the earliest human life as a foetus is spent listening to heartbeat sounds. Yet recordings with "uterophones" demonstrate that the sound in the womb is as flowing as it is pulsed, with much rushing and hissing sound⁽³⁷⁾.

If pulse and no pulse are accepted as extremes of a possible continuum, however, this conflict can melt away, and a quite different spontaneous going in and out of pulse along the way, maybe very different each time, can occur.

It must be noted that pulse can be individual or a common one. In the former case there may be no perceivable common pulse. In the compositions quoted below, pulse are generally referred to as common pulse.

Pulse can illustrate a concerted endeavour, which could be both pleasant and unpleasant. In several cases, working life is depicted.



Mette W. Nielsen: A Day and a Night (1999), excerpt.
("Gadget" - name of factory, on the chimney)

WORK

- mechanical
- pulse
- tonal

Please refer to Appendix B, number 4, to see the whole composition with translations.

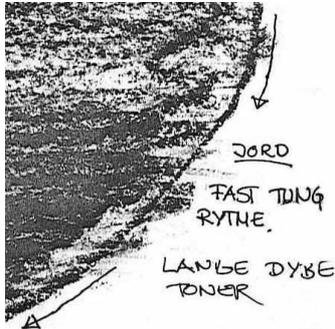
In the following example, the more traditional view of pulse equalling order in a pleasurable way is expressed:

Inge Skougaard: Creative workshop (2004)



Please refer to Appendix B, number 20, to see the whole composition with translations.

And this is an example of a slow pulse depicting something outside human activity:

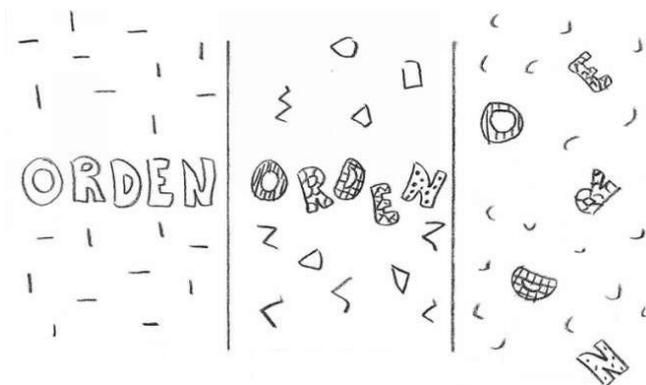


Earth. Firm, heavy rhythm. Long deep tones.

Karina Soon Kristiansen: "Water - Earth - Fire - Air" (1994).

Please refer to Appendix B, number 5, to see the whole composition with translations.

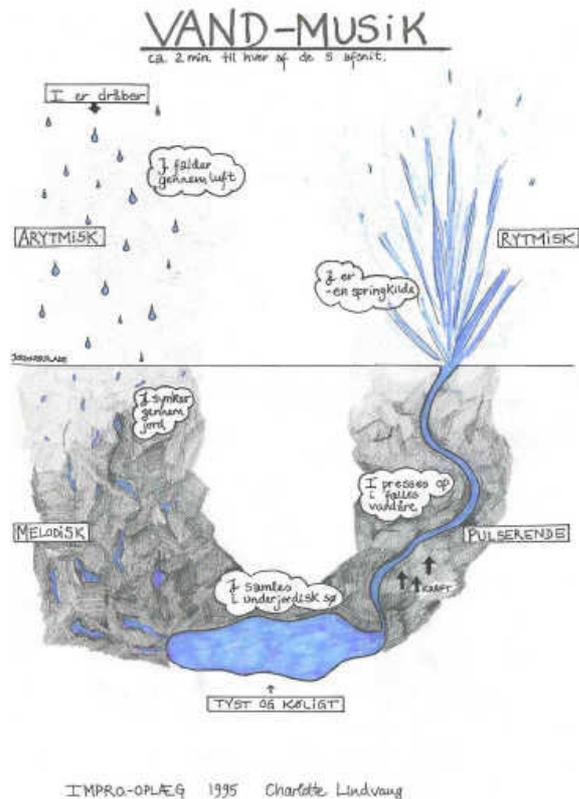
In the next example, pulse is the main element constituting "order" (the word appearing in the composition) which undergoes changes through the stages "rigidity" - "eruption" and "freely floating":



Charlotte Zachariassen: "rigidity - eruption - freely floating" (1999), excerpt

Please refer to Appendix B, number 21, to see the whole composition with translations.

In the following example, there is a natural possibility of transition between non-pulsed and pulsed:



Charlotte Lindvang: Water-Music (1995)

Please refer to Appendix B, number 22, to see the whole composition with translations and to the Index of Recordings to listen.

Example from concert music:

Various experimental and most surely electronic music - (examples are legio of non-pulsed music).

Alterations Live IRCD 001, 2000 (The music of this English group provides many examples of going in and out of pulse)

Exercise: start with a common pulse (clapping on your legs or in your hands or with drums), make sure it becomes firm and precise. When this is the case, let individual pulses gradually drift away from the common one with rubatos and/or slight accelerandos or ritardandos ... and let this process continue until the pulse is virtually not to be perceived any more. After having reached this stage, go slowly the opposite way until there is again a firm pulse. It is recommended to listen to a recording in order to become fully aware of all the interesting intermediary stages.

After this warming-up, try to improvise freely, going in and out of pulsed sections.

Recorded exercise:

Please refer to the Index of Recordings.

TEMPO

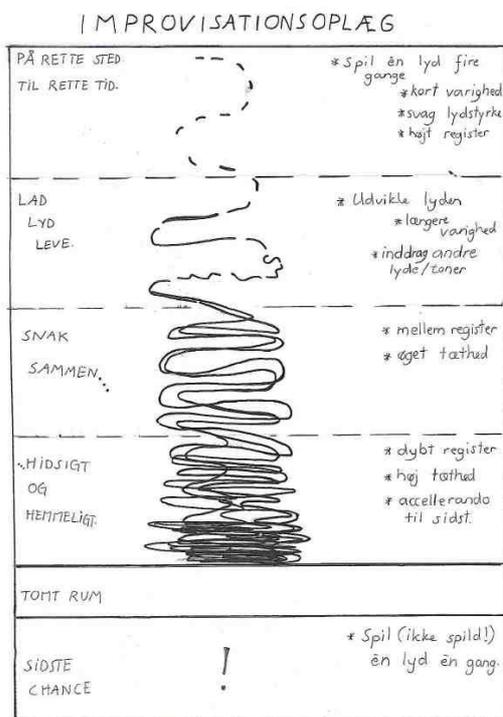
The existence of this parameter is dependent of a pulse being at least to some degree perceivable or imaginable. Both slow and fast tempos have their own kind of intensity.

In both classical and popular music, assorted degrees of fast and slow are well-known. Changes of tempo are, however, much more unusual - apart from a frequent ritardando practise at endings, and from other slight changes of a rather discreet nature and, admittedly, the changes of tempo found in romantic music.

In Eastern Europe and Russia, there are folk songs having the characteristic feature of a stringendo or accellerando. Indian raga music has a practise of a gradual and slow increase in tempo reaching from very slow to very fast.

In European baroque music, dynamics were bound to "terrace" structures - they were part of the characteristic affect of a piece to be held constant throughout. Whereas dynamics later loosened up, tempos remained mainly fixed - until romantiscism that featured more transitions and even such a speciality as the "rubato" playing associated with Chopin. With modern music later, gradual transitions were not typical any more. So from the still prevailing "terrace" structures in tempo, one could claim that Western classical music still retains a baroque feeling in this respect!

Anette Moltubak employs an accellerando leading to a climax:

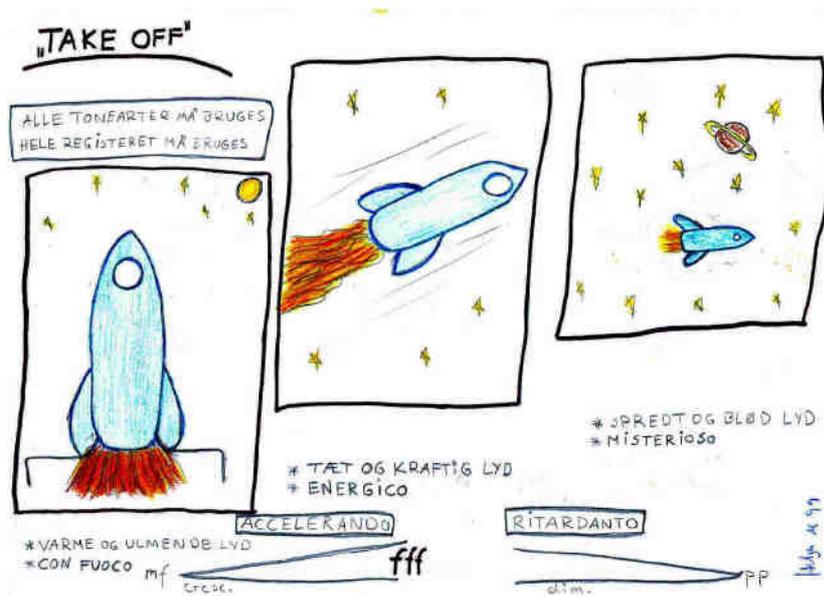


Intuitiv musik - eksamen - 11/2-05 - ANETTE D. MOLTUBAK

Annette Moltubak: "Right time and place" (2005)

Please refer to Appendix B, number 23, to see the whole composition with translations and to the Index of Recordings to listen..

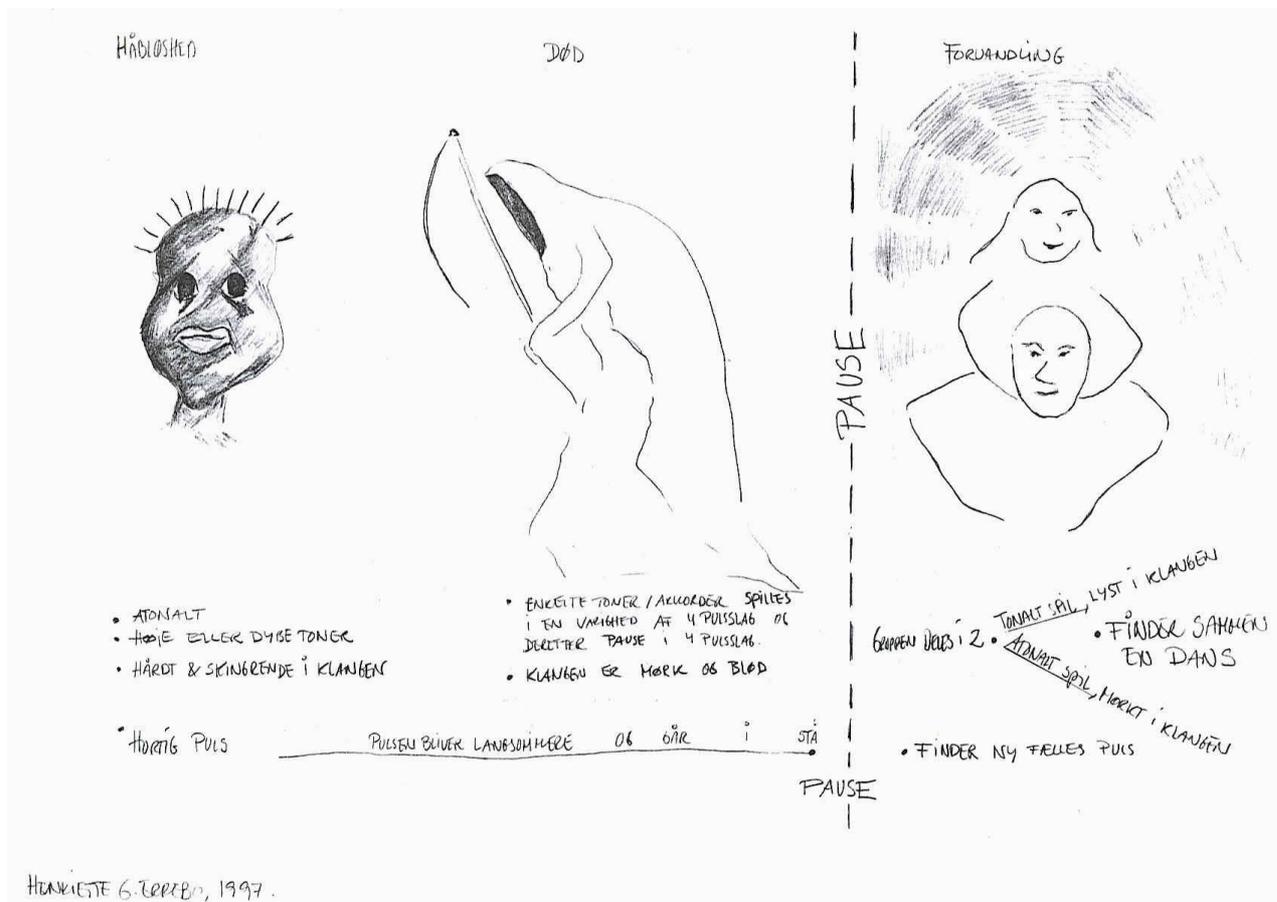
Helga Svandsdottir has both *accelerando* and *ritardando*, connected to the programmatic idea of a rocket being fired:



Helga Svandsdottir: Take Off (1999)

Please refer to Appendix B, number 24, to see the whole composition with translations.

Henriette Errebo employs a *ritardando* over long time with dramatic effect, depicting life's end:

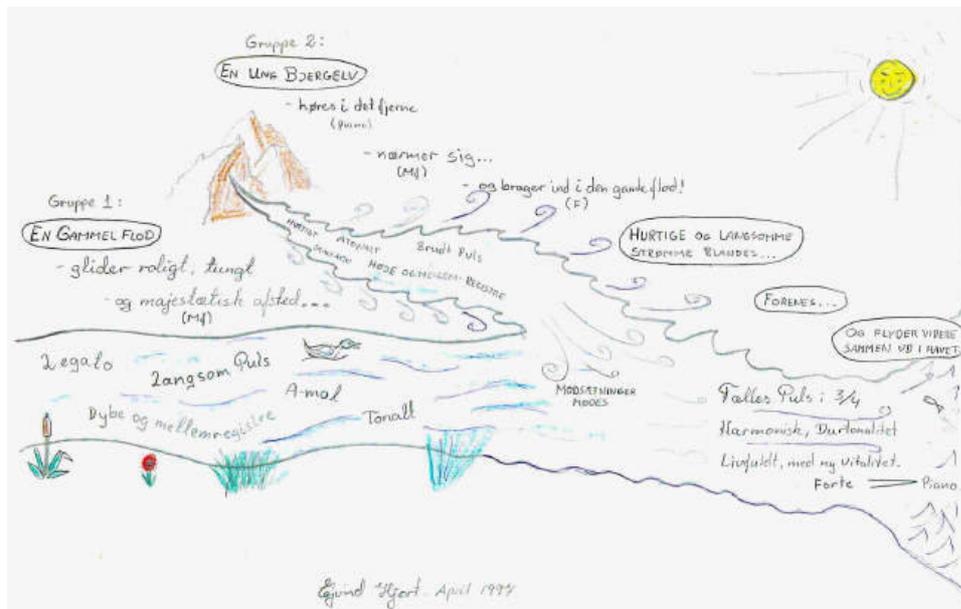


Henriette G. Errebo: "Hopelessness - Death - Transformation" (1997)

- "Fast pulse ----- pulse becomes slower---- and-----stops"

Please refer to Appendix B, number 25, to see the whole composition with translations.

Finally, Eyvind Hjorth *juxtaposes* two tempi, a radical procedure:



Eyvind Hjorth: [Young and old rivers] (1997)

(The two rivers have different speed)

Please refer to Appendix B, number 26, to see the whole composition with translations and to Index of Recordings to listen.

Examples from concert music:

Grieg: piano concerto 1. movement (many tempos and transitions)

Brahms and Dvorak: Slavonic Dances (accelerandos and changes of tempo)

Chopin: various piano works (rubato playing)

Max Reger: Toccata and Fugue op.59. Fantasy over the name BACH (stringendo over long time)

Karlheinz Stockhausen: Kontakte (1960) (- the passage described in "Die Einheit der musikalischen Zeit" in Stockhausen (1963b). It is designated "Moment X" in the score, Stockhausen (1966).)

Various music by Conlon Nancarrow. (This is an experimental composer who since the nineteen eighties became known for a number of compositions focusing on phenomena arising from accelerando and ritardando. They were created for old-fashioned "player

piano", having a mechanical device enabling it to be programmed with musical processes, some of which might go beyond the capability of human playing.)

Lou Reed: "Heroin" from LP "Rock'N' Roll Animal" (1974). (Long accelerando is used to depict a drug experience (!))

The Grateful Dead: St. Stephen from LP "Aoxamoxoa" (1969), Warner WS 1970. (Alternation between very slow and normal tempo, with impressive transitions.)

Exercise: Make a free improvisation which is, during its course, to focus on various extreme tempi, both fast and slow.

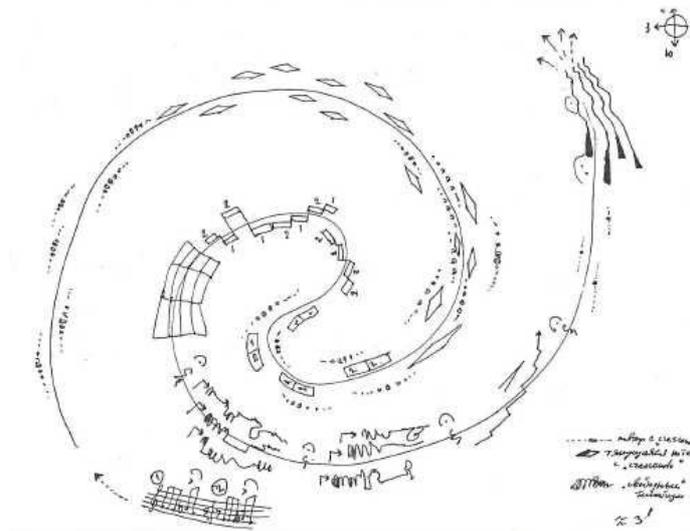
STYLISTIC RECOGNIZABILITY

The idea of "pure" style is questionable. Musical styles may contain influences that can still be perceived as heterogenous elements, or the composer can in some cases aim at making specific references "outside" his own style. One may speak of relative unity, then, placed as a pole with pure collage as its opposite. When improvising in practise, there is often a clear feeling of what is "just playing" and what is "quoting something else".

Improvisors can have much previous experience with musical styles. One could thus say, with Rizzi (2000), that "Free improvisation takes place on top of everything else the musician in question has dealt with". However true it may be that experience within styles are part of the musicians' training, free improvisation is often not idiomatic (see note 33 above about this term), it takes place on a platform seen from which styles and idioms are relative. Munthe (1992) characterizes this situation with the statement that "Single idioms are no longer regarded as *prerequisites* for the music making but as *tools* which can in every moment be used or not used" (p.13).

Film music seems to have been one of the phenomena that made potpourries and collages well-known in recent times. Marstal (1993) points to a technically important aspect: the use of quotations permits departures from organic, unified processes. It can be, so to speak, a radical tool to open up for new directions in the process. - Further formal discinctions could concern their successive/simultaneous appearance and their length - many short ones in succession become "kaleidoskopic", as Marstal puts it. Also the amount of quotations versus that which is not regarded as quotation can matter.

In the Aalborg courses we often do exercises with this theme, but it is rarely used in students' compositions. To find an example with which to illustrate the handling of this parameter, I have quoted a similar composition by Kazakhstan composer Bakhtiyar Amanzhol created during my masterclass at Novosibirsk State Conservatoire in 2003. The piece starts with quoting a melody by Rossini, which is then transformed, so that gradually various, less recognizable variants arise...



Bakhtiyar Amanzhol: "Flying over Italy" (2003)

Please refer to Appendix B, number 27, to see the whole composition with translations and to Index of Recordings to listen.

Examples from concert music:

Various "Quodlibet" pieces from the Middle Ages. (Quodlibet means "whatever", and this form of music consists of short quotations from other pieces)

Mozart: Piano Sonata K331 with Turkish March (One movement is markedly in "Turkish" style)

Mahler: symphonies contain various exx. of recognizable military signals and "Kärntnerlied" folk songs.

Bernd-Alois Zimmermann: Musique pour les soupers du Roi Ubu (1968) (Contains many quotations from classical music. The context is ironic - an impression of exaggerated abundance is intended)

Karlheinz Stockhausen: Op. 1970 (1970). LP DGG 139 461 SLPM (Electronic music with ever changing transformations of Beethoven recordings).

Karlheinz Stockhausen: Telemusik (1966) (Many kinds of ethnic music come and go in an electronic soundscape)

Luciano Berio: Sinfonia (1968). 3rd movement is placed "on top of" an entire movement by Mahler, allowing it to "shine through" and adding other material and various quotations from music history.

Exercise: Play both short quotations and other material and allow for reactions by fellow musicians to them. You may investigate various ways to quote with distortion, irony, exaggeration, passion, etc. etc...

Recorded exercise:

Please refer to the Index of Recordings.

TONAL - ATONAL

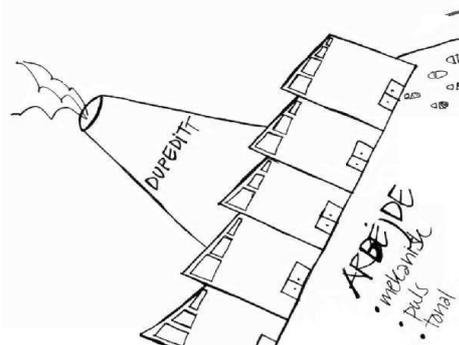
According to musical analysis concepts, "tonal" means having a tonal centre for melodies, based on scales and maybe also on the conventional harmonic system using major and minor chords. Whereas "atonal" negates this, all twelve tones being equal, like in works of the Vienna school (Schoenberg, Webern).

In the pedagogical reality of our Music Therapy Education, "atonal" has unavoidable connotations in the direction of "noisy", "wildly excited", "irregular rhythmic structure" etc. Here, it functions not as a neutral description of the relation of tones to each other but implies stylistic properties as well. "Freetonal" might rather point in the neutral direction - it is represented in Kaja Enge's contribution below. When this or "atonal playing" is given as a collective instruction in a student's composition without further specification of how to synchronize tonally, polytonality may often result.

Still, the concept could hardly be replaced with a different one and is far from meaningless in our work. It both differentiates and links between traditional and untraditional ways of playing and conceiving music.

Several times, tonality has been metaphorically assigned to depicting work, with its structure and order - while atonality depicts the opposite realm of freedom. This is a charming and interesting view of the matter, bearing in mind how often non-tonal music have been automatically associated with horror films - see the section "Modern music and cultural repression" above in the theoretical part. But there can be exceptions to this, and it is imaginable that with the growing historical distance to the old battles around modern music, more and more relativity of these musical means comes forward⁽³⁸⁾.

Below is Mette W. Nielsen's version seeing the work situation as mechanical, and tonality symbolizes this:



Mette W. Nielsen: "A Day and a Night" (1999), excerpt.
("Gadget" - name of factory, on the chimney)

Please refer to Appendix B, number 4, to see the whole composition with translations.

