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Electronic music compositional techniques in instrumental music: A study of effect in Helmut Lachenmann's 'Pression'

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**Electronic Music Compositional Techniques in
Instrumental Music: A Study of Effect in
Helmut Lachenmann's '*Pression*'.**

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Abstract

The ability of new technologies of the early twentieth century to record, copy and manipulate music has permanently changed many of the basic conceptions of musical structure that have held true for centuries. With the development of musique concrete in France (1948) and elektronische musik in Germany (1951), traditional compositional elements of classical music such as melody, harmony and rhythm, which had survived even the drastic revolutions of the serial composers, began to take a secondary role to new structural and developmental techniques. Although there have been many technological and musical advances in the field of electronic music since these first schools were conceived, it was in this fledgling period that electronic music brought about the fundamental changes to our musical world that have remained the same despite the advances of digital technology. It is these first important changes to concepts and techniques of musical construction and perception that will be the focus of this paper, and how these developments in the understanding and manipulation of musical material have been utilized by composers of instrumental music. This will be shown in detail through the study of Helmut Lachenmann's solo cello work *Pression* (1969) and its relation to other musical practices.

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Electronic Music Compositional Techniques in Instrumental Music: A Study of Effect in Helmut Lachenmann's '*Pression*'.

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Part One

1-Introduction - The Techniques and Philosophies of Electronic Music

In order to reflect upon the influence of technology on the composition of instrumental music, it is important to first reflect upon the general development of techniques and philosophies of the electronic music movement. This is not intended to be an all inclusive survey of electronic music history, but rather is intended to draw attention to the aspects of these practices which would come to form key concepts for later instrumental composition.

In the first half of the twentieth century there were some musical and philosophical precursors that paved the way for the introduction of electronic music by pushing the boundaries of our conception of music. The futurists were a significant movement towards the extension of our musical sound world, with Luigi Russolo and fellow futurists creating music from machine guns, steam whistles and sirens from as early as 1912. Edgard Varese also integrated sirens and anvils into his music as in *Hyperprism* (1922-23) and *Ionisation* (1927-31) to free his music from the western tempered system by obtaining continuous, slow glissandos. The objectives of these composers are recorded in writings such as Busoni's *Sketch for a New Aesthetic of Music* (1907) and *The Art of Noises* (1913) by Russolo. They declared that the accepted spectrum of music should be extended by introducing non-musical sounds in a controlled fashion, which is exactly what the new art of musique concrete offered. With the realization that musical 'objects' could exist outside of the harmonic structure of the music came the freedom to include musical objects that were no longer part of this structured harmonic system, including non pitched sounds and noises of all descriptions.

2-Musique Concrete

Pierre Schaeffer, a radio technician and presenter for the French national radio was the first to manipulate sound recordings to create a musical work. *Etude aux Chemins de fer* (France, 1948), one of Schaeffer's most well known works in which he manipulates recordings of the central train station, and he was soon joined by Pierre Henry and together

with the new technology of magnetic tape they created a new movement in music, musique concrete.

The shape and style of musique concrete was determined mainly by the techniques used in the manipulation of the tape used to create it. The most basic and essential of these techniques is the splice, which was the practice of cutting and rearranging pieces of magnetic tape. The shape of the cut determined the attack and decay of the recorded sound, being able to dissolve sounds gradually into the next or create a sharp transition. Later, *Williams Mix* (USA, 1952), John Cage's first tape composition used these splicing techniques as a major compositional element, bringing them to attention as a timbral and technical element rather than trying to hide the transitions. Use of echo, delay and looping affects all stem from the same basic technique. Looping, the simplest of these, splices the beginning and end of a length of magnetic tape together to form a continuous loop, then run through the tape player. The echo and delay effects are extensions of this concept, with the loop being run through two or more tape recorders and the cumulative effect being recorded. American composer Pauline Oliveros uses these techniques not only as effect, but again as a structural process in *Beautiful Soop* (USA, 1958). Another simple yet effective technique was changing the playback speed of the tape. This could be done at a continuous rate by the tape recorder, or irregularly by turning the tape reels by hand. The idea of expanding or contracting a melody or harmonic sequence is an old technique of classical music, but the speeding or slowing of the tape changes the frequency of the recorded sound in proportion to the change of tape speed and a new relationship began to emerge. Tape reversal is also used in many concrete works, enabling the composer to reverse the effects of any of the above techniques. The idea of flipping or rearranging musical material was by no means a new concept created by composers of electronic music. Reversing and breaking down melodies is a mainstay of classical technique and similar, if more stringent ideas were used in the creation of serial music too, under the formalised heading of 'retrograde'. What made the reversal of the tape sound different from its precursors is that, like the speeding or slowing of the tape, it is a literal and total reversal of the actual sound material. Where reversing a melody would involve rearranging the notes on the page in the opposite order prior to them being played, the sound of the reversed tape exactly reverses the attack, decay, dynamics and overall shape of the sound creating a completely foreign sounding

effect. This concept of the literal reversal or decomposition of sound would become an important concept in some instrumental music in the future.

Another important technique which would have an impact on future music is the manipulation of attacks. Many sounds, including those of instruments, are recognized by the timbre of their attacks. By removing the immediate attack and leaving only the continuing tone, the sound can be completely transformed. The attack of one sound could also be tacked onto another, a technique that could be considered an electronic form of orchestration, an element of composition over which composers now had an unprecedented level of control.

The tape manipulation techniques of *musique concrete* brought about some important conceptual changes in the composition of music. The process of composition could now begin with the sound material itself, rather than an abstract representation of it, a complete reversal of the traditional construction of music. Being able to handle the actual sound information, the strips of magnetic tape, lent a new materiality to sound, a tangibility that was before only available during a live performance. This led to the creation of the term 'musical object' that Schaeffer used often in his writings to refer to music whose source was invisible.

"In listening to sonorous objects whose instrumental causes are hidden, we are led to forget the latter and to take an interest in these objects for themselves. The dissociation of seeing and hearing here encourages another way of listening: we listen to the sonorous forms, without any aim other than that of hearing them better, in order to be able to describe them through an analysis of the content of our perceptions."¹

Although attaching such a label seems a small introduction to the composition of music, it signified an important shift in thinking other than simply the materiality of the sound. Rather than a sound being solely at the service of the overall harmonic or compositional structure, it was beginning to be realized as a separate entity, in and of itself, with its own unique timbral and physical characteristics completely removed from the context of the

¹ Cox, Christopher, Daniel, Warner, ed. *Audio Culture: Readings in Modern Music*. New York: The Continuum International Publishing Group Inc., 2005 'Acousmatics' Pierre Schaeffer, p.78

music or the natural world. This is a situation that could only be found in the acousmatic environment created by electronic sound, referring to when the listener is denied knowledge of the source of the sound.

“Deliberately forgetting every reference to instrumental causes or preexisting musical significations, we then seek to devote ourselves entirely and exclusively to *listening*, to discover the instinctive paths that lead from the purely “sonorous” to the purely “musical.” Such is the suggestion of acousmatics: *to deny the instrument and cultural conditioning, to put in front of us the sonorous and its musical “possibility”*.”²

This idea of sound as something independent of its context would become an important concept in future instrumental music, as would the use of compositional techniques as an audible structural process. This meant that the process of creating the audible sound became as important an element as the sound itself. Musique concrete was the final realization of the visions presented by Russolo and his fellow artists in his futurist manifesto *The Art of Noises* thirty years earlier.