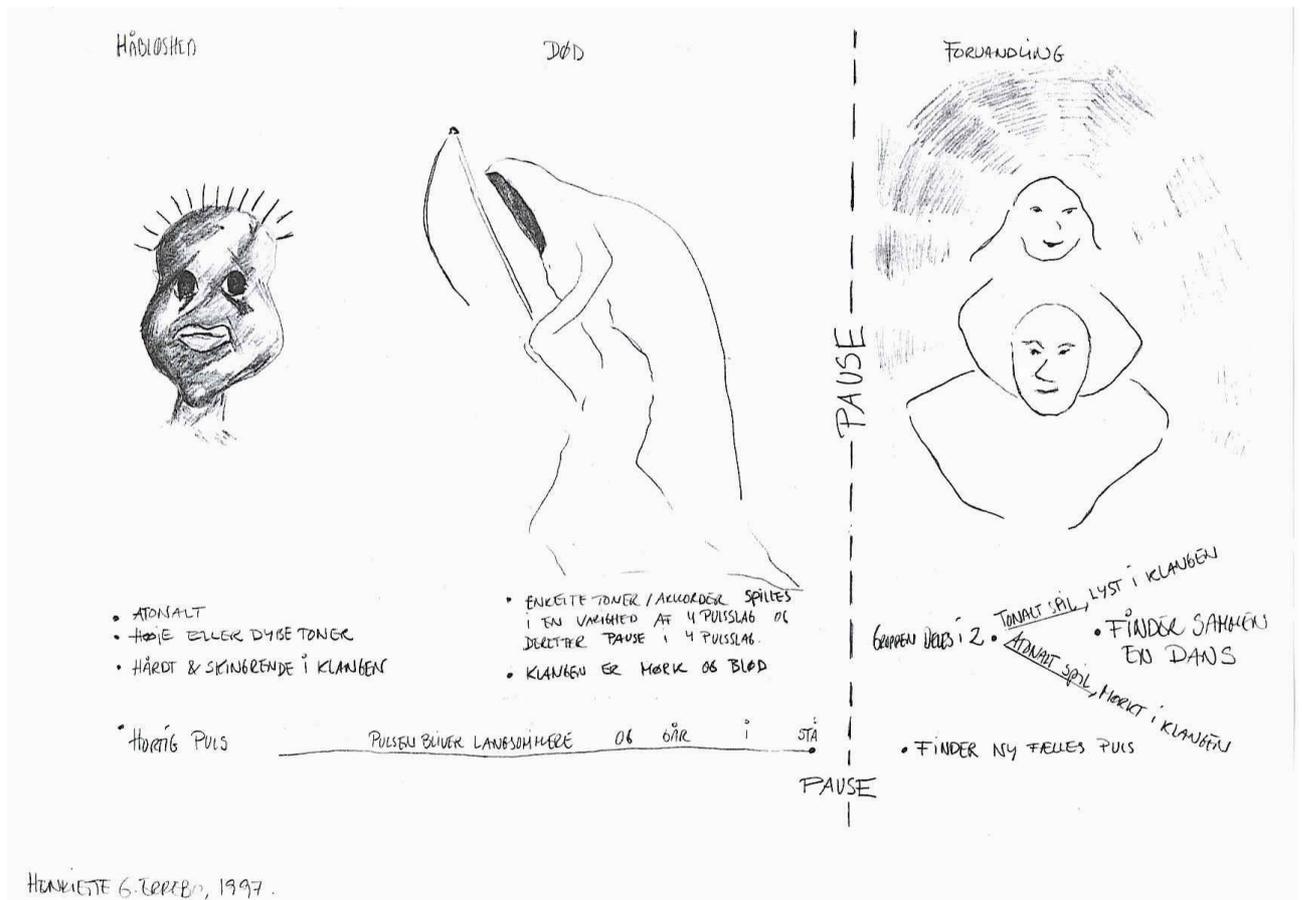
- and here is Kaja Enge's version, suggesting "concentration and effectivity", also symbolized by tonality, and associated with a nicely smiling and obliging office man...



Kaja Enge: No title [A day at the office] (2005), excerpt

Please refer to Appendix B, number 28, to see the whole composition with translations and to the Index of Recordings to listen.

Henriette G. Errebo *juxtaposes* the two ways which are to become co-ordinated, while they "come together in a dance". The contrast is sustained, yet becoming integrated!

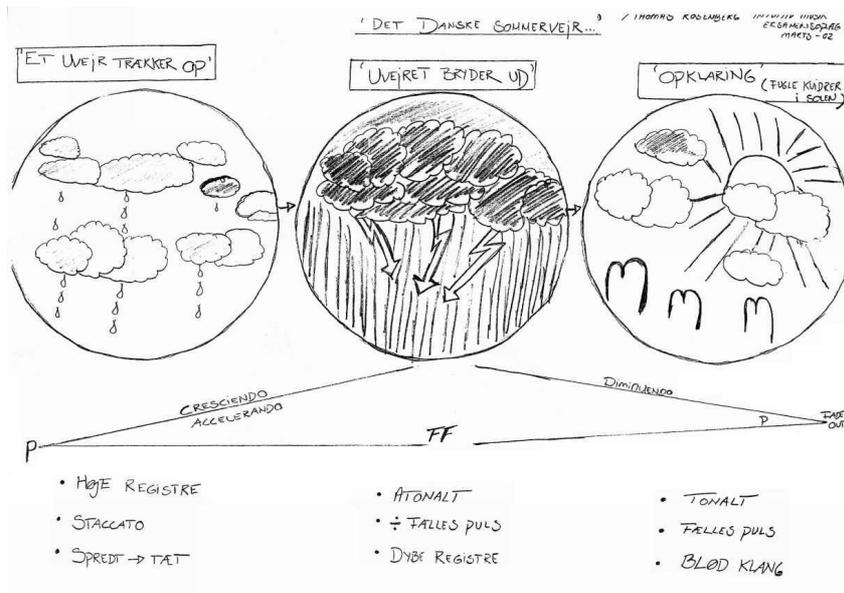


Henriette G. Errebo: "Hopelessness - Death - Transformation" (1997)

"Group divides into two sub-groups - they come together in a dance:
- tonal playing, light timbre
- atonal playing, dark timbre"

Please refer to Appendix B, number 25, to see the whole composition with translations.

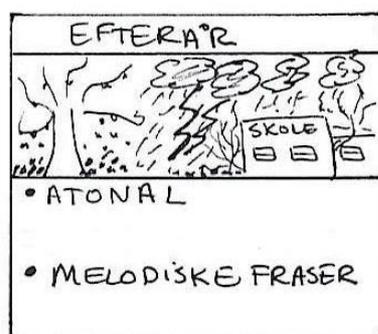
Thomas Rosenberg uses, more in accordance with convention, "atonality" to depict thunder:



Thomas Rosenberg: Danish Summer Weather (1992)

Please refer to Appendix B, number 11, to see the whole composition with translations.

And finally Sara Hrund Gunnlaugsdóttir employs the contrast of tonality and atonality several times during her composition in a way which is also illustrating the relativity of material used to illustrate programmatic labels. Here, spring and autumn out of the four seasons have been selected for atonality. So they become "counter- cliché" - maybe imaginable for the listener as a spicy, brisk quality if one is to describe it in the light of convention - while in this view summer and winter might be more "straightforward". It becomes clear how structure in itself is important for arriving at a musical process with effective contrasts - which might also persuade the listener into finding the programme convincing. The clarity of a given material in itself and the shifts may provoke imaginations in the listener. And one could well imagine several variants of this piece that assigned tonality and atonality differently, thus changing the rhetorics of the programme music language.⁽³⁹⁾



Sara Hrund Gunnlaugsdóttir: The Seasons (2006). Excerpt.

Please refer to Appendix B, number 29, to see the whole composition with translations and to the Index of Recordings to listen.

Examples from concert music:

No specific examples to this category are stated.

Exercise:

Try slowly and gradually to move from tonality to atonality and back.

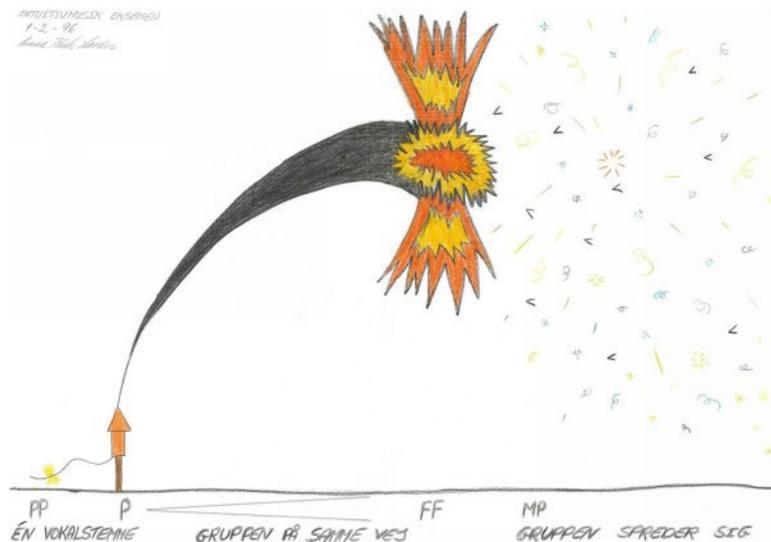
DEGREES OF CONTRAST

This parameter was used by Stockhausen in "Kontakte" (as has been traced and documented by Brandorff et al. (1975)). It seems very useful as a general concept for analyzing any musical style, describing the frameworks within which things are going on. Also, it appears to be a most strategic parameter for creative use, since it can define and change stylistic properties in outline.

In a classical sonata or symphony, there are block contrast between movements and various greater and smaller contrasts inside them. Logically, one could speak of different kinds of contrast:

- between parts in a sequence (vertically)
- between parts simultaneously (horizontally)
- and of slow/fast, gradual/sudden transitions.

It has not been used very much by students as a direct compositional tool. However, in "Untitled" (1996) by Anne Kirk Larsen which was already featured above under "Density", "contrasting degrees of contrasts" are, so to speak, essential to the very structural idea of the piece:



Please refer to Appendix B, number 17, to see the whole composition with translations.

Degrees of contrast may, however, be expressed more indirectly in directions like "individual parts" or "finding together", as is the case in the following examples.

Elise Haich Sørensen works with a slow process of contrasts diminishing...

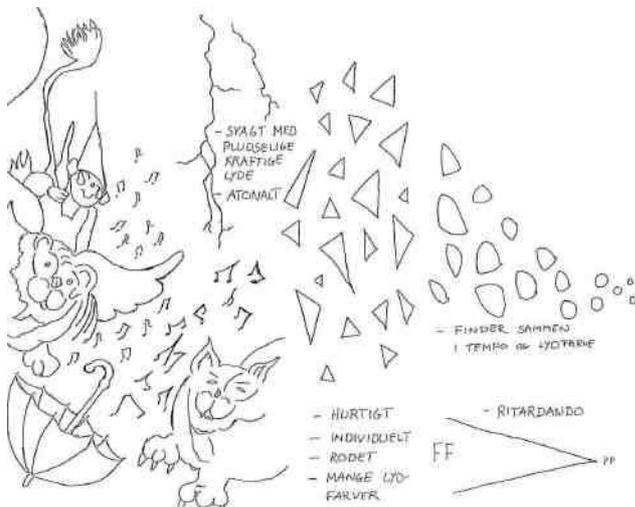


Elise Haich Sørensen: "The Big Bang" (1988), excerpt.

"You are one of the many planets...You are going to ... melt together into one globe again"

Please refer to Appendix B, number 34, to see the whole composition with translations and to the Index of Recordings to listen.

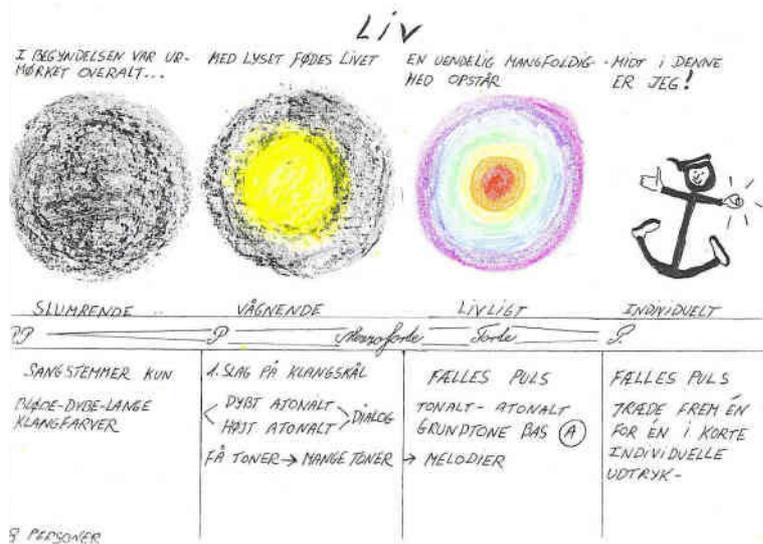
Anne Mette Jordan has strongly contrasting sections and also sections with internal contrast as opposed to those characterized by unity:



Anne-Mette Jordan: "Quiet night - dream - nightmare - confusion - peace" (1997), excerpt

Please refer to Appendix B, number 31, to see the whole composition with translations.

At the end of her piece, Mette Bang Nielsen prescribes short, solo-like, passages in which individual parts in the polyphony presents themselves. Seen from a strictly time-scale view, this is a horizontal procedure, however connected to the vertical dimension which forms a structural basis for those solos.



Mette Bang Nielsen: Life (1997)

Please refer to Appendix B, number 32, to see the whole composition with translations.

Examples from concert music:

Haydn, 2. movement of "Surprise" symphony (maximum contrast is aimed at when the strong chord interrupts the quiet flow)

Karlheinz Stockhausen: Kontakte für elektronische Klänge, Klavier und Schlagzeug (1960).

Exercise: play three improvisations making variation in the three dimensions described above. Advanced: integrate two or more into one improvisation.

Recorded exercise:

Please refer to the Index of Recordings.

THE LONG FREE IMPROVISATION. ANALYTICAL REMARKS

To hear this improvisation, please refer to the Index of Recordings.

To have a long free improvisation has been a counterpart to the parameter exercises which focus strictly on one parameter and last usually between five and fifteen minutes. In the long one, there has been no fixing whatsoever of what should be played - only the time span. Since there is no theme, such an improvisation can be said to reflect a stream of consciousness in music. There is no absolute "right" or "wrong", the music may change fast or slow, textures may vary freely, etc.

The description below has been made on the basis of both notes taken on the spot during the playing in 1999 and one listening undertaken in 2006 for the present paper.

TIME (approx)	OCCURRENCES	PARAMETER PROPERTIES
0:27	Tapping sounds and tone repetitions are presented and taken up by the group	Pitches: individual sustained pitches "represent" different players Durations: short Dynamics: low Timbre: varied through different instruments and way of playing Density: varying, often medium/high Pulse - no pulse: no pulse Tempo: hardly applicable Stylistic recognizability: none Tonal - atonal: atonal Degrees of contrast: medium degrees of contrast between parts
2:30	A new "wawe" of similar activity	Densities: gradual increase
4:20	Playing becomes now poco f, sostenuto	Densities: increase towards maximum Durations: longer Dynamics: general increase
7:00	Soft sustained common sound mixed with repetitions as contrasting elements	Durations: long Density: high Dynamics: low
8:00	Glissandis are introduced and become a trend	Pitches: glissandi

9:00	Piano plays fragment of a groove	Stylistic recognizability: a quote (unspecific)
9:45	Piano and drums attempt a march...	Pulse - no pulse: pulsed music is introduced
11:25	Various sounds with extra-musical connotations are brought into play	Timbre: highly marked new timbres
12:50	Duet piano and melodica...another piano plays glissandi	Density: sustained duet for some time
14:45	Various small actions and soli	Degrees of Contrast: big contrast between parts are sustained during a fairly long time span. There is both outburst-like phenomena and long sustained sounds. Tempo: some fast repetitions
21:20	Gong makes a climax	Dynamics: high
22:50	Recorder solo with repetitions. Later a sustained common sound mixed with outburst-like figures.	Density: minimum sound - later increasing.
27:30	General pause. Later, pauses in between playing	Density: zero (no sound). Later, oscillating, sometimes zero.
32:12	Small quote of "unspecified jazz" from piano and a reaction	Stylistic recognizability: a style quote
33:00	Various outbursts, later more common climax tendency	Dynamics: can become loud

Among such long improvisations, this one has as special characteristics the tone repetitions - almost a recurring "special theme". It is further characteristic for this specific improvisation that a high level of contrast between parts is often maintained. Players thus allow themselves to "disagree" and to supplement each other, rather than necessarily imitating each other and melting together. A more general characteristic this improvisation could have in common with several other ones is that tonal episodes are almost absent, limited to the quotes presented and to the march beginning at 9:45 but not really unfolding - the rest of

the group is not "persuaded". Common pulse is also largely absent, apart from these episodes - in a comparative perspective, to an unusual degree.

Hinting at group psychological interpretation, one could talk about a high degree of independence and individuality of players (whatever the significance of this). While group functioning is not irrelevant for the music, the focus here is, however, on the aspect of musical craft: does the group succeed in taking parameters to good use in the music as a whole? It is believed that if this is the case, individuals will have done their job well, too. As can be seen by glancing through the right column of the table, all the parameters hitherto discussed here undergo various change - some more than others. Durations play a significant role, dynamics contribute to sections' profiles. Degrees of contrast play a significant role, as already mentioned. Tempo is only rarely applicable with certainty (are for instance tone repetitions to be perceived as subdivisions of something larger, one could ask). And density proves to be most strategic for the description of what goes on.

More discussion of this improvisation below under "parameter treatment in the above examples".

PARAMETER TREATMENT IN THE ABOVE EXAMPLES

The table below attempts to summarize and characterize parameter treatment in the compositions cited. In the first column, observations about how contrasts within each parameter appear are stated, according to the individual design of compositions, quoting the composer's own words when possible. Next column summarizes general properties on the metaphorical level. Last column summarizes general perceived properties of the parameter opposition in question in a descriptive language.

The tabulation thus attempts to characterize parameters both going in a hermeneutic direction, making generalized suggestions about which kind of meaning could be attached to them. Also, parameters are characterized in a descriptive language, as it could be used in musical analysis.

PARAMETER	METAPHORICAL OPPOSITIONS	OPPOSITIONS SUMMARIZED, METAPHORICAL	OPPOSITIONS SUMMARIZED, PERCEPTION MODE
HIGH / LOW	<ul style="list-style-type: none"> • (1) Angels' element (light/clean/plaintif)/ Devil's element (spicy, cursing) • (2) Equal importance of high/low, just medium of differentiation (Blood vessels in the body) • (3) Deep tones: quiet; sleep • (4) Earth • (5) Equal importance of high/low, just medium of differentiation (following each other in singing and allowing common gradual changes of pitch) • (6) Stepwise upwards motion of melody: mounting the arch - Stepwise downwards motion of melody: descending from the arch (7) Melodic theme used as a signal (cue) 	<ul style="list-style-type: none"> • Light / Heavy (1, 4) • LOW: Motionless (3) • Neutral, no particular symbolic (2, 5) • Going up or down in physical • Melody as an individuality in the foreground (7) 	<ul style="list-style-type: none"> • Pitch as a neutral medium of differentiation (2,5) • Registers: Differentiated, clear / undifferentiated, unclear (valid within certain limits) (1,3,4) • Melody as contrasting other material: foreground gestalt (7) • Melody as an individual entity having boundaries and "in-betweens" in pitch (6)

SHORT / LONG	<ul style="list-style-type: none"> • (1) Sprout / Withering • (2) Accept / Plaintiff • (3) Sounds from the world reach my silence / Astonishment over meeting the world 	<ul style="list-style-type: none"> • Alive and well / Under threat (1,2) • Fragmented impressions / Joyful emotion 	Change / Stasis
LOUD / SOFT	<ul style="list-style-type: none"> • Loud: bad weather breaking out • Soft: clearing up 	Forceful, strong / gentle, mild	Degrees of perceived physical power
TIMBRE: LIGHT / DARK	Coloured children / Black sorrow	Joyfulness / Depression	Differentiated / Undifferentiated
TIMBRE: MISCELLANEOUS	<ul style="list-style-type: none"> • Warm and cold timbres • Different colours of fish 	Different feelings and impressions	Differentiation of unities
DENSITY	<ul style="list-style-type: none"> • (1) Tickeling in the stomach increasing • (2) Different fish-shoals • (3) Different states: continuous rocket fire / glowing particles • (4) Birds travelling: scattered / tight formation • (5) Dense soundscape with mobile phones / dense vocal soundscape 	<ul style="list-style-type: none"> • intensifying or intensive process (1, 3) • Groups/swarms of individuals being together/apart (2,4,5) 	Fullness within polyphonic texture
PULSE--NO PULSE	<ul style="list-style-type: none"> • Work / Free time • Earth / air • Order / Outburst • Water under pressure / Water flowing 	Bound / Free	Synchronized, predictable / Limitless, complex
FAST / SLOW	<ul style="list-style-type: none"> • Accelerando: Life is intensified and reaches excitement • Accelerando: Rocket is shot out in space • Ritardando: Life is ending • Contrasting tempi: young and old 	Degrees of physical or other energy	Change / Stasis

STYLISTICALLY RECOGNIZABLE / NOT RECOGNIZABLE	Rossini quotation (becomes changed and developed)	Quotation is seen from great distance (‘flying’)	Narrow / broad focus of musical material
TONAL / ATONAL	<ul style="list-style-type: none"> • Work / Free time • Life / Death • Good weather / Bad weather • Spring, Autumn / Summer, Winter 	<ul style="list-style-type: none"> • Constraint / Freedom • Normal / Abnormal (integration of the two: mystic state) • Pleasant / Unpleasant 	Well-known / Unknown
MUCH CONTRAST / NO CONTRAST	<ul style="list-style-type: none"> • Simultaneous contrasts: Individual planets and stars / One globe • Simultaneous contrasts: Confusion • Successive contrasts: Dream with shifting episodes • Simultaneous contrasts: Individuality / Primeval darkness 	Individuality / Entity	Plurality / Unity

The two first columns show a kaleidoscopic picture of similarities and differences in the programmatic interpretation. For instance, looking at pitches, "high/low", there is similarity between the "heavy" quality, which is my attempt to summarize qualities belonging both to the "devils" (opposed to angels) and that belonging to "earth" (as opposed to the other elements, air, fire, water). But turning to durations, "short/long", we find two cases which assign negative qualities to the long extreme - "withering" and "plaintive" - and one doing exactly the opposite: "astonishment over meeting the world". Looking at "tonal/atonal" there is a similar strong opposition: atonality may be associated with fear-provoking states - and also with relaxing after work! And whether much contrast or no contrast is "good or bad" is also seen differently - the "individual planets" can appear as an alienated state, and individuality can appear as a liberation from "primeval darkness"!

Even from this small collection of examples it is thus possible to contemplate an arbitrariness of programmatic interpretation. Naturally this does not mean that interpretations are meaningless. Playing of these works is very engaging to all of us, and the different or opposite symbolic meanings can be exciting in themselves and also on the background of

each other, as parts of an ongoing exploration. Music can definitely very strongly provoke human emotions and imagination, as amply illustrated in the multiple fields of music therapy research. At the same time, the specific interpretation in case is dependent upon context - this also, like here, comprising title of the piece and the specific characterizations and the illustrations. It is interesting to note that this is both the case with parameters which, when seen from the perspective of semantic convention, may appear "neutral", like the degree of contrasts - as, also, with musical parameters having strong conventional standard meaning, like "tonal/atonal". Even such conventions could easily be made relative and bypassed in creative practise with no special difficulty and also without any special rebellious attitude to the conventions - they were rather simply disregarded. Reasons for this include the fact that the task was open to many good creative solutions, that the musical material available was as open and varied as the painter's palette and that the overall idea was in the foreground for the composer. The artistic multi-disciplinary context of these compositions seems to importantly encourage this distance to music conventions - the prescence of words that seek to characterize the process in poetic and/or dramatic directions and the prescence of picture elements. Also, the more general context of music conception within our education is a background. Music in therapy is a medium of individual human expression rather than a cultural icon⁽⁴⁰⁾.

So music, like poetry, works with creating illusions (which may have great psychological and creative value). The composers' view, as well as the teachers' and that of the therapist, might be that of the "illusion-creator", taking interest in knowing the schemes or logical formulas, the possible fundamental syntax or meta-syntax that might be at the basis of such work. In other words, that knowledge which permits making creative strategies.

Thus, turning from semantic contents to meta-syntax of the music medium, the last column attempts to describe parameter properties from the viewpoint of perception, in other words from a formal viewpoint: which kind of organisation of sensory input do they permit ? Certain differences of their properties seem to become visible. Looking at the seemingly sparse and abstract characterizations in the last column, some additionally commenting and concluding remarks from the examination of musical parameter use in student's compositions are stated below.

It is valid for all the parameters that they are "media of differentiation", as an ultimate similarity. At least some of them contain areas in which differentiation is easier than other places due to reasons of reception rather than only convention: extremely high and especially extremely low pitches are more difficult to differentiate than others. The same thing applies to extremely long sounds (but, interestingly, not to extremely short ones unless we are below the limits of the perceptible), to loud sounds (but, quite like the short ones, not to faint sounds unless below the threshold of the hearable).

Some parameters touch on areas in the musical material which in our Western culture are to a very high degree shaped by convention. They may therefore play a strategic role in integrating with memories of traditional music heard in the listener. If a contrast or a

similarity between the given work and music culture is perceived as aesthetically interesting, this may deepen the experience.

Apart from the fact that all can throw each other into perspective in a multi-dimensional universe, parameters have individual properties, both those that often appear in a codified form and, just as importantly, those that do not.

The pieces prescribed ways of parameter treatment - the exploration of their possibilities was marked out by compositional thinking in advance. Taking a look at the long free improvisation, we see an instance of a different kind of music. Here, the question of parameter dependence or independence can be interesting. One could imagine an "intensifying" of several or many parameters in a coupled way: for instance louder, longer, more dense, more often, more sharp. Should such coupling always and invariably appear in a fixed way, however, the music might become very alike and trivial.

One significant instance of independence is the "soft sustained common sound" beginning around 7:00. Previously, in the tentative beginning of the process, tones and sounds only started to be long together with being more loud (the "automatic intensifying" mentioned above). Now, the "intensive" sustaining of tones and sounds is set forth also with low dynamics - making new listening qualities possible. New timbral qualities occur suddenly around 11:25 but do not seem to be really integrated into the process - despite interesting sustaining of this episode. The two times quotes appear (9:00 and 32:12), this is not directly integrated into what follows - but it does have a strong indirect influence on what follows. In the first case it entails an attempt in a new direction, in the second, the "various outbursts" seem to have taken inspiration from the quote episode. And, when looking down the table with descriptions, we might generally find that the shifting combinations of parameter properties, and thus, their independence, contribute crucially to the different shadings and characteristics that constitute the music.

RECORDINGS

SELECTION OF RECORDINGS

has been done with views to:

- the desirability of matching the selected compositions and the parameter issues with sound also
- artistic quality of the playing (to my judgement after several listenings)
- avoiding recordings with too much distortion and/or missing sound. This was the case with some DAT copies from the period of 1995-2000. Only one year of examination recordings were preserved from earlier, on cassette tape. Recent recordings were made on Minidisc.

INDEX OF RECORDINGS

STUDENT's COMPOSITIONS recorded at 6. semester Intuitive Music Examinations at Music Therapy, Aalborg University unless otherwise stated. Only fellow students, not the composers, play. Durations are approximate.

Names of players are not given. It would not have been possible to trace them in all cases, however, from the indications of year and semester, those who participated will have the possibility to know.

CD 1:

(Please note – in the online edition at <http://www.intuitivemusic.dk/intuitive/par/> these recordings are available online in mp3 form.)

- 1) Margrete Bach Madsen: Colour wash 60° (Kulørt-vask 60°) (2002) 4:20
- 2) Perla Leifsdóttir: [Engle og djævle][Angels and Devils] (2003) 2:20
- 3) Stine Lindahl Jacobsen: In Love (Forelskelse) (2005) 5:10
- 4) Lise Høy Laursen: A guess at the development of human communication (Et bud på udviklingen af menneskets kommunikation) (2004) 5:50
- 5) Charlotte Lindvang: Water-Music (Vand-Musik) (1995) 7:00
- 6) Annette Moltubak: Right time and place (På rette sted til rette tid) (2005) 5:15
- 7) Eyvind Hjorth: [Young and old rivers] [Unge og gamle floder] (1997). Two excerpts - from beginning and end. 3:15
- 8) Bakhtiyar Amanzhol: Flying over Italy (At flyve over Italien) (2003). From concert at Novosibirsk State Conservatoire, Russia, following CBN masterclass. 5:40
- 9) Kaja Enge: [Crowded... - At the office... - In the land of dreams] [Menneskemylder... - På kontoret ... I drømmeland] 2005 3:55

- 10) Sara Hrund Gunnlaugsdóttir: The Seasons (Árstíðir) (2006) 3:15
- 11) Elise Haich Sørensen: The Big Bang (1988). Excerpt from beginning 3:45

PARAMETER EXERCISES - 'make variation especially within this parameter...'. The author plays along in some of the recordings.

- 12) Pitches (3. semester 1999) 3:40
- 13) Durations (6. semester 2002) 3:35
- 14) Dynamics (3. semester 2001) 3:30
- 15) Timbres (3. semester 2001) 3:30
- 16) Densities (3. semester 2001) 8:55

CD 2

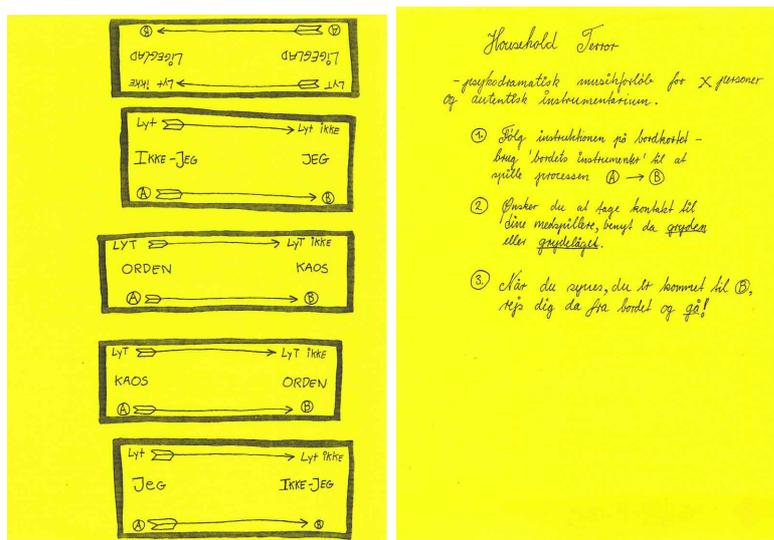
- 1) Pulse---no pulse (3. semester 2002) 6:25
- 2) Stylistic recognisability (3. semester 1999) 5:15
- 3) Contrasts (3. semester 2002) 8:30
- 4) LONG FREE IMPROVISATION (3. semester 1999). 40:10

APPENDIX A. SOME COMPOSITIONS OUTSIDE THE SCOPE OF THE THEORETICAL EXAMINATION ABOVE

Not all compositions have necessarily taken their focus on the parameters mentioned, and the degree of exactness in specification of parameters vary. In the early days around the eighties years, there were more extra musical and theatrical elements. Maybe the stronger focusing on parameter specification later could have discouraged students from attempts in this direction (the possibility has always been let open, though), maybe the times have changed and students experiment less. In any case, to make the collection more complete and representative for the historic activity, here follow a few more compositions.

Niels Jeppesen: Household Terror (1988)

The piece used a dining table with a pot in the middle and one dinner set for each musician.



Household Terror

- psycho dramatic music action for X persons and authentic instruments.

1) Follow the instruction on the table card - use "the instruments of the table" to play the process A ---> B

2) If you wish to take contact to your fellow players, use the pot or the pot lid.

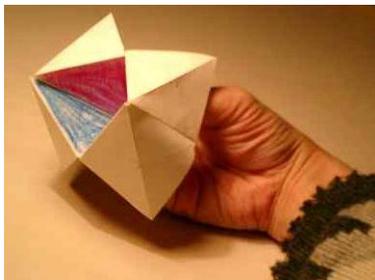
[The cards are to be cut out and placed on the table at each dinner set. They all describe an opposition between "Listen ----- do not listen" together with one more pair of opposites.

Starting from the top, the opposites to be expressed in music and action, gradually changing along a continuum, are:]

Don't care	Don't care
Not-I	I
Order	Chaos

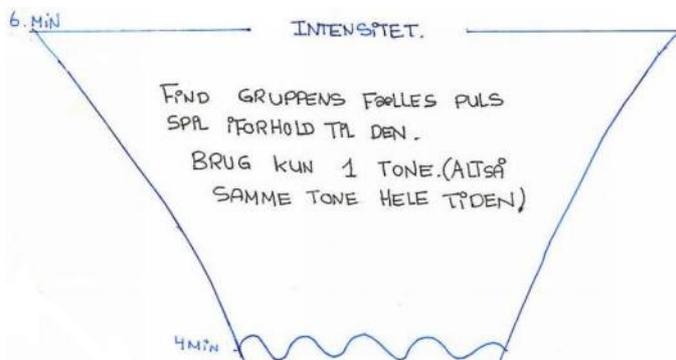
3) When you think you have moved to B, stand up from the table and <u>walk out!</u>	Chaos I	Order Not-I
---	------------	----------------

Ingrid Korsgaard's [no title] (1988) uses a folded paper object of a kind used in a traditional game - see photographs below. An assistant goes to the players and moves the sides of the object in the two directions possible - a player chooses a color by pointing out. When unfolding the object, instructions written inside can be read. After having played the corresponding section, a number from the section in question is read which tells how many sections to jump forward in the sequence of sections. One section marks the end.



Please refer to Appendix B, number 34, to see the composition inside the object with translations.

Niels Hannibal's Rhythmy [meaning: "my rhythm"] (1992) limits the tone material to one or three tones in the first two sections, and the piece moves from "your inner rhythm" to "common pulse of the group" in the two last sections.



Please refer to Appendix B, number 35, to see the whole composition with translations.

Finally, Line Norman's "Psychic confusion - Interrupted - Searching - Decision" (1992) seems to reflect my suggestion to the students that one does not have to make coherent stories. One could also cultivate "illogical, poetic and formal" ideas.

"SØKEN"

(øyekontakt)

p mf p

- Velg én tone, og spill den samme tonen.
- Varierende tempo.
- Lekende/Utforskende uttrykk.

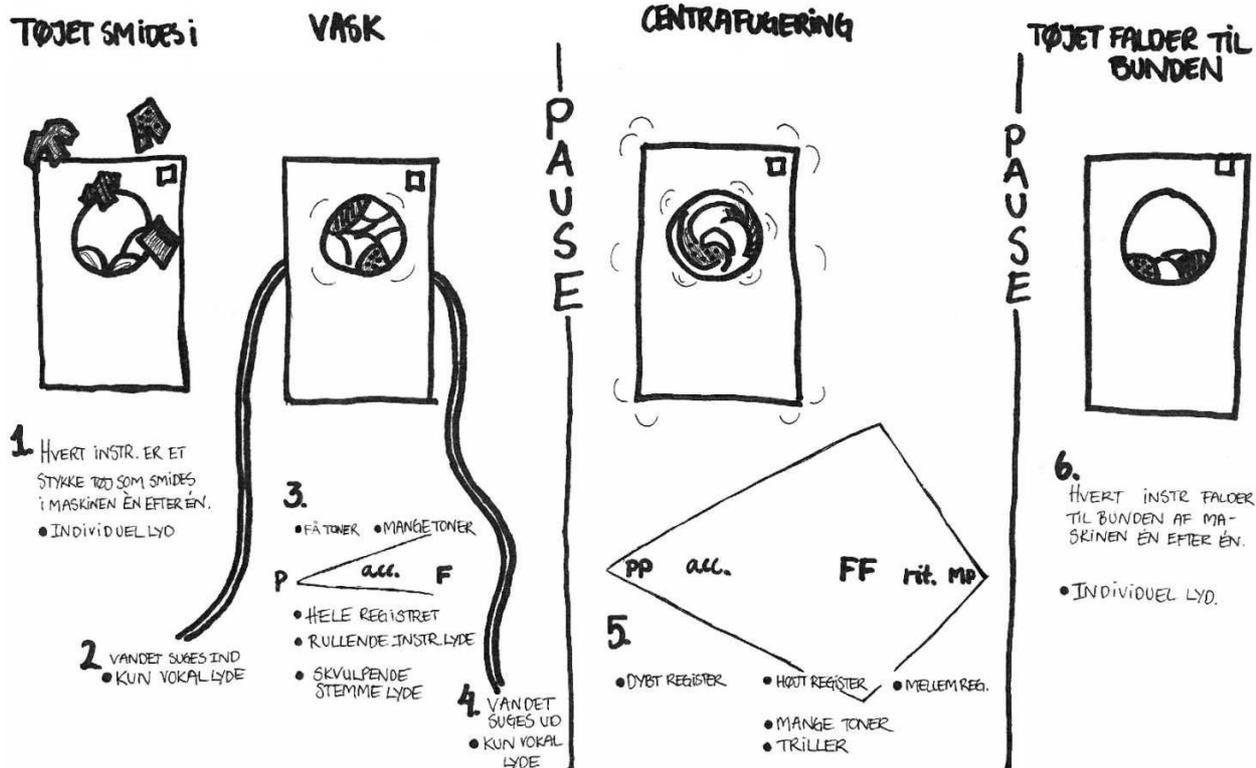
(øyekontakt)

Please refer to Appendix B, number 36, to see the whole composition with translations.

APPENDIX B. ALL COMPOSITIONS IN EXTENSO WITH TRANSLATIONS

This appendix gathers together all 36 student's compositions treated in the text. For some suggestions concerning printing and enlarging, please see the preface.

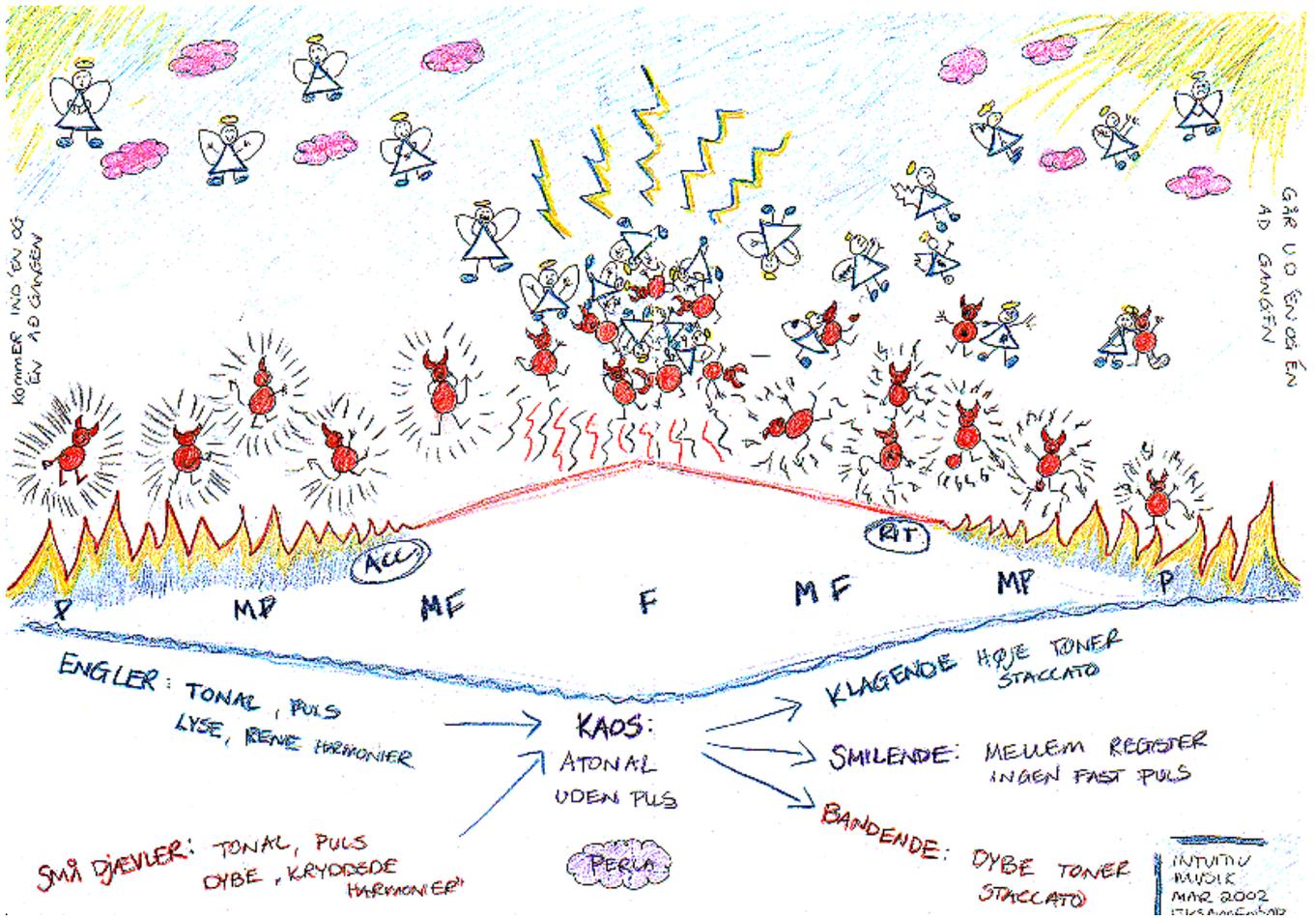
KULØRT-VASK 60° Margrete Bach Madsen 2002 Impro. oplæg Interaktiv musik.



Margrete Bach Madsen: Colour wash 60° (2002).
To hear this piece, please refer to Index of Recordings.

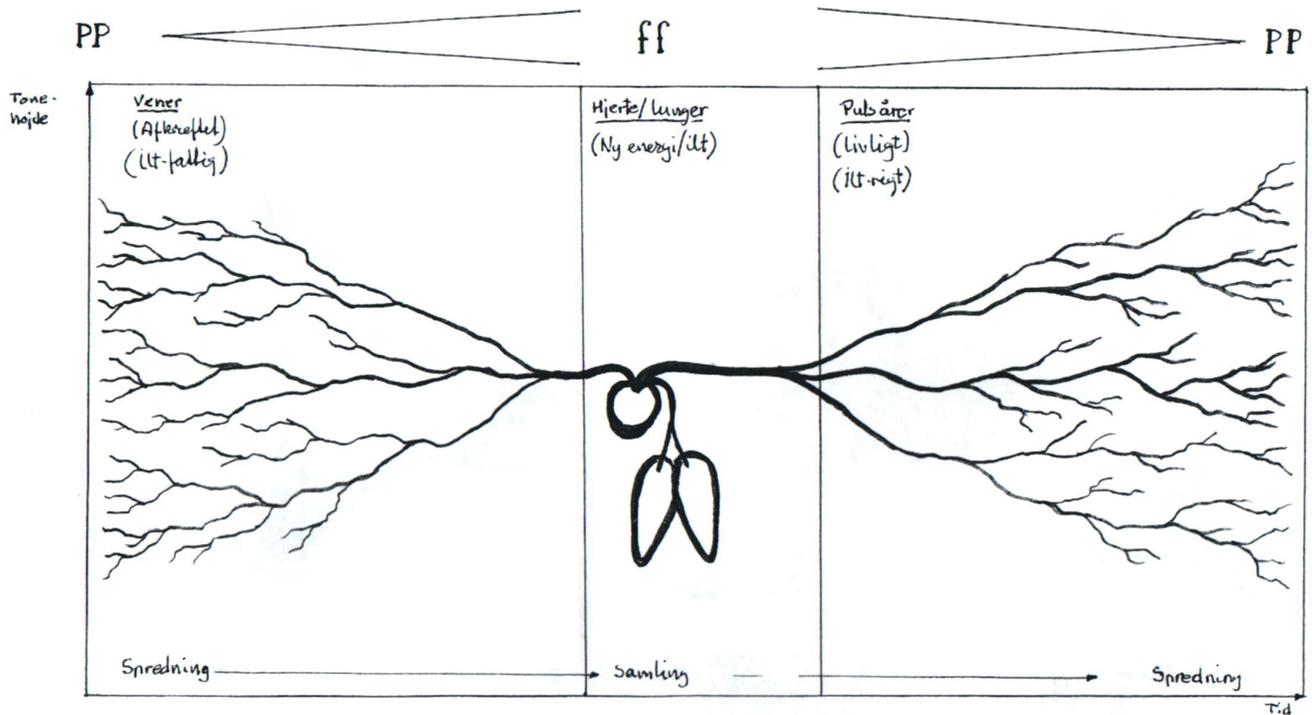
<p>1. Each instrument is a piece of clothing which are thrown into the machine one by one</p> <ul style="list-style-type: none"> • individual sound 	<p>2. Water is drawn in</p> <ul style="list-style-type: none"> • solely vocal sounds 	<p>3.</p> <ul style="list-style-type: none"> • Few tones • Many tones <p>p < acc. < f</p> <ul style="list-style-type: none"> • Use all of the register • Rolling instrumental sounds • Splashing vocal sounds 	<p>4. Water is drawn out</p> <ul style="list-style-type: none"> • solely vocal sounds 	<p>5.</p> <ul style="list-style-type: none"> • Deep register 	<ul style="list-style-type: none"> • High register • Many tones • Trills 	<p>Middle register</p>	<p>6. Each instrument falls to the bottom, one by one</p> <ul style="list-style-type: none"> • Individual sound
---	--	--	---	--	---	------------------------	---

APPENDIX B, 1



Perla Leifsdóttir: [Angels and Devils] (2003)
To hear this piece, please refer to Index of Recordings.

Coming in one at a time	<u>ACC</u>				<u>RIT</u>	Going out one after another
p	mp	mf	F	mf	mp	p
ANGELS: tonal, pulse Light, pure harmonies				PLAINTIF:	High tones Staccato	
			Chaos: Atonal No pulse	SMILING:	Deep tones Staccato	
LITTLE DEVILS: tonal, pulse Deep, spicy harmonies				SWEARING:	Deep tones Staccato	



Følg en vene til hjertet/lungerne.

Følg en pulsåre.

Improvisationsoplæg: Blødetets kredsløb

af Arne Kokborg. 6.sem 22.juni 92.