3-Elektronische Musik

In Germany during the early 1950's another school of electronic music was developing alongside musique concrete. Elektronische musik worked on different philosophies and was created with the use of different technologies. While musique concrete worked with the manipulation of sounds recorded from the environment – real, or ‘concrete’ sounds – elektronische musik is based on the creation of electronic sounds in the electronic studio, and there were many heated debates between the two schools over the following years. The earliest machine in these technologies, although not used for music production, was the Vocoder (Voice Operated Recorder). This machine displayed sound graphically as functions of frequency energy against time, and synthesis produced the reverse product – sound from a graph. Musical exploration of these techniques came with the arrival of the sine-wave oscillator, which breaks sound material up into basic components of different frequencies, amplitudes and phases. Robert Beyer and Herbert Eimert completed their first

² Cox, Christopher, Daniel, Warner, ed. *Audio Culture: Readings in Modern Music*. New York: The Continuum International Publishing Group Inc., 2005. ‘Acousmatics’ Pierre Schaeffer, p.81

purely electronic composition using this technology while their studio was still under construction, producing *Klang im Unbegrenzten Raum* (1951-52). Different sounds were produced by using the three basic harmonic wave shapes, the saw tooth, triangle and square-wave, and applying filters to these sounds to highlight different harmonic components. There was also the white noise generator which offered another way to generate sound. The generator started with a wide band of random frequencies throughout the sound spectrum that created a static hiss and again filters were applied to isolate the desired individual or select group of frequencies.

Early elektronische musik composers such as Beyer and Eimert were strictly limited in their scope, being heavily influenced by the serialist composers of the second Viennese school and following strict philosophical views on the use of completely abstract sound, completely at odds with the use of actual sounds from musique concrete. Karlheinz Stockhausen was the first to expand on this, and used these techniques in a freer, more musical realization. Echo and reverberation techniques, creating different attack and decay effects were used to great effect in Stockhausen's *Studie II* (1953-4). *Gesang der Junglinge* (1955-6) created a stir with his incorporation of both recorded voice and electronic sounds blended together. This was the first piece to hint at the real possibilities of this new musical and electronic medium. Looping and delay effects similar to those of musique concrete could be created using different techniques which allowed more flexibility in the reiteration of sound and were explored by Stockhausen in *Kontakte* (1959-60) which also used live piano and percussion. Stockhausen aimed to create a continuum between electronic imitations and recorded sound, taking something from both the German and French schools of thought.

The use of machines that analysed and displayed sound graphically allowed the composer to get inside the molecular structure of the sound and begin to truly understand its construction and how any sound or tone is made up from various physical elements. Where musique concrete led to the realization of the sound object as separate from the total musical entity, elektronische musik led one step further to the realization of all the aspects that make up even that one sound object. As with the physicality of the magnetic tape, the graphical nature of this process meant that concepts of space and time became equivalent

forces, both able to be worked with with immediacy and ease. Composers also began to gain a better understanding of the construction of sound through this analysis of the sound spectra. With the ability to have complete control over timbre, and an endless array of colours to choose from, combined with the changing concepts of time and its manipulation, meant timbre began to replace melody, harmony and rhythm as a main structural device. The ability to visualize the oscillating sound waves also led to the recognition of rhythm as the building block for pitch, a major change in the conception of sound. This graphic visualization of sound also led to the break down of the traditional notation system and the introduction of the graphical score for both electronic and instrumental music alike.

Some further developments have also been important to our changing perceptions of music. The digitalisation of music has led to many developments and increased flexibility in the writing and storing of musical data. While Digital to Analogue Converters (DAC's) are needed for the playback of music, as music is by nature a linear medium, it is the creation and storage of sound in its digital form, therefore in 'block' form rather than linear, that allowed for access to any piece of information at any time. This transformed the use of electronics in music and with its improved flexibility and immediacy also allowed for new avenues in live electronic performance. Early examples of the use of electronic sound synthesis can be seen in the music of Milton Babbitt, such as *Vision and Prayer* (USA, 1961).

Part Two

4-Instrumental Music in the Electronic Age

Since the development of electronic music and the conceptual and technical shifts it facilitated, many composers have used different aspects of these practices to create new and original avenues of compositional possibility in the field of acoustic instrumental writing. With instrumental composers of today having grown up with the added possibilities of new technologies permeating their lives it is at times impossible to tell exactly to what extent it has influenced their composing, some actively seeking out new paths through the use of electronic mediums while others passively and subconsciously absorb the changes of their society into their music. Unlike the early development of the electronic schools, these new instrumental writings are not a development that is easy to trace and follow, as there were no definitive schools of thought in this field. With electronics now permeating all aspects of composers' work, a comprehensive cover of all the ways in which this has occurred would be nearly impossible, though there are certain pioneers whose works are instrumental in the forging of new instrumental compositional practices.