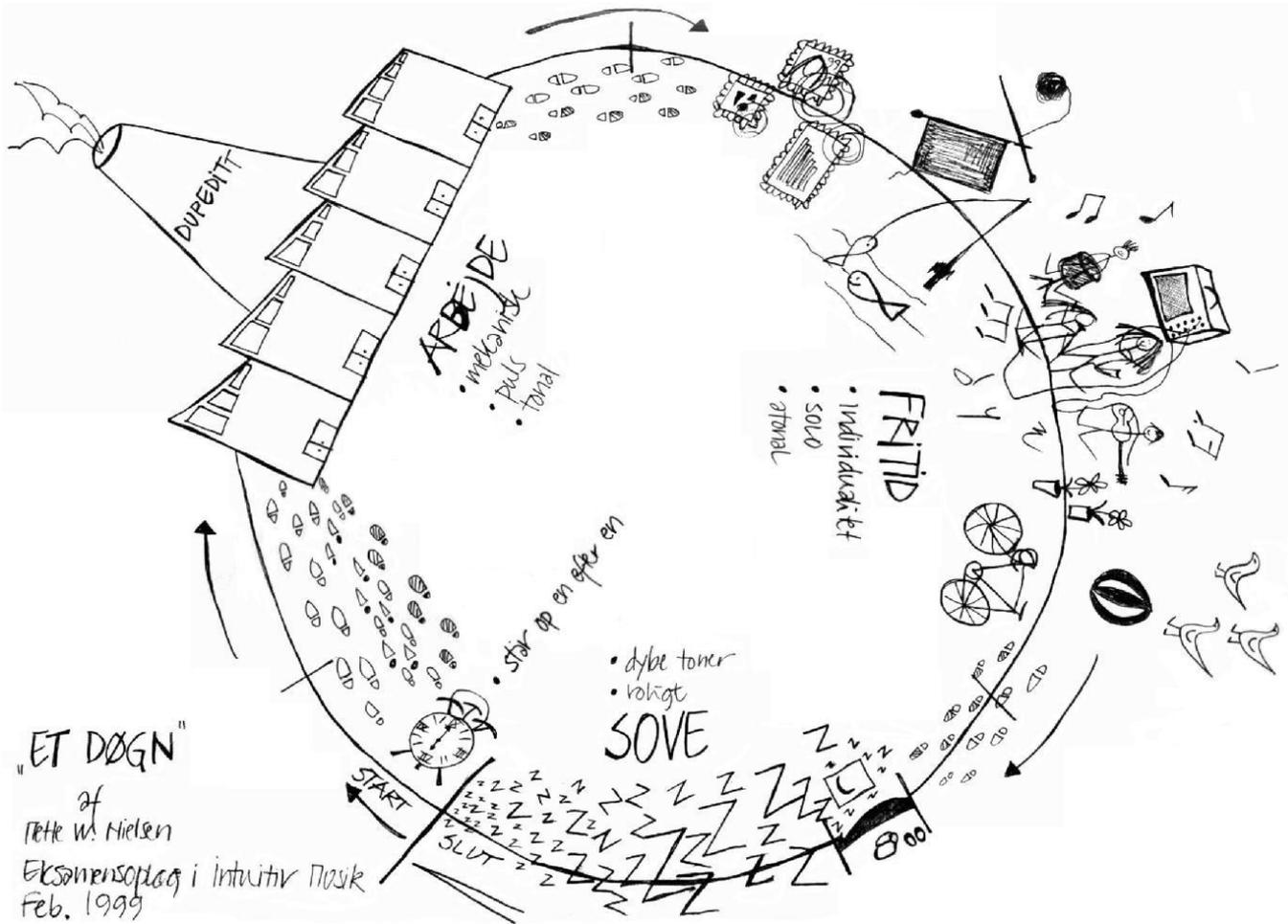
Arne Kokborg: Blood circulation (1992)

Pitch

Veins (enfeebled) (deficient in oxygen)	Heart / lungs (new energy / oxygen)	Arteries (lively) (rich in oxygene)
Spreading out ----->	Together --- ---->	Spreading out
Follow a vein to the heart / lungs		Follow an artery

Time

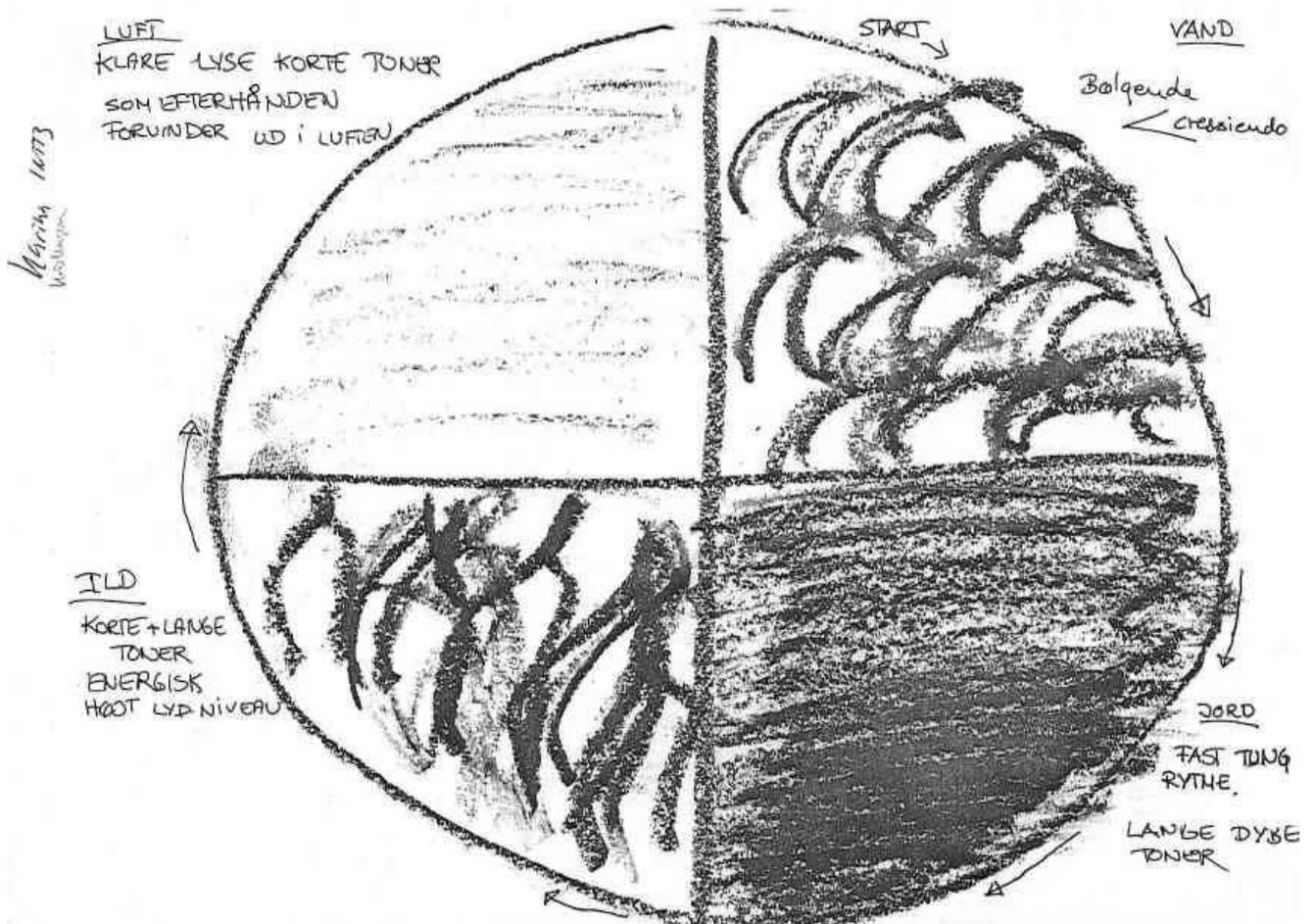
APPENDIX B, 3



Mette W. Nielsen: A Day and a Night, (1999)

<p>START [bottom, with an arrow pointing left]: Rises one after another</p>	<p>WORK - mechanical - pulse - tonal [The word on the chimney means "GADGET"]</p>	<p>LEISURE TIME - individuality - solo - atonal</p>	<p>- deep tones - quiet SLEEP</p>	<p>THE END</p>
<p>[The footprints are to be executed with sound of feet on the floor. The "ZZZ" thing needs not be rendered in a naturalistic way.]</p>				

APPENDIX B, 4



Karina Fanø (Kristiansen): No title (Four elements), 1994

From "START" (upper part, right): WATER Waving < Crescendo	EARTH - firm, heavy rhythm - long deep tones	FIRE - short + long tones - energetic - loud sound level	AIR - clear, light, short tones which gradually disappear into the air
---	---	--	---

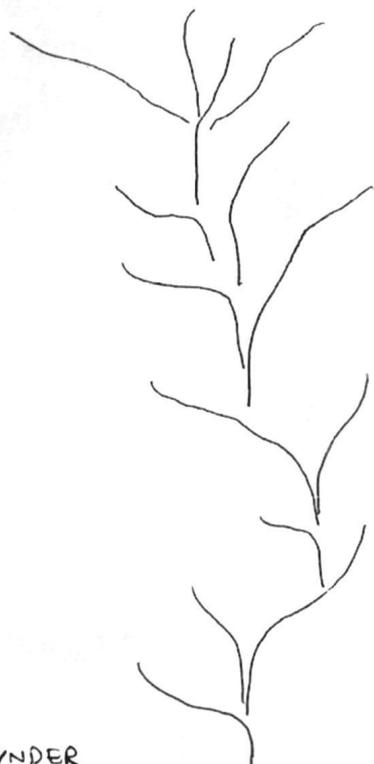
APPENDIX B, 5

STEMMEIMPROVISATION: tone og rytme i åndedræt

7/12-90
Bolette v. scm.

FOR HVERT ÅNDEDRÆT (UDÅNDING) SYNGER I EN NY TONE
SOM GRADVIST OG GLIDENDE GÅR TIL GRUPPENS FÆLLES TONE.
DEN FÆLLES TONE OPSTÅR VED AT LYTTE TIL HINANDEN,
DEN KAN GODT FORANDRE SIG.

For each breathing (expiration), sing a new tone which gradually slides its way to the group's common tone. The common tone is created by listening to each other. It can change [its pitch].



HER BEGYNDER
TONERNE AT ÆNDRE
SIG TIL RYTMER
LAVET AF LUFTEN
I UDÅNDINGEN

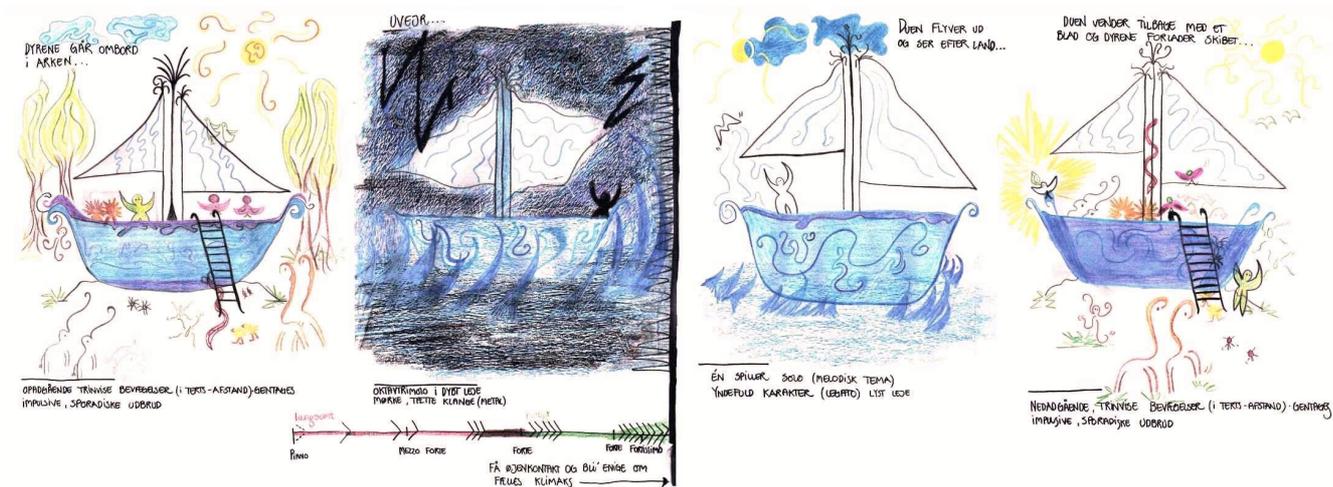
Here, tones begin to change into rhythms, created by the air in expiring.



IMPROVISATIONEN
UDFØRES UDEN
BILLEDET, MED
LUKKETE ØJNE

The improvisation is carried out without the picture, with eyes closed.

[Breaths are individual]

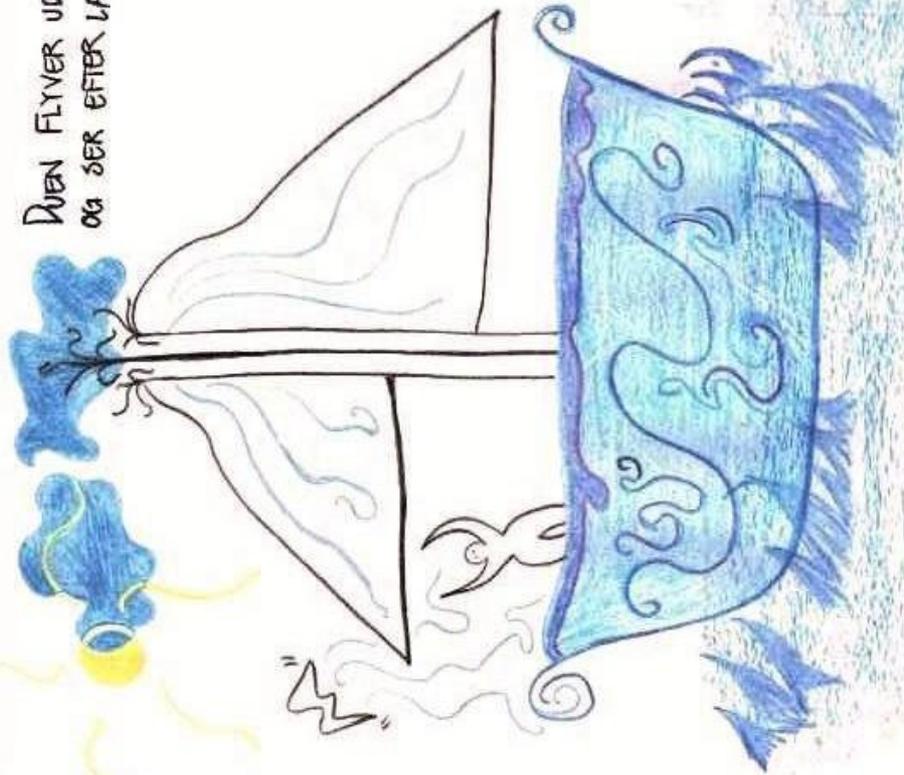


Anette Mailand: No title (Noah's Ark) (2001):
Please see next pages for larger pictures.

<ul style="list-style-type: none"> - upward stepwise movements - outbursts which are impulsive and sporadic 	<ul style="list-style-type: none"> - octave tremolo in a deep register - dark, tight sounds (metal) 		<ul style="list-style-type: none"> - downward stepwise movements (in intervals of thirds) - to be repeated - outbursts which are impulsive and sporadic
	<p>slow Piano (...) fortissimo</p> <ul style="list-style-type: none"> - get eye contact and agree on a common climax 	<ul style="list-style-type: none"> - one plays solo (melodic theme) - graceful character (legato) light register 	

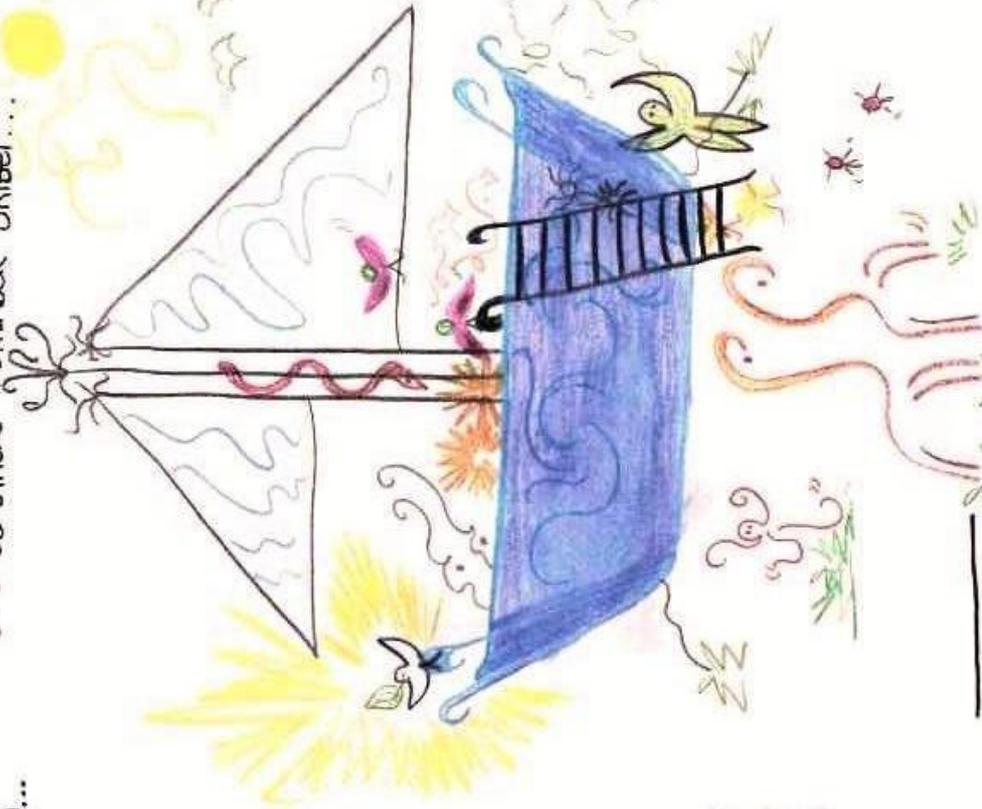
APPENDIX B, 7

DIVEN FLYVER UD
OG SER EFTER LAND...

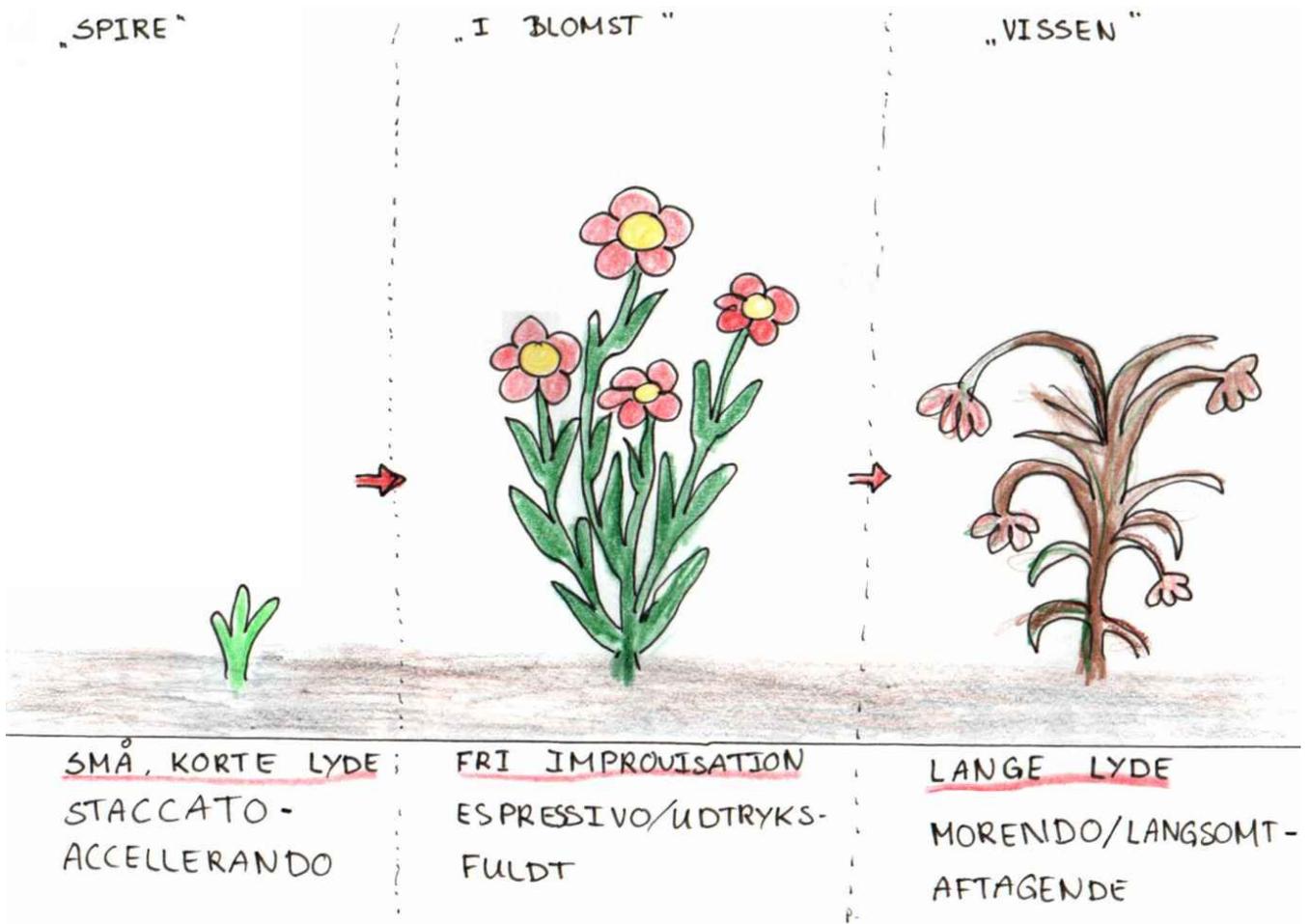


ÉN SPIKER SØL (MEDDISK TEMA)
YNDERFULD KARAKTER (LEBARTO) LIST LEDE

DIVEN VENDER TILBAGE MED ET
BLAD OG DYRENE FORLADER SKIBET...



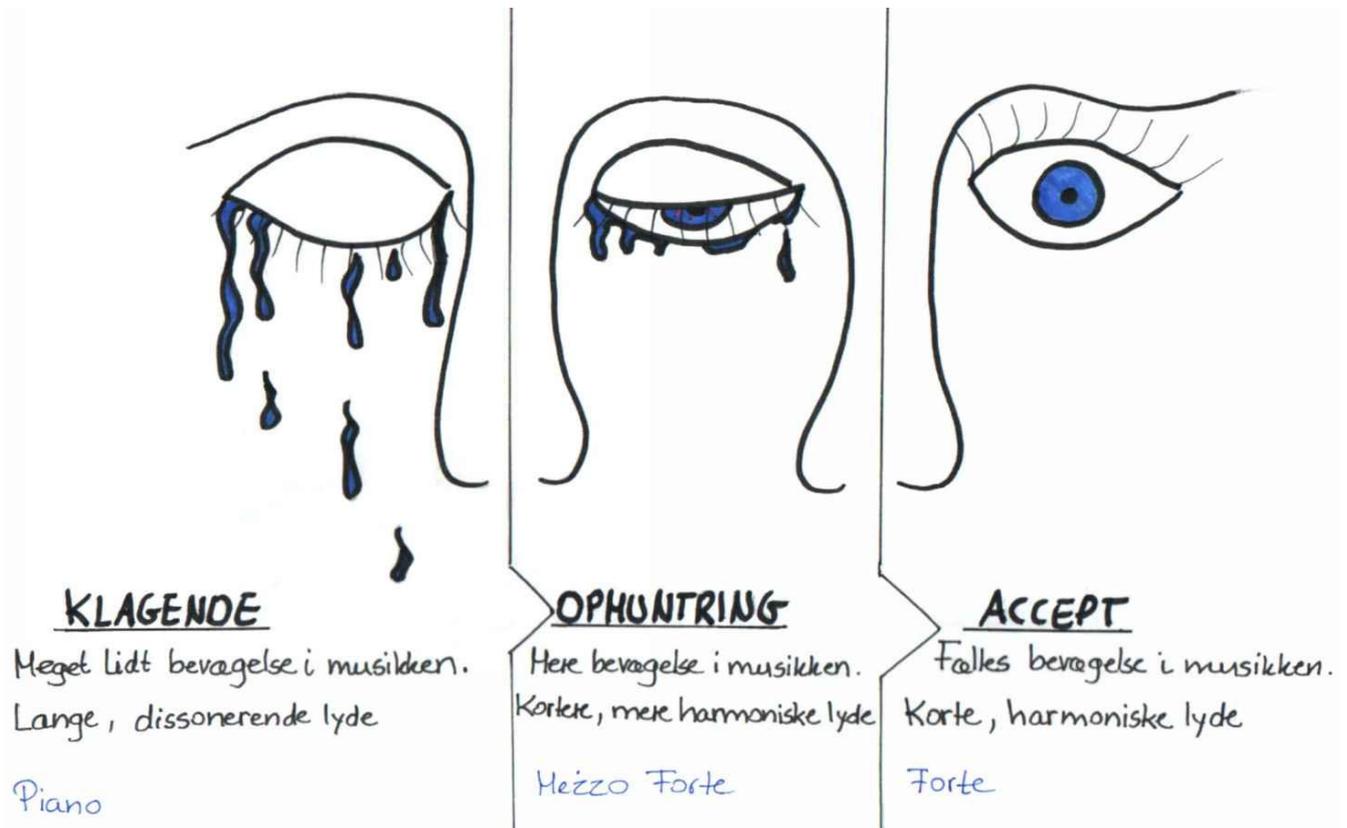
NEDDAGENDE, TRINVIS BEVEJELSER (I TERTS-ARSTAND) · GENTAGES
IMPUSIVE, SFORADISKE UDBRUD



Sine Baggesen: Sprout - Flowering - Withered (1993)

LITTLE SHORT SOUNDS	FREE IMPROVISATION	LONG SOUNDS
Staccato - accelerando	Espressivo / With expression	Morendo - slowly declining

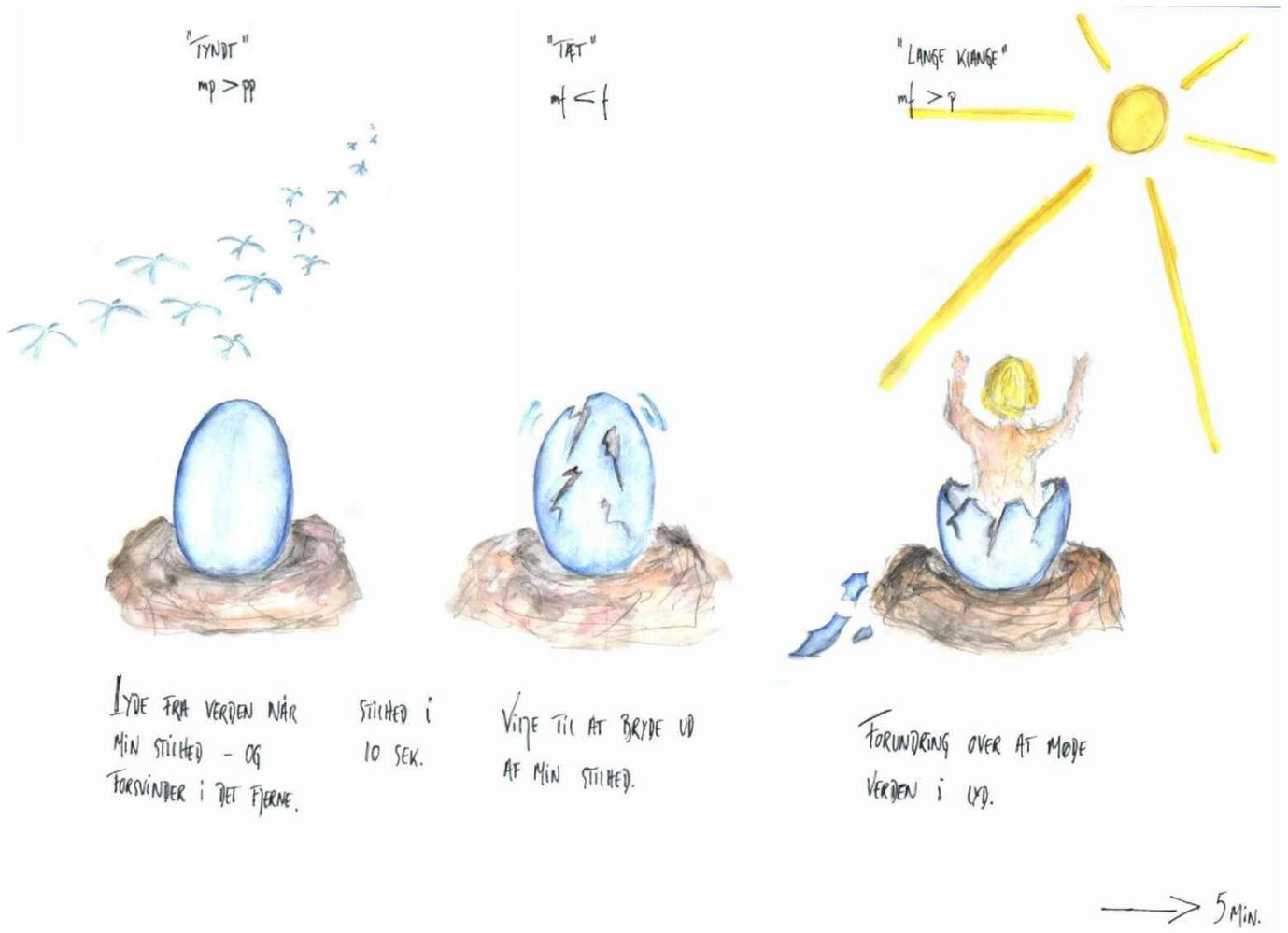
APPENDIX B, 8



Randi Aaberg Boldsen: Complaining - Cheering up - Accept (1994)

PLAINTIF	CHEERING UP	ACCEPT
Very little movement in the music Long, dissonant sounds	More movement in the music Shorter, more harmonic sounds	Common movement in the music Short, harmonic sounds
Piano	Mezzo Forte	Forte

APPENDIX B, 9



Ulla Setterberg: Thin - Dense - Long sounds (1996)

"THIN"		"DENSE"	"LONG SOUNDS"
mp > pp	Silence for 10 seconds	Mf < f	mf > p
Sounds from the world reach my silence - and disappear into the distance		Will to break out of my silence	Sounding astonishment over meeting the world → 5 min.

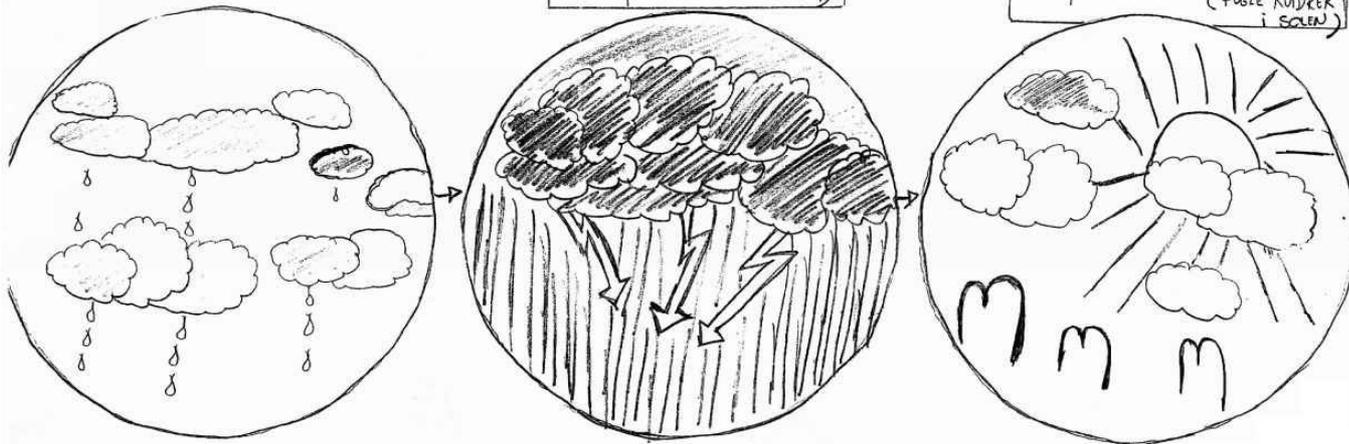
'DET DANSKE SOMMERVEJR...'

THOMAS ROSENBERG
ERBARNINGSBAG
MARTS-02

'ET VEJR TRÆKKER OP'

'UVEJRET BRYDER UD'

'OPKLARING' (FUGLE KUDRER I SOLEN)



- HØJE REGISTRE
- STACCATO
- SPREDT → TÆT

- ATONALT
- ÷ FALLES PULS
- DYBE REGISTRE

- TONALT
- FALLES PULS
- BLØD KLANG

Thomas Rosenberg: Danish Summer Weather (1992)

BAD WEATHER APPROACHING	BAD WEATHER BREAKING OUT	CLEARING UP (birds are twittering in the sun)
-------------------------	--------------------------	---

p---crescendo and accellerando) ----- FF ----- (diminuendo)----p --- fade out

High registers	Atonal	Tonal
Staccato	No common pulse	Common pulse
Thin --> dense	Deep registers	Soft sound



Dida Abrahams: Sunrise (1996)

Many dark sounds	(less and less dark sounds)	(more and more light sounds more and more birds)	Many light sounds
------------------	-----------------------------	---	-------------------

APPENDIX B, 12

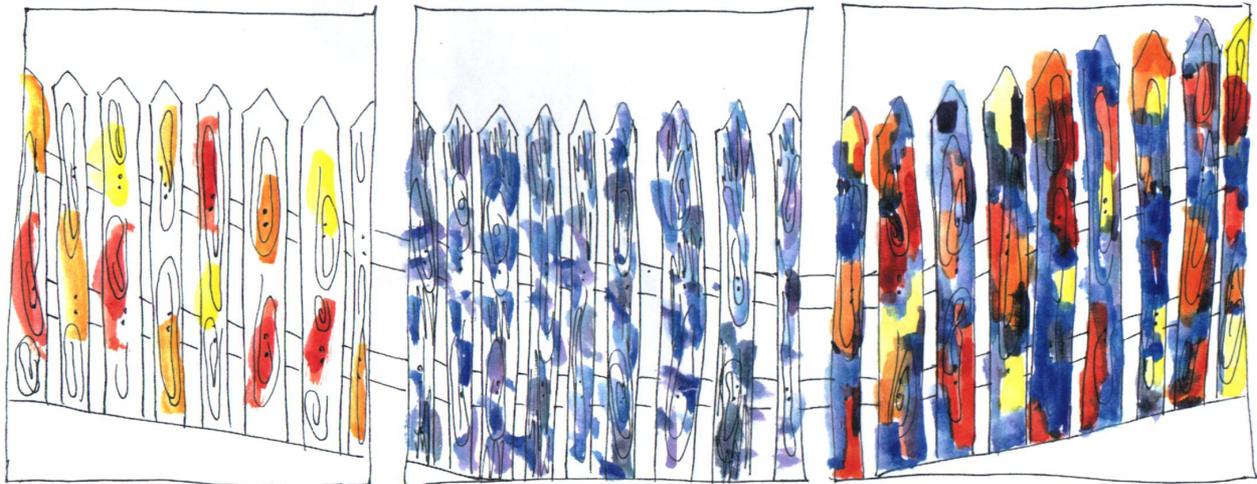


Lone Warncke: Untitled (Mother Earth) (1992)

Mother Earth
 covered by black sorrow
 - sees the sun
 is fascinated
 - is the sun
 - in love

The first child
 The Earth and the space
 becomes inhabited by their children

+ MALING = at male plankværk i 5 min. →



= varme klængfarver, få penselstrøg

= køde klængfarver, tætte penselstrøg

= Alle klængfarver, penselstrøg skal dække pladen.

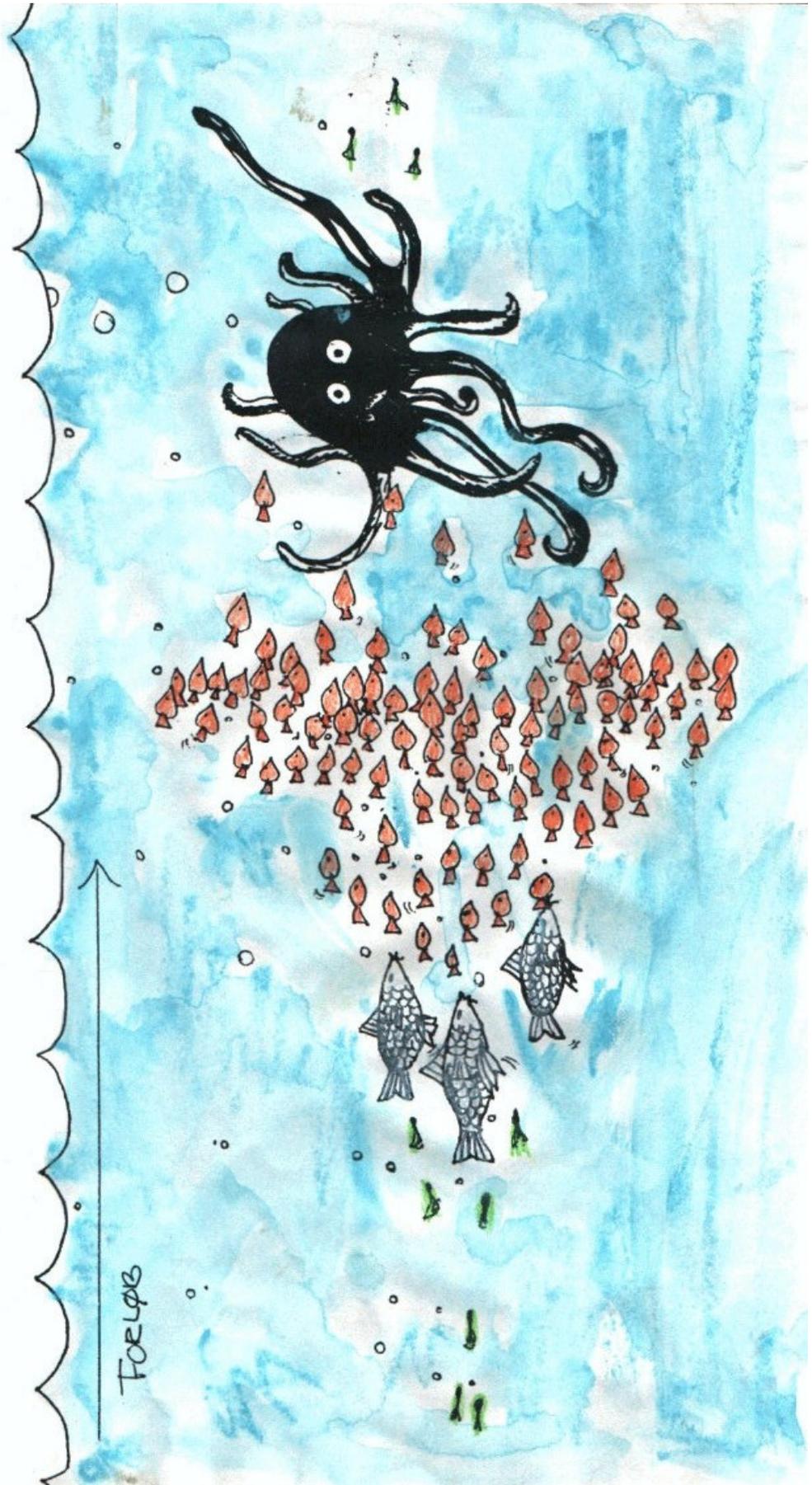
Charlotte - Musikterapi 1. sem. '92

Charlotte Dammeyer Fønsbo: Painting the fence (1992)

To paint the fence for 5 minutes		
Warm timbres, few strokes	Cold timbres, tight strokes	All timbres. Strokes must cover the surface.

APPENDIX B, 14

Fiske-stimer. Spil fiske-stimerne: TÆTHER & KLANGFARVER
Varighed: 5. min

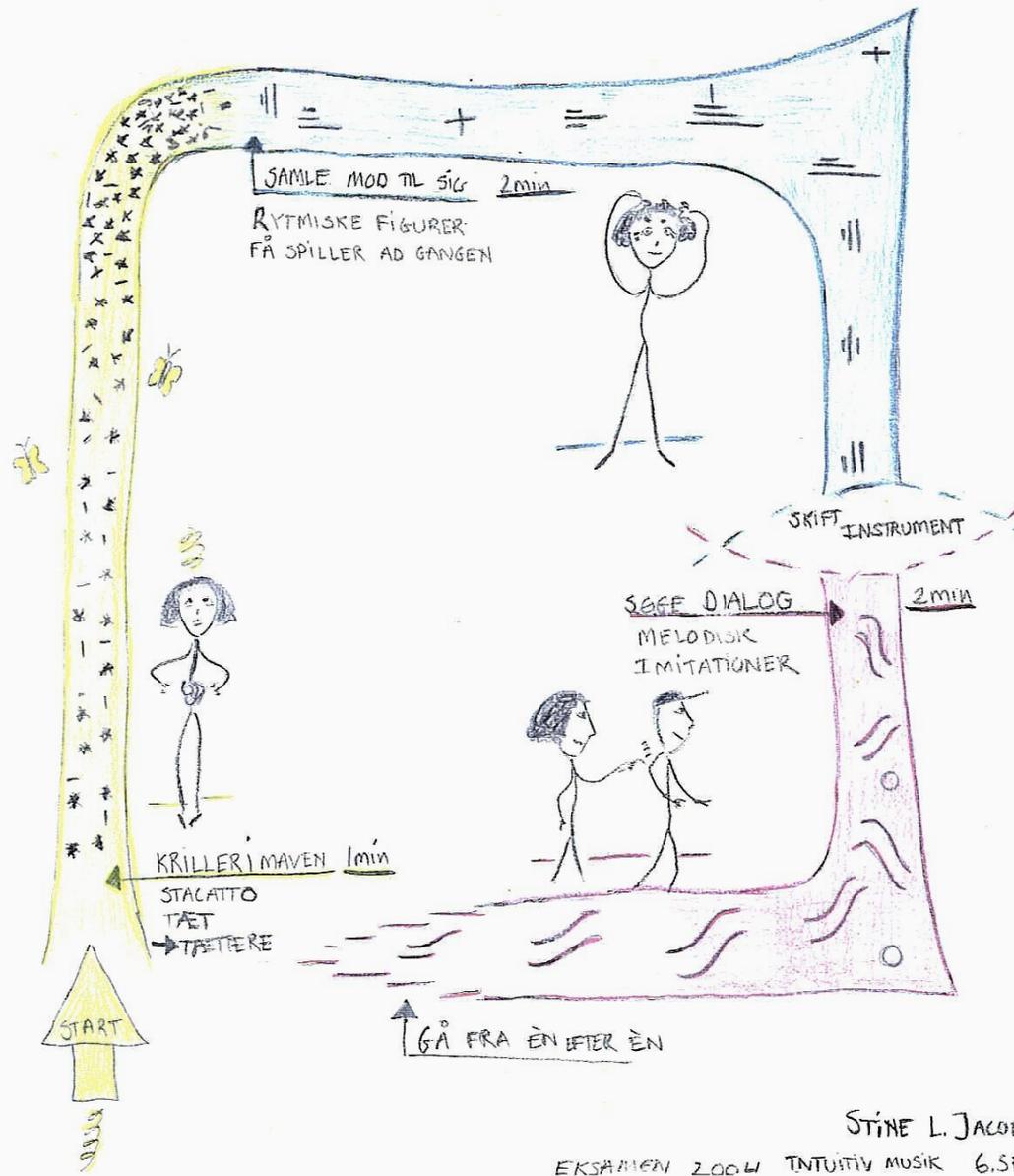


Dorthe Bergholt: Fish-Shoals (1992)

Play the DENSITIES and TIMBRES of the Fish-Shoals

APPENDIX B, 15

FORELSKELSE



SCREWING UP
ONE's
COURAGE
2 minutes
Rhythmic figures
Few musicians
are playing at
any one time

Change
instrument

SEEK
DIALOGUE
2 minutes

Melodic
Imitations

[START]
TICKLING IN
THE STOMACH
1 minute
Staccato
Dense
--> More dense

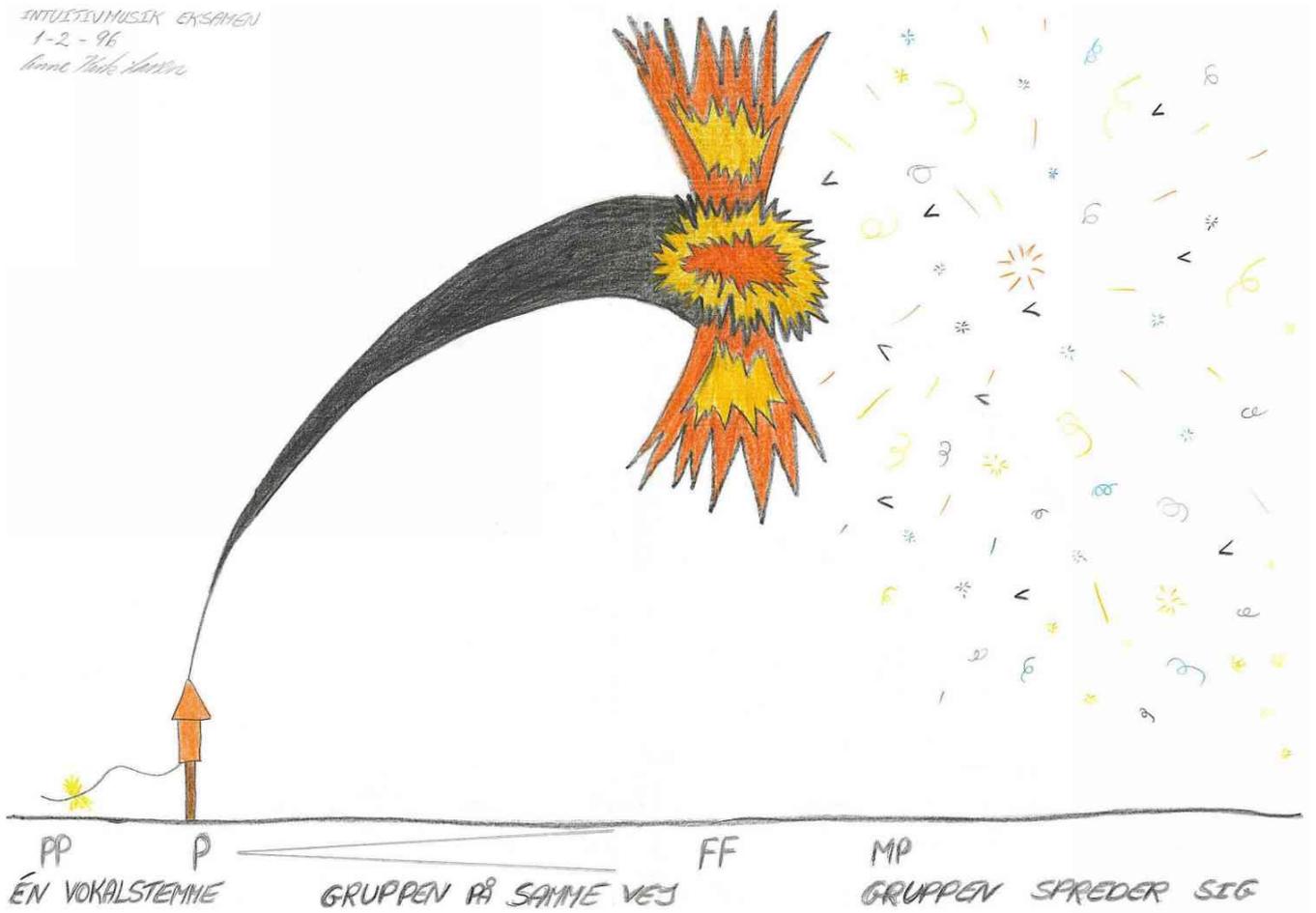
STOP ONE
AFTER
ANOTHER

Stine Lindahl Jacobsen: In Love (2005)

Read the instructions from [START], then upwards to the left (next is "SCREWING UP..."), then going down right (next is "Change instrument") – like on the drawing.

To hear this piece, please refer to Index of Recordings.

APPENDIX B, 16



Anne Kirk Larsen: Untitled (1996)

One vocalist	The group is going in the same direction	The group is dividing
--------------	--	-----------------------

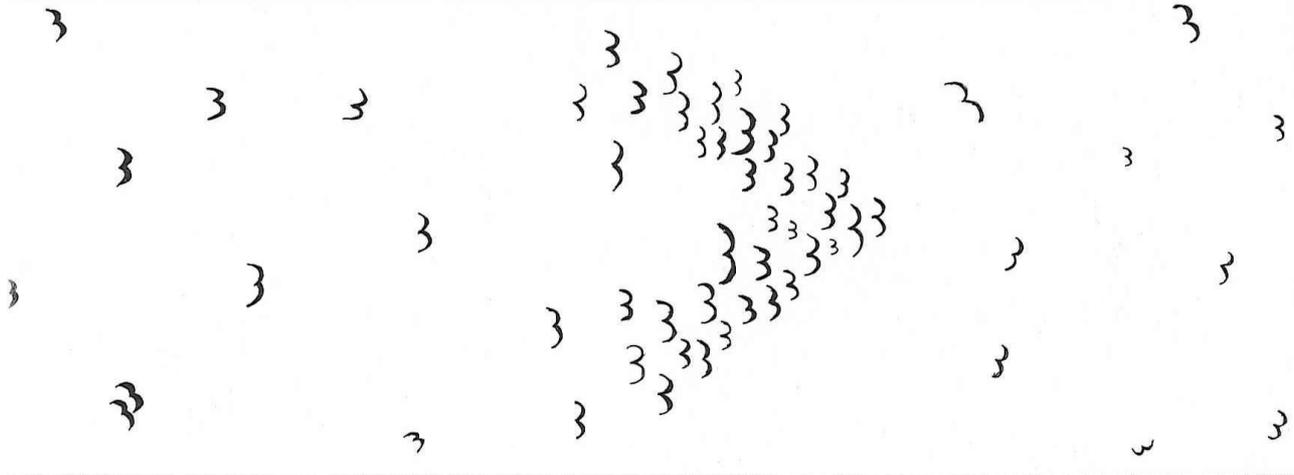
FUGLETRÆK.

Majken Zoffmann - Eksamen 1997.

Sprede fugle, ene eller i par brydder op for at trække syd over.
EFTERÅR ~ DANMARK

Mødes mere og mere; danner formation hvor én "trækker løbset". Et par af fuglene skiftes til at lede.
REJSEN

Fuglene finder land. En for en flyver de ud for at finde nye territorier i det fjerne
AFRIKA.



- Start forskudt af hinanden
- Individuel puls, tonesprog, volumen.

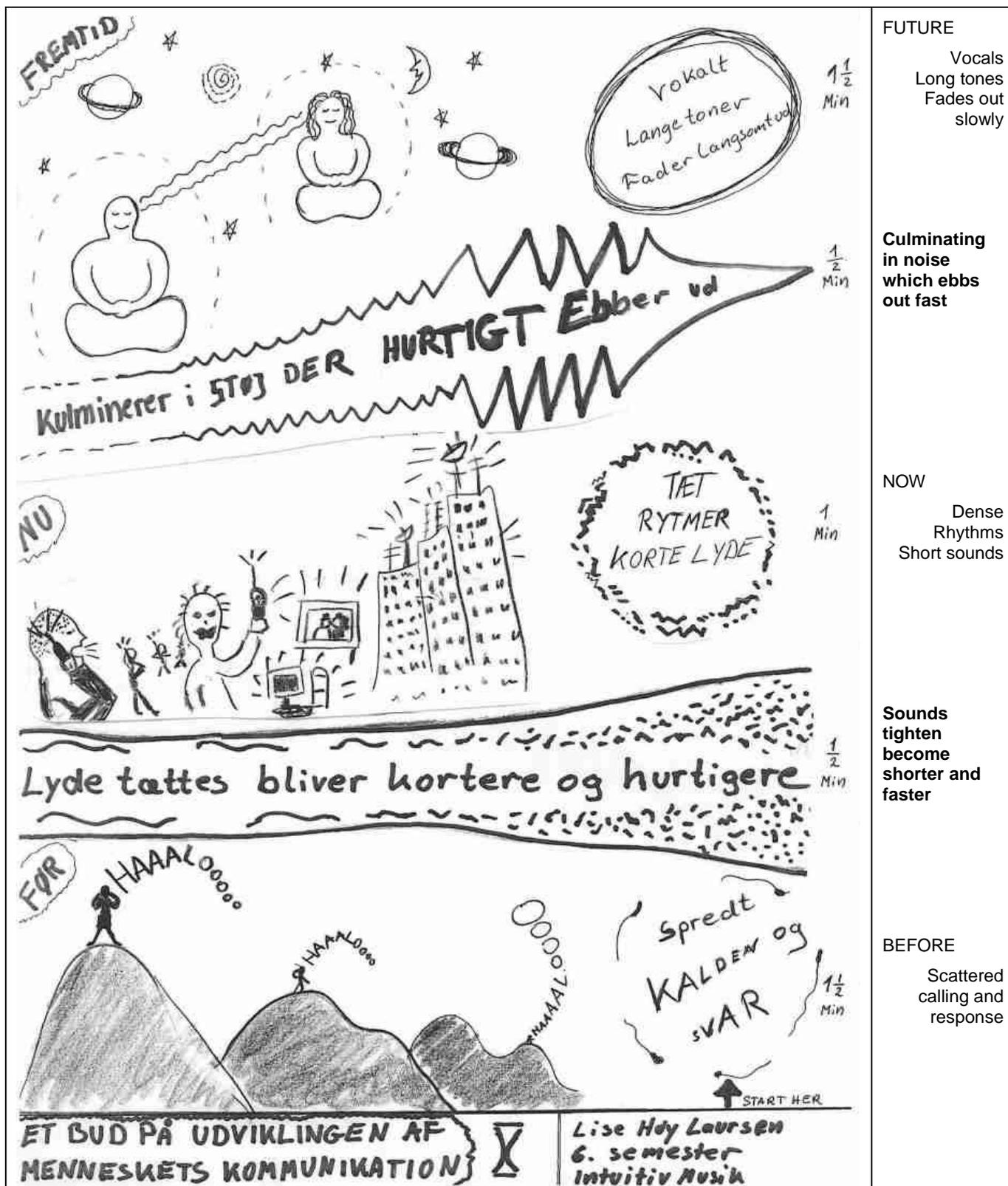
- "Gruppeudtryk".
- Centralt: fælles puls og rytme.
- Tilpas dig de andres udtryk - spec. lederens.

- Find individuel puls, tonesprog, volumen.
- Forsvind forskudt af hinanden ud af lydbilledet.

(mf) crescendo → klimaks (ff)

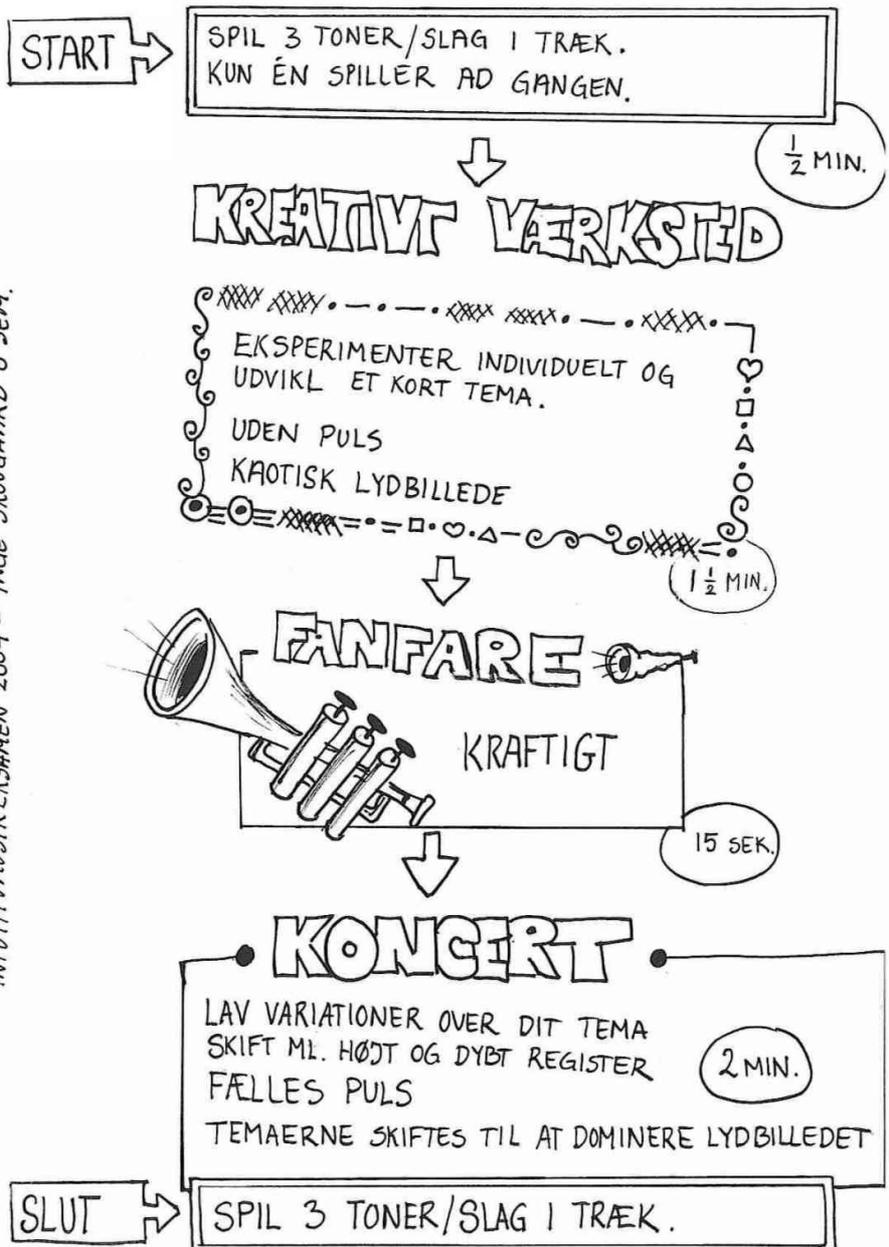
Majken Zoffmann: Migrating birds (1997)

<p>Few, scattered birds, alone or in pairs break up in order to travel south AUTUMN - DENMARK</p>	<p>They meet more and more; they make a formation in which one of them "does the job". A couple of birds take turns leading. THE TRAVEL</p>	<p>The birds find land. One by one they fly out to find new territories at this place far away. AFRICA</p>
<p><...illustration...></p>		
<p>- Start one by one with time-intervals between - Individual pulse, musical language, volume</p>	<p>"Group expression" - <u>Of central importance</u>: common pulse and rhythm - Conform to the expression of the others - especially that of the leader mf crescendo -----> climax ff</p>	<p>- Find individual pulse, musical language, volume - Disappear one by one with time-intervals between out of the soundscape.</p>



Lise Høy Laursen: A guess at the development of human communication (2004)
 To hear this piece, please refer to Index of Recordings.

INTUITIV MUSIK EKSAMEN 2004 - INGE SKOUGAARD 6 SEM.



START --->	Play 3 tones / strokes in a sequence Only one player at a time 1/2 minute
	CREATIVE WORKSHOP Make experiments, individually, and develop a short theme No pulse Chaotic overall sound 1 1/2 minute
FAN-FARE	Strong sound 15 seconds
	CONCERT Make variations over your theme Alternate between high and deep register Common pulse Themes alternatingly dominate the overall sound 2 minutes
THE END --->	Play 3 tones/strokes in a sequence

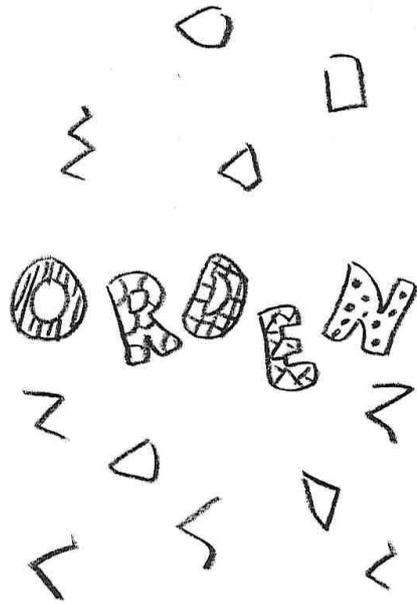
Inge Skougaard: Creative workshop - Fanfare - Concert (2004)

STIVHED



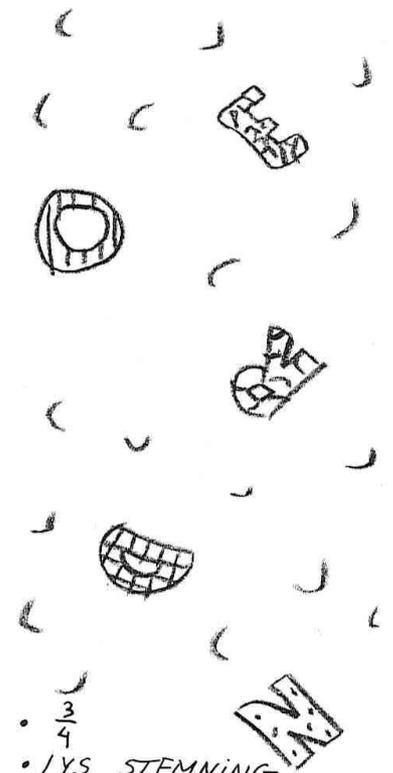
- FAST PULS
- ENSFORMIGT
- MP

UDBRUD



- PULSEN BRYDES
- FORSKELLIGE LYDE
- PRØVES AF
- FORTE

FRIT SVÆVENDE



- $\frac{3}{4}$
- LYS STEMNING
- PIANO

Charlotte Ex99

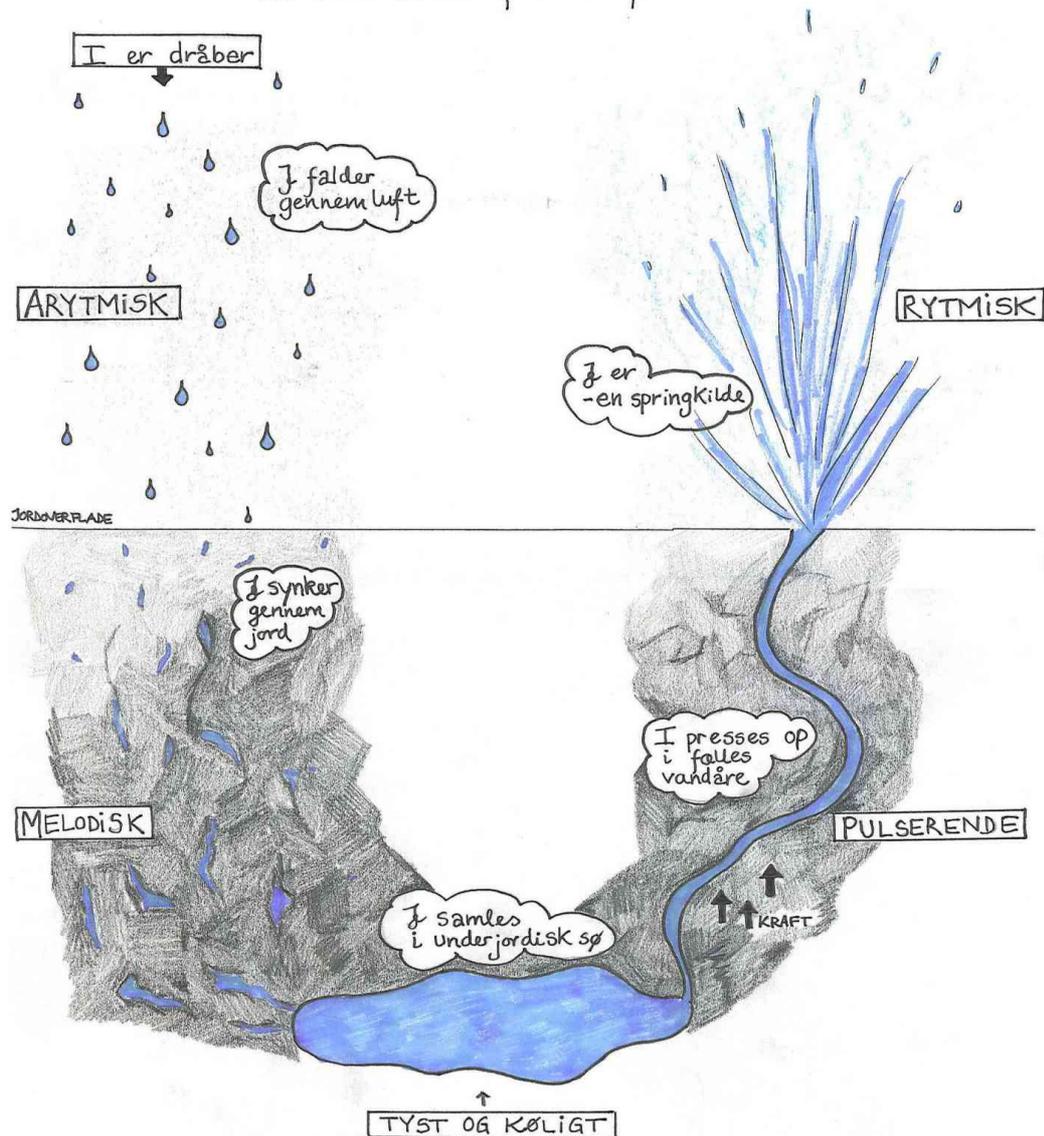
Charlotte Zachariassen: Rigidity - eruption - Freely floating (1999)

Firm pulse	Pulse is broken	$\frac{3}{4}$
Monotonous	Different sounds are tested out	Light atmosphere
mp	forte	piano

APPENDIX B, 21

VAND-MUSIK

ca. 2 min. til hver af de 5 afsnit.



IMPRO-OPLÆG 1995 Charlotte Lindvang

Charlotte Lindvang: Water-Music (1995)
To hear this piece, please refer to Index of Recordings.

Approx. 2 minutes for each of the five sections
[To be read from upper left down and up again]

You are drops		
You are falling through the air		RHYTHMIC
ARHYTHMIC		You are a spring
You are sinking down through the soil [The word to the left above the line means "earth surface"]	You gather together in a subterranean sea	You are being pressed upwards in a common stream of water
MELODIC	SUBDUED AND COOL	PULSATING [The word to the right of the arrows means "force"]

IMPROVISATIONSOPLÆG

<p>PÅ RETTE STED. TIL RETTE TID.</p>		<p>* Spil en lyd fire gange * kort varighed * svag lydstyrke * højt register</p>	<p>IN THE RIGHT PLACE AT THE RIGHT TIME * Play a sound four times * short duration * soft dynamic * high register</p>
<p>LAD LYD LEVE.</p>		<p>* Udvikle lyden * længere varighed * inddrag andre lyde/toner</p>	<p>LET SOUND LIVE * Develop the sound * longer duration * include other sounds / tones</p>
<p>SNAK SAMMEN...</p>		<p>* mellem register * øget tæthed</p>	<p>TALK TOGETHER * middle register * higher density</p>
<p>..HIDSIGT OG HEMMELIGT.</p>		<p>* dybt register * høj tæthed * accelerando til sidst.</p>	<p>...PASSIONATELY AND SECRETLY * Deep register * high density * accelerando in the end</p>
<p>TOMT RUM</p>			<p>EMPTY SPACE</p>
<p>SIDSTE CHANCE</p>		<p>* Spil (ikke spild!) en lyd en gang.</p>	<p>LAST CHANCE * Play a sound four times * short duration * soft dynamic * high register</p>

Intuitiv musik - eksamen - 11/2 - 05 - ANETTE D. MOLTUBAK

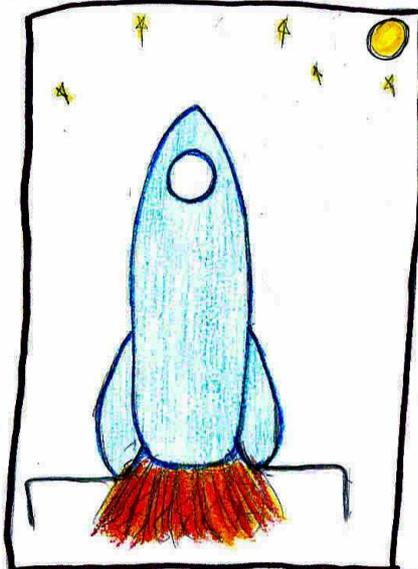
Annette Moltubak: Right time and place (2005)

[Start from above]

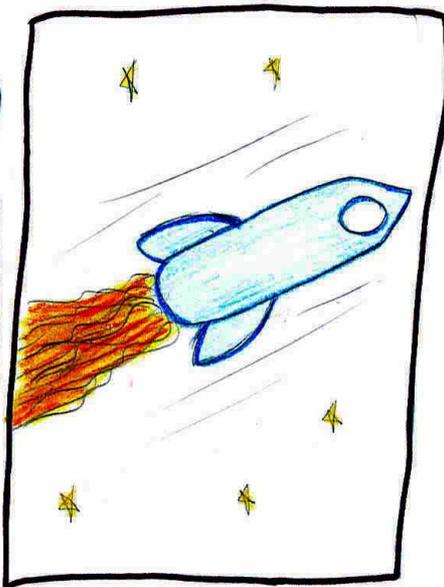
APPENDIX B, 23

"TAKE OFF"

ALLE TONEARTER MÅ BRUGES
HELE REGISTERET MÅ BRUGES



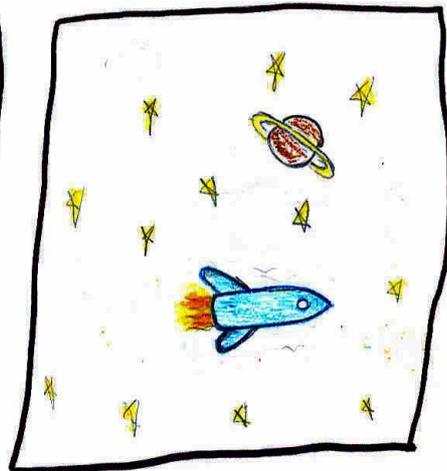
* VARME OG ULMENDE LYD
* CON FUOCO mf



* TÆT OG KRAFTIG LYD
* ENERGIKO

ACCELERANDO

mf cresc. **fff**



* SPREDT OG BLØD LYD
* MISTERIOSO

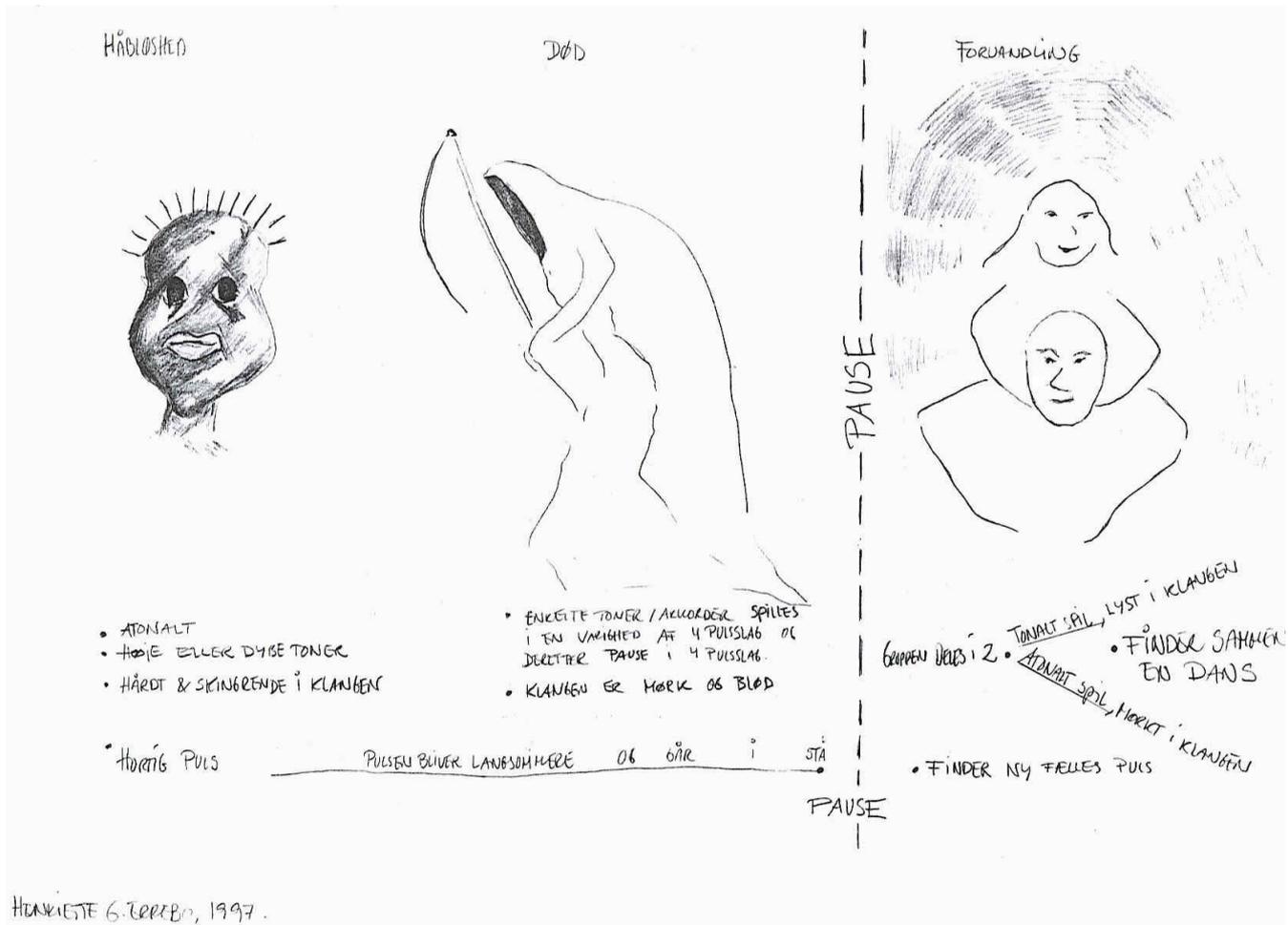
RITARDANTO

dim. **pp**

Helga Svandottir

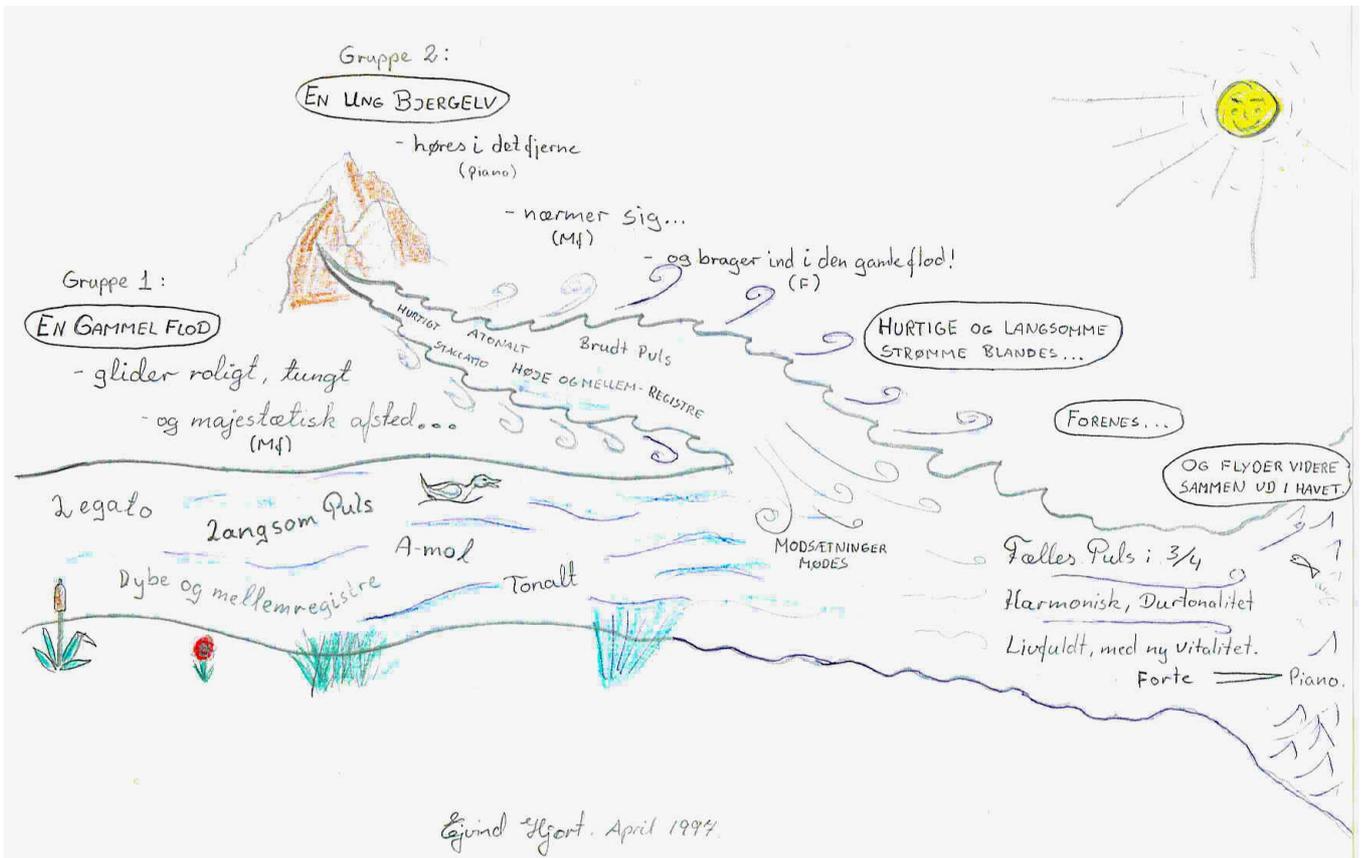
Helga Svandottir: Take Off (1999)

ALL KEYS CAN BE USED THE WHOLE REGISTER CAN BE USED				
* WARM AND SMOULDERING SOUND * CON FUOCO		* DENSE AND STRONG SOUND * ENERGIKO		* THIN AND SOFT SOUND * MISTERIOSO
	<u>ACCELLER</u> <u>ANDO</u>		<u>RITARDAND</u> <u>O</u>	
	mf cresc ---- -----	----- fff	dim -----	----- pp



Henriette G. Errebo: Hopelessness - Death - Transformation (1997)

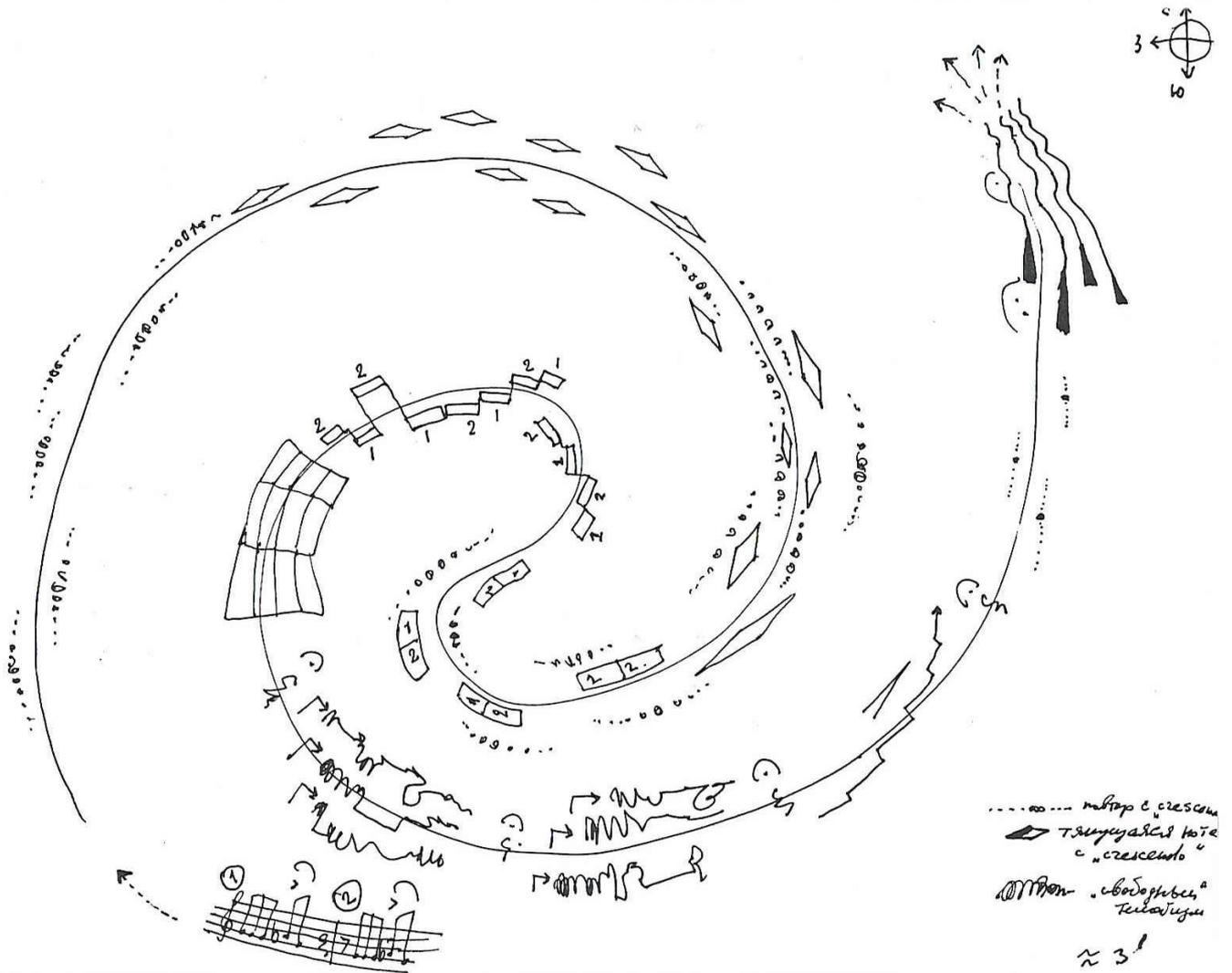
HOPELESSNESS	DEATH		TRANSFORMATION
- atonal	- single tones/chords are played for a duration of 4 pulse beats, then pause during 4 pulse beats		
- high or deep tones		P A U S E	Group divides into two sub-groups - they come together in a dance:
-harsh & shrill timbre	- timbre is dark and soft		- tonal playing, light timbre - atonal playing, dark timbre
- fast pulse	pulse becomes slower and finally stops		- finds a new common pulse



Eyvind Hjørth: [Young and old rivers] (1997)

To hear this piece, please refer to Index of Recordings.

	<p>Group 2: A YOUNG MOUNTAIN RIVER</p> <p>- is heard at a distance (piano)</p>	<p>- approaches ... (mf)</p>	<p>- and crashes into the old river!</p>	<p>FAST AND SLOW STREAMS ARE MIXED...</p>	<p>ARE UNITED...</p>	<p>AND FLOW ON TOGETHER OUT INTO THE SEA</p>
<p>Group 1: AN OLD RIVER</p> <p>- flows calmly, heavily and majestaetically along... (mf)</p>	<p>FAST ATONAL BROKEN PULSE</p> <p>STACCATO HIGH AND MIDDLE REGISTERS</p>					
<p>Legato Slow pulse Deep and middle registers a minor tonal</p>			<p>EXTREMES MEET</p>			<p>Common pulse: 3/4 Harmonically, major tonality vivid, with new vitality Forte > piano</p>

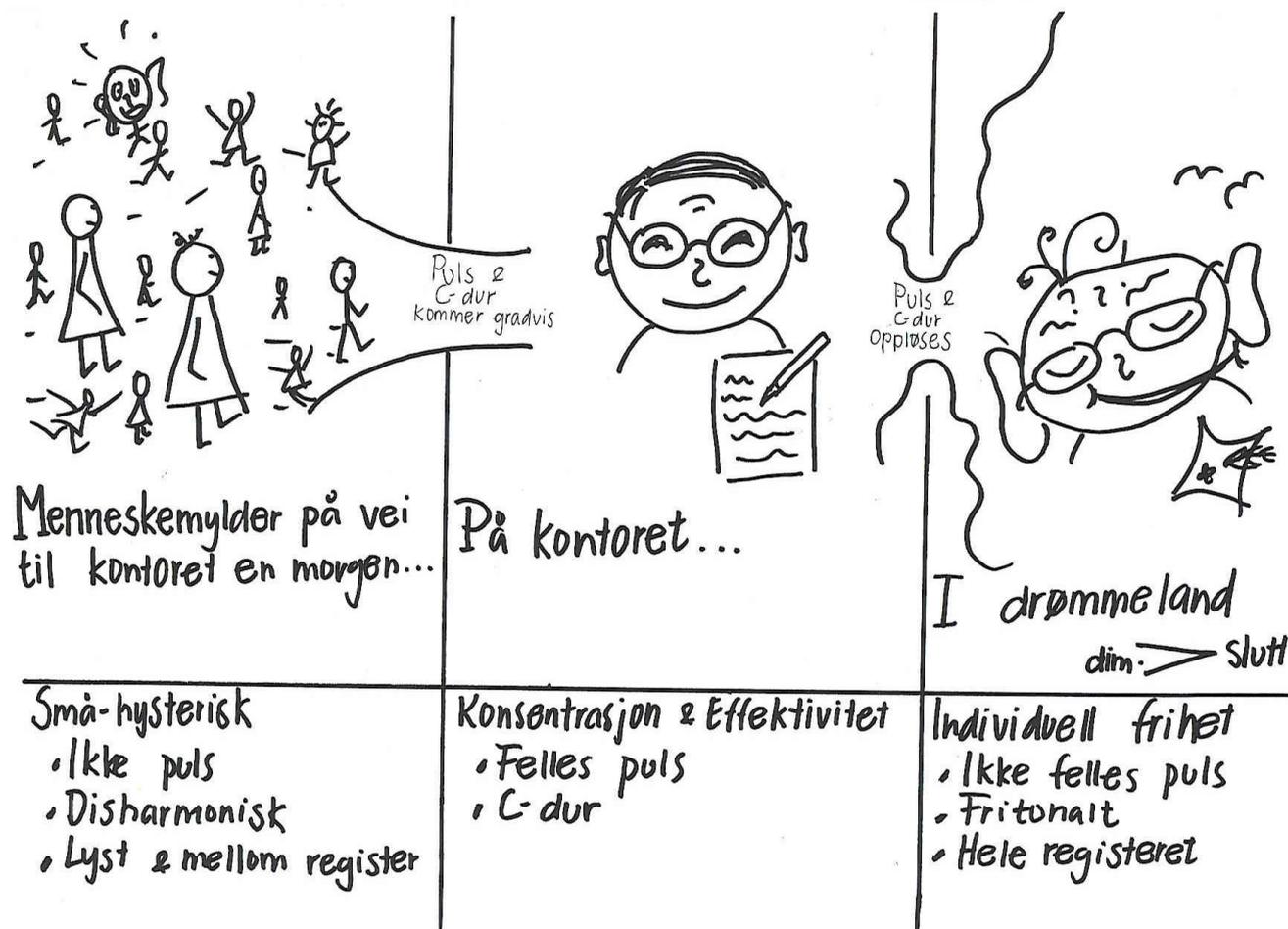


Bakhtiyar Amanzhol: Flying over Italy (2003)

To hear this piece, please refer to *Index of Recordings*.

All players start playing the theme by Rossini in the bottom left in individual ways and tempos. Follow the line ... the characteristic rhythm of the theme is maintained - then there are crescendi and diminuendi - then the theme is being built into a fugue-like structure - after the pause with the fermata is transformed several times, as suggested by the graphic figures, and disappears at last. [This is my rendition from hearing based on the oral translation from Russian - CBN]

APPENDIX B, 27



Kaja Enge: No title (A day at the office] (2005)

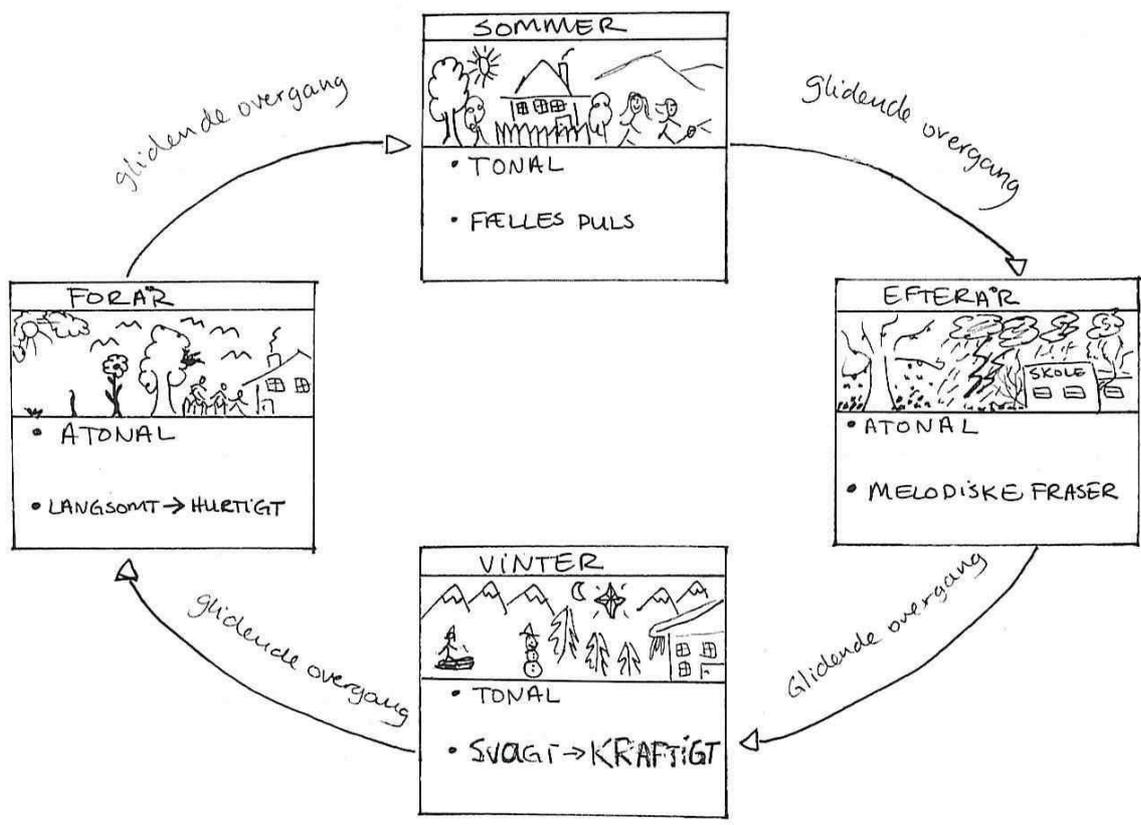
To hear this piece, please refer to Index of Recordings.

	Pulse and C major coming gradually		Pulse and C major is dissolved
--	------------------------------------	--	--------------------------------

Crowds on their way to the office one morning...	At the office	In the land of dreams dim. > end
Slightly hysterical No pulse Disharmonic Light and middle register	Concentration and effectivity Common pulse C major	Individual freedom No common pulse Freetonality The whole register

Årstiderne

eksamens oplæg af
Sara H. Gunnl.
mars 2006



Sara Hrund Gunnlaugsdóttir: The Seasons (2006)
To hear this piece, please refer to Index of Recordings.
Musicians start to play at "Summer"

Gradual transition	SUMMER tonal common pulse	Gradual transition
SPRING atonal slow ---> fast		AUTUMN atonal melodic phrases
Gradual transition	WINTER tonal piano ---> forte	Gradual transition

APPENDIX B, 29

THE BIG BANG

ENGANG VAR DER EN STOR GLOBAL KÆMPEKLODE ,

PLUDSELIG SKETE EN

EXPLOSION

OG KLODEN BRISTEDE OG BLEV
TIL MANGE SMÅ PLANETER OG
STJERNER SOM FRA DET
ØJEBLIK BEVÆGEDE SIG BORT
FRA HINANDEN - UD I
UNIVERSET.

DU ER EN AF DE MANGE
PLANETER OG DU SKAL NU I LYD
BEVÆGE DIG MOD DE ANDRE .

DU VIL MØDE MEGEN MODSTAND
P.G.A. DET ATMOSFÆRISKE TRYK

I SKAL SAMLES
OG SMELTE SAMMEN
TIL EEN KLODE
IGEN.

Elise Haich Sørensen: The Big Bang (1988)

To hear this piece, please refer to Index of Recordings.

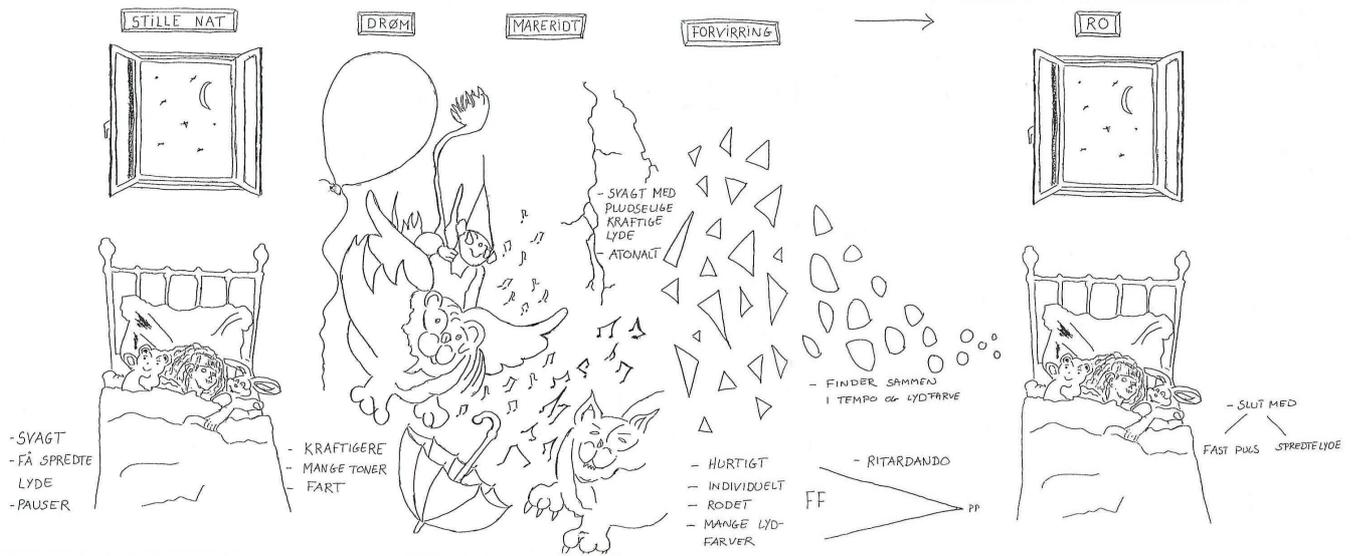
Once there was a large global giant planet.
Suddenly an EXPLOSION occurred

And the planet burst and became many small planets and stars which from that moment moved away from each other - out into the universe.

You are one of the many planets and you are now to move towards the others in the medium of sound.

You will encounter much resistance due to the atmospheric pressure.

You are going to gather and melt together into one globe again.

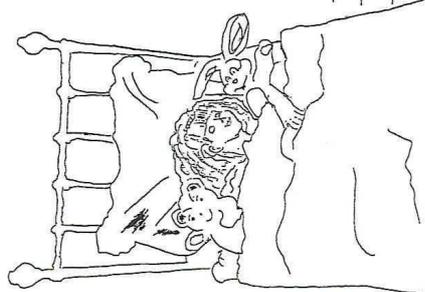
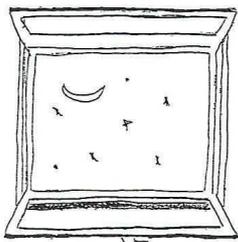


Anne-Mette Jordan: Quiet night - dream - nightmare - confusion - peace (1997)

See next page for a larger version of the illustration

	QUIET NIGHT	DREAM	NIGHT MARE		CONFUSION	----->	PEACE
				- low dynamics, with sudden strong sounds - atonal		- players find together in tempo and dynamcs	
- low dynamics - few scattered sounds - pauses		- louder - many tones - speedy			- fast - individual parts - messy - many colours of sound	RITARDANDO FF > pp	- end with firm pulse scattered sounds

STILLE NAT



- SVAGT
- FÅ SPREDTE
LYDE
- PAUSER

DRØM



- KRAFTIGERE
- MANGE TONER
- FART

MÆRERIDT

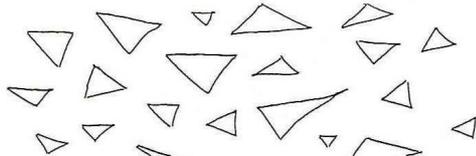


- SVAGT MED
PLUDSELIGE
KRAFTIGE
LYDE

- ATONALT

- HURTIGT
- INDIVIDUELT
- RODET
- MANGE LYD-
FARVER

FORVIRRING



- FINDER SAMMEN
I TEMPO OG LYDFARVE

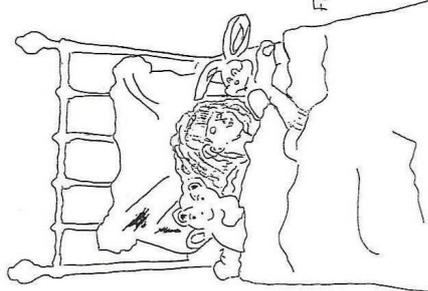
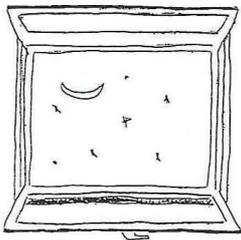
- RITARDANDO

FF

pp



RO



- SLUT MED

FAST PULS

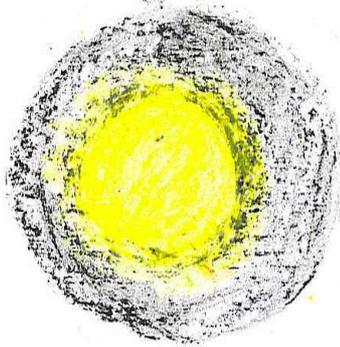
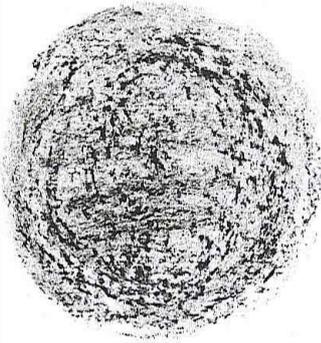
SPREDTE LYDE

Liv

I BEGYNDELSEN VAR UR-MØRKET OVERALT...

MED LYSET FØDES LIVET

EN UENDELIG MANGFOLDIG - MIDT I DENNE ER JEG!
HED OPSTÅR



SLUMRENDE

VÅGNEDE

LIVLIGT

INDIVIDUELT

pp	p	Allegro moderato	Forde	p
SANG-STEMMER KUN BLØDE-DYBE-LANGE KLANGFARVER	1. SLAG PÅ KLANGSKÅL < DYBT ATONALT / HØJT ATONALT > DIALOG FÅ TONER → MANGE TONER	FÆLLES PULS TONALT - ATONALT GRUNDTONE BAS (A) → MELODIER	FÆLLES PULS TRÆDE FREM ÉN FOR ÉN I KORTE INDIVIDUELLE UDTRYK-	
8 PERSONER				

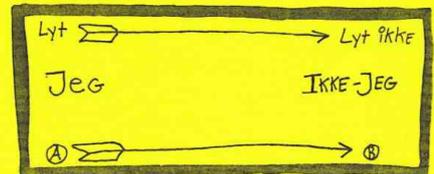
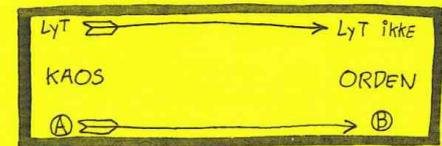
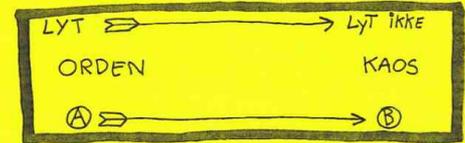
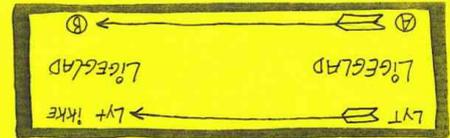
Mette Bang Nielsen: Life (1997)

In the beginning, primeval darkness was everywhere...	With light, life was born	An infinite multitude arises	- In the middle of this, I am!
Dormant	Awakening	Vivid	Individual
pp <	p < mf	< f >	p
Voices only soft-deep-long timbres	1 stroke on sounding bowl deep atonal high atonal } dialogue few tones ---> many tones	common pulse tonal - atonal central tone in the bass, A ----> melodies	common pulse stand out one after another in short, individual expressions -
8 persons			

Household Terror

- psychodramatisk musikfoldelse for X personer og autentiske instrumentarium.

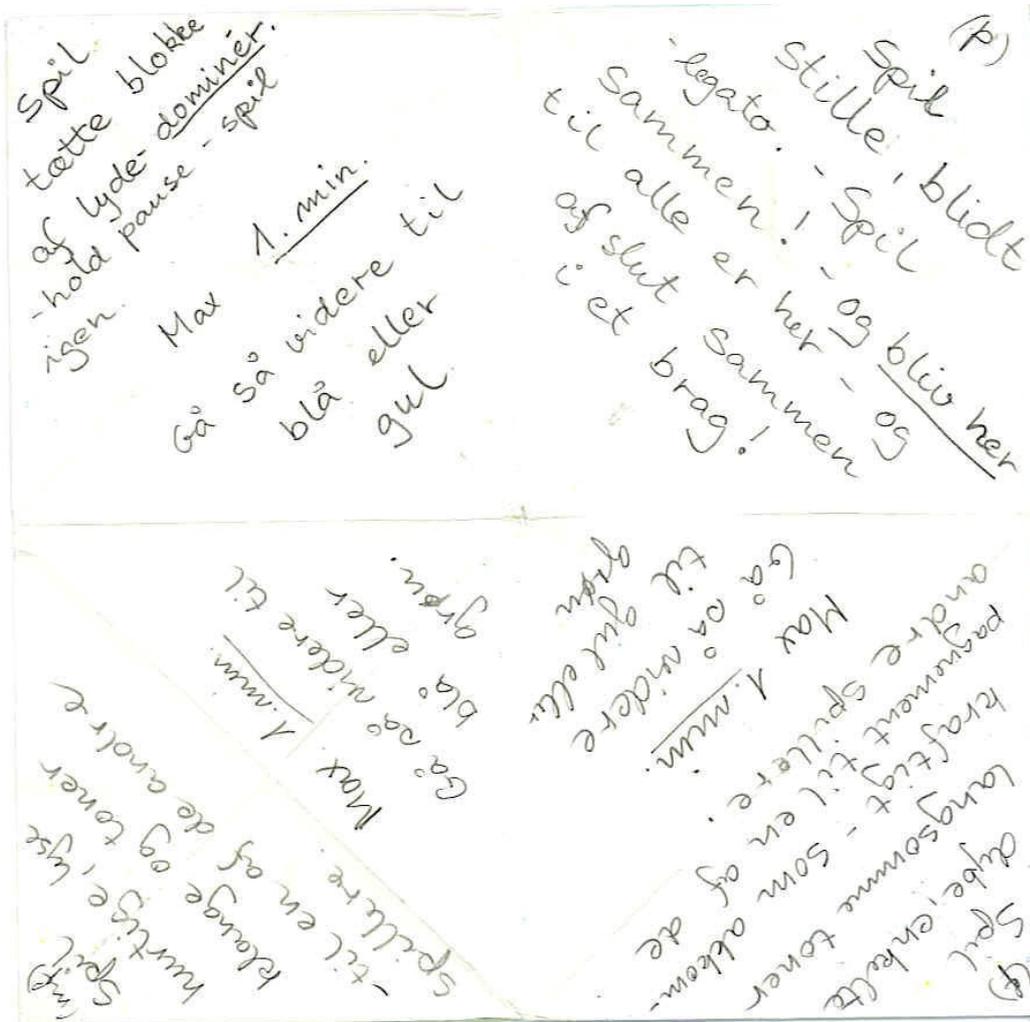
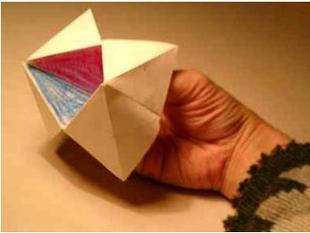
- ① Følg instruktionen på bordkortet - brug 'bordets instrumenter' til at spille processen A → B
- ② Ønsker du at tage kontakt til dine medspillere, benyt da gryden eller grydelåget.
- ③ Når du synes, du er kommet til B, rejst dig da fra bordet og gå!



Niels Jeppesen: Household Terror (1988)

The piece used a dining table with a pot in the middle and one dinner set for each musician.

<p>Household Terror - psychodramatic music action for X persons and authentic instruments.</p> <p>1) Follow the instruction on the table card - use "the instruments of the table" to play the process A ---> B</p> <p>2) If you wish to take contact to your fellow players, use the <u>pot</u> or the <u>pot lid</u>.</p> <p>3) When you think you have moved to B, stand up from the table and <u>walk out!</u></p>	<p>[The cards are to be cut out and placed on the table at each dinner set. They all describe an opposition between "Listen ----- do not listen" together with one more pair of opposites. Starting from the top, the opposites to be expressed in music and action, gradually changing along a continuum, are:]</p>	
	Don't care	Don't care
	Not-I	I
	Order	Chaos
	Chaos	Order
	I	Not-I

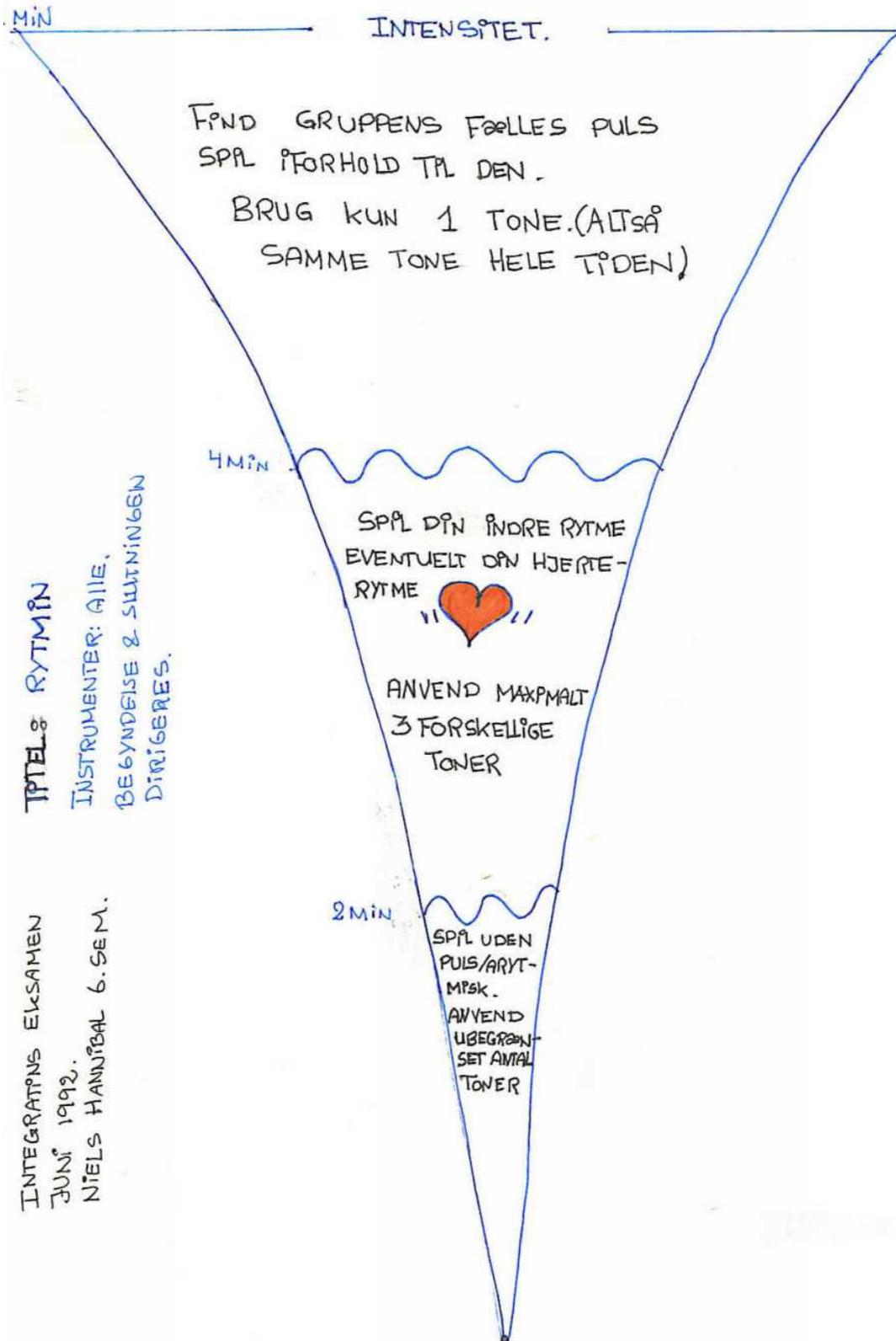


Ingrid Korsgaard: [no title] (1989)

[The upper illustration shows the object from outside. The lower one shows the text inside.]

The composition uses a folded paper object of a kind used in a traditional game. An assistant goes to the players and moves the sides of the object in the two directions possible - a player chooses a color by pointing out. When unfolding the object, instructions written inside can be read. After having played the corresponding section, a number from the section in question is read which tells how many sections to jump forward in the sequence of sections. One section marks the end.

<p>Play dense blocks of sound - <u>dominate</u> - take a pause - play again</p> <p>Maximum <u>1 minute</u></p> <p>Then proceed to blue or yellow</p>	<p>(p)</p> <p>Play quietly, gently - legato. Play together! - and <u>stay here</u> till all have arrived here - and end together with a crash!</p>
<p>(mf)</p> <p>Play fast, light sounds and tones - to one of the other players</p> <p>Maximum <u>1 minute</u></p> <p>Then proceed to blue or green.</p>	<p>(f)</p> <p>Play deep, single, slow tones strongly - as an accompaniment to one of the other players.</p> <p>Maximum <u>1 minute</u></p> <p>Then proceed to yellow or green</p>



INTENSITY
Find the common pulse of the group. Play in relation to it Use only one tone (that is, the same tone all the time)
Play your inner rhythm maybe the rhythm of your heart Use three different tones as a maximum
Play without pulse/arhythmically. Use unlimited number of tones

Niels Hannibal: Rhythmy (1992)

Instruments: all
Begin and end to be conducted. [Start reading from the bottom!]

"SINNSFORVIRRING"	"AVBRUTT"	"SØKEN"	"BESLUTNING"
< ff >	mf	p — mf — p	f — mp
<ul style="list-style-type: none"> • Tette cluster klanger, vokalt. • Hele registeret. • Hysterisk uttrykk. 	<ul style="list-style-type: none"> • Puls (ind.) • Staccato. • Hurtig tempo. <p>(øyekontakt)</p>	<ul style="list-style-type: none"> • Velg én tone, og spill den samme tonen. • Varierende tempo. • Lekende/Utforskende uttrykk. 	<ul style="list-style-type: none"> • Bevar og bland de foregående elementene. • Overbevisende/Standhaftig uttrykk. • Elementene synges/spilles en forløp på 5 ganger. STOPP

Line Norman: Psychic confusion - Interrupted - Searching - Decision (1992)

"PSYCHIC CONFUSION"	"INTERRUPTED"		"SEARCHING"	"DECISION"
< ff >	mf		p < mf > p	f > mp
Tight cluster sounds, vocally The entire register Hysterical expression	Pulse (individual) Staccato Fast tempo		Choose one tone and play the same one Varied tempos Playful/explorative expression	Retain and mix the preceding elements Convincing/resolute expression Elements to be sung/played in a process of 5 times STOP
		(Eye contact)		

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NOTES

1. "Parametric values" however, characterize the properties of a probability distribution within statistics. Also a special meaning of the term in information theory exists. See the excellent and comprehensive article Blumröder (1982), cf. Landy (1991).
2. Professor Werner Meyer-Eppeler, Head of Institute of Phonetics and Communication Research at Bonn, was also a pioneer of electronic music, and he supported the foundation of the Cologne electronic music studio. His lectures were influential to the serialists. In Die Reihe 8 (1962), an obituary by Eimert directly mentions that words like 'parameter' came into use thanks to him (p.6)
3. An aural score is a musical notation made to guide the listener, not to play from.
4. This analogy is given by Einstein and Infeld (1962) p. 186.
5. As these examples suggest, there is more continuity between serial method and traditional composition than is usually supposed. One study suggesting this in still another way is Stockhausens "Kadenzrhythmik im Werk Mozarts" (Stockhausen (1964)) which devotes 22 pages to a strictly systematic study of ways of cadencing in works of Mozart. He describes how rhythmic tensions exist, parallel to harmonic tensions which arise with "opening" of the tonal cadence (away from the tonic) and which are resolved with its "conclusion" (back to the tonic). Syncopated values indicate tension, regular values its resolving. Two kinds of openings and two kinds of conclusion are thus possible (harmony and melody running parallel or contrary), all of which are amply exemplified in Mozart's works. They were probably not constructed systematically, still this variation can be seen as a fact of his music. And it is thus justified to state, as the author does, that these dimensions can be considered "- as we would say today referring to multi-dimensional serial composition - parameters having equal rights" (p.178 in the Texte edition).
6. Quoted from Sørensen (1998).
7. Stockhausen (1963), p. 67 and 65.
8. "Musik und Sprache" in Eimert et al. (1960) (Also in Stockhausen (1963), provides insight into the compositional procedures for which the working out of continua which connect voice sounds and electronic sounds were crucial. In his descriptions of later works, Stockhausen's enthusiasm about integrating very different elements is clearly apparent - for instance in the program note to "Kontakte": "Die Begegnung mit Vertrautem, Benennbarem in Regionen des Unbekannten ... macht das Unbekannte umso geheimnisvoller, faszinierender, und umgekehrt wird das Bekannte, auch Banale und Alte ... in der neuen Umgebung ganz frisch und lebendig".[The encounter of that which is familiar within regions of that which is unknown ... makes the unknown even more mysterious, fascinating, and, conversely, the

well-known, also that which is trivial and old ... becomes quite fresh and alive in the new context] (Stockhausen 1963); quoted here from Stockhausen (no year [1960])).

9. Stockhausen (1963) p. 67

10. Stockhausen (1963), p. 17

11. Cott (1974), p.101

12. See Einstein et al. (1962)..

13. Mention is thus made of "rows" in the plural, not singular in Eimert et al. (1955) by Krenek p 30 and Greninger p. 36.

14. Stockhausen (1974), quoted in the original languages.

15. In Eimert et al. (1955), Stuckenschmidt states(p 18) that the label "total predetermination" comes from composer Ernst Krenek who also mentions it in the same volume. He does not even claim to speak on behalf of the young composers, as is clearly apparent from the title of his contribution "Den jüngeren über die Schulter geschaut" ["Looking over the shoulders of the young composers"]. Stuckenschmidt's distance to the younger composers became later more apparent in a review in which he characterized serialists as being interested in "formulas and machines in a too romantic way" (Bergstroem-Nielsen 1980) - Koenig (1998) confirms that this was also perceived so.

16. Eimert et al. (1958)

17. Cage (1973) provides many of his central and influential texts.

18. John Cage studied with Arnold Schönberg and conducted a correspondence with Pierre Boulez from 1949 and on. He was well-oriented about European thinking. It is worth noticing here that in the article "Experimental music: doctrine" from 1955 (Cage (1973)) he goes over all three dimensions of pitch, timbre and dynamics - p. 16-17 to explain what experimental music can be. Music of Changes systematically varied the dimensions of "Superpositions ...(how many events are happening at once during a given structural space), Tempi ... Durations ... Sounds ... Dynamics" (p.58). Earlier in music history, Henry Cowell (1930) employed ideas of integrating the dimensions of pitch and duration, creating time-scales which appear as a direct forerunner of Stockhausen's similar ideas (1957).

19. Julio Estrada (1994 and 2001) is a composer who has contributed with elaborated theory in addition to compositional practise. See also note 22 below for more examples.

20. Pragmatically, one could ask whether this old turmoil has any significance at all in the present day. This is unfortunately the case because stereotypic views originating from those who accused the music of the fifties of being inhuman, cold and to a dominating degree

concerned with technical construction persist in some cases.. To be true, there was much technical construction both in electronic music (which was pioneering work leading to the electronic music industry of today) and also much emphasis on constructive devices in instrumental music. The difference, however, compared to attitudes towards an acknowledged old master as J.S. Bach, is that in the case of Bach the tendency is to view the employment of very rigid and intricate canonic procedures as a sign of the composer's mastery to integrate intellectual and emotional aspects of musical language. Whereas a complicated serial work having the same degree of rigidity could be condemned, because the listener did not find it sympathetic.

21. The chapter "The edge of chaos" in Borgo (2005) with description of a procedure carried out by Rolf Bader may give a hint of how demanding computer analysis of music can be, even in our days. Perceiving tempo cannot be expected to be easy for a computer, just to name one example.

22. Stockhausen elaborates on this connection in "Die Einheit der musikalischen Zeit" and "Wie die Zeit vergeht" Stockhausen (1963; 1963b). "Wie die Zeit vergeht" was also printed in Eimert et al. (1957). Anders Brødsgaard is a contemporary Danish composer who sees this as an outgrowth of Pythagorean ideas. He calls Pythagoras' measurements of sounding strings *"de første forsøg på at se al musik som svingninger OG alle svingninger som musik"* *"the first attempts to see all music as vibrations and all vibrations as music"*. See Brødsgaard 2005 and Brødsgaard et al. 2005.

23. While Brindle (1986) seeks to force all experimental music into an Anglo-Saxon systematic view, Gieseler (1975) seeks to do exactly the opposite and force indeterminacy into an European form-centered view: *"Was sich als Indetermination, als Zufall und Improvisation kundtut, ist nichts anderes als die Krise der Form, des Willens zu Zusammenhang"* [*"what makes itself apparent as indetermination, as chance and improvisation, is nothing else than the crisis of form, of the will to coherence"*], he states (p.33). It is interesting to note that there are examples of more recent literature from both sides which account clearly for the difference. A mutual recognition of different cultural identities seems to be growing. Thus, from the European side, Feisst (1997) devotes separate, long sections to the discussion of each. See also, from the American side, Cox et al. (2004) p.165f.

24. Stockhausen saw equality and relativity in the light of the "living whole", a utopian vision. [*"Jeg ser et orkester, i hvilket enhver musiker spiller enhver - tilsyneladende nok så ubetydelig - enkelt tone med omhu og kærlighed og med bevidsthed om, at enhver nok så lille del er vigtig og god for et levende hele"*] [*"I envisage an orchestra in which every musician plays every tone - even the seemingly most unimportant one - with caring and love and with the awareness that any part, regardless how small, is important and good for a living whole"*]. From a program note to Punkte (1952), written 1969, quoted from Lékfeldt (1991), p.176.

25. Title of the book in translation is "Transformations between language and music. The working components of music therapy".

26. The parameter notion often leads to a quantifying view of the material - even if the individual synthesis of the work becomes a singular creation. A logically different and complementary basic view could be of starting with the individual qualities of sound. Cage did in fact advocate the view that each sound is individual, not a product of the working of a system - even if he also, as we have seen, contributed to parameter concepts. Shaeffer (1966) seems to deal with this complementarity when contrasting "*morphologie*" with "*typologie*" (p.397) - even if he also, in the same book, discussed basic acoustic dimensions in length. It seems these views could ultimately supplement each other. Wishart (1985) also emphasizes a perceived need to focus on qualitative concepts for the description of electronic music. The parameter view seems, however, to be very well suited to put musical characteristics into a context. Individual characteristics need not lose their meaning by so doing.

27. During a discussion, Brandt (2001) suggested a view of new dimensions growing organically out of the old ones: out of harmony with its built-in discontinuity came the more continuous view of timbre, out of meter came the more general pulse.

28. In the lists of classical and other music works, only those belonging to recent times have year of composition, while this was considered unnecessary for well-known classical works.

29. More information about the teaching to be found in Bergstrøm-Nielsen (1999).

30. Concerning this aspect of independence, see also the considerations stated below under "Dynamics".

31. In the course of history, the orchestra was gradually expanded and the number of piano keys increased as well. Murray Schafer comments on this development and illustrates it by means of coordinate systems - the area employed for music in the renaissance was close to that of the human voice, and it was gradually expanded to cover almost the entire audible (and endurable) range of sound. See Schafer (1969)

32. His critical reflection extends into more details than I have shown here, concerning also musical repertoire and traditional thinking of rhythm and form.

33. Non-idiomatic means: not belonging to a specific style within which the improvisation takes place, cf. the influential statements of Derek Bailey (1992), p.xi f: "I have used the terms 'idiomatic' and 'non-idiomatic' to describe the two main forms of improvisation. Idiomatic improvisation, much the most widely used, is mainly concerned with the expression of an idiom - such as jazz, flamenco or baroque - and takes its identity and motivation from that idiom. Non-idiomatic improvisation has other concerns and is most usually found in so-called 'free' improvisation..."

34. Heard at the Sounds 99 festival, Stockholm 1999.

35. "Strubesang" - literally "throat singing" - is a word for this way of singing sometimes used in Danish - it has been taught at therapy/self-development courses. A vocalist can focus on selected areas of the spectrum while keeping the fundamental pitch constant. A gradual change of focus can make an impression in the listener of going on a journey into the spectrum's inner structures - structures which were felt in a subliminal way may the next second stand out clearly in details.

36. See note 19 in Bergstrøm-Nielsen (2002)

37. See "Sleep Gently in the Womb" (Nippon medical school professor Hajime Murooka M.D.), EMI LP 773 stereo. 1975.

38. There is thus a situation which has often been called a "post-modernistic" one. Music therapist Colin Lee (2003) stresses relativity in the context of communication within therapy, describing tonality and atonality as simply tools, even if this author takes much inspiration from music works from different historic periods: "... This chapter will propose that atonality in clinical improvisation is indeed a precise musical resource that should depend on the client, the stage of therapy, and the immediate musical response. ... As we move between the polarities of tonal and atonal expression, our knowledge of each should be equal" (p.159f). Lennon (1992) from the musicological side, also advocates a relativistic view.

39. Seen from this ambiguity perspective of musical material in relation to program ideas, one could speak of a higher or lesser degree of "Verfremdung" relating to convention, but not, of course, of any "absolute truth" of how to translate the ideas into music nor the music into ideas.

40. One more thing to note is the neutral character of pitch in two cases, as a medium of unspecified differentiation - like just different TV or radio frequencies. This becomes interestingly paradoxical when contemplating the fact that pitch seems to be the most conventionalized parameter of all - cf. also the differentiated uses of it summarized in the last column. In this case, convention can, after all, also be bypassed with no special difficulty.