With the abandonment of tonality, and with it the traditional compositional structures of melody and harmony, composers were left in search of an equally powerful set of organizing principles. They found this through the influence of electronic music, which held greater importance in timbral and spatial elements than those of melody and harmony. Gyorgy Ligeti was one composer who used timbre to great effect in his works, such as *Atmospheres* (1961) and *Lontano* (1967) in which the movement is created through constant though subtle changes in timbre while remaining harmonically and melodically static. Mimicking electronic music's ability to minutely control all aspects of orchestration, Ligeti's music is meticulously scored with many independent lines allowing a similar level of control over the resulting timbres. Iannis Xenakis used similar techniques in *Metastasis* (1955) and *Pithoprakta* (1956), creating extremely complicated scores with many detailed and rhythmically independent parts, though the individual lines were always secondary to the effect of the overall soundmass. He also drew inspiration from natural sound events and their structure in his self styled 'stochastic music' in which he used the scientific breakdown of natural events as a structure for his music.

“...[Take] natural sound events such as the collision of hail or rain with hard surfaces, or the song of cicadas in a summer field. These sonic events are made out of thousands of isolated sounds; this multitude of sounds, seen as a totality, is a new sonic event.”³

This has echoes from both the original schools of electronic music, drawing on natural sound events, as Schaeffer does in *musique concrete* and the breakdown and study of minute elements of a sound, as used in *elektronische musik*. Krzysztof Penderecki is another composer who created similar effects using timbre, though through a very different process. Rather than the meticulously detailed score of Ligeti and Xenakis, Penderecki uses a semi-graphical notation, leaving instructions that are relative for each instrument, for example to play the highest or lowest note of the instrument. He also assigns pitchbands to instruments, as in *Threnody for the Victims of Hiroshima* (1960) instructing them to play any and all possible sounds within a certain range, creating a white noise effect. This is a very close instrumental approximation of the noise generator and filtering techniques of *elektronische musik*. Both Xenakis and Penderecki experimented with the use of electronic music and though neither decided to pursue it, it undoubtedly influenced their later compositions.

5-Musique Concrete Instrumentale

Helmut Lachenmann, a German composer born in 1935, studied with many well respected composers including Luigi Nono and Pierre Boulez, before choosing his own unique musical path. Although his technique of instrumental writing was self labelled *musique concrete instrumentale*, Lachenmann follows in the steps of great electronic composers such as Stockhausen and Varese in his borrowing of elements from both the *musique concrete* and *elektronische musik* schools of thought, if only from a purely philosophical standpoint. In the mid 1960's Lachenmann worked in the electronic music studio in Ghent and it was also during this time that he developed the concept of his *musique concrete instrumentale*. In this he applies Pierre Schaeffer and Pierre Henry's philosophies of *musique concrete* to instruments and their potential sound spectrum, as Schaeffer did to

³ Xenakis, Iannis. *Formalised Music*. Bloomington: Indiana University Press, 1971. p.9

recorded sounds from everyday life. Like Schaeffer and Xenakis, Lachenmann was fascinated with the idea of 'natural sound events'. Lachenmann is often noted for the extent to which he goes in search of new types of sound in his music, but this is not his primary aim. The discovery and production of new sounds comes from his desire for the "sounds to be broken up so that their innermost nucleus and vibration can be set free in space and time"⁴ and this reflects the influence of the processes of elektronische musik. To set the sounds free and place them in a new context so the listener could experience the familiar afresh in a new light was of more interest to Lachenmann, as he shows in his first string quartet, *Gran torso* (1971). This was a path that he also felt had more to offer in terms of a new and truly original strain of instrumental composition. A reflection of this way of thinking would be to take a pizzicato note on a string – Lachenmann encourages us not to think of this as a consonant or dissonant event of some tonal construct, although it certainly could be, but simply to hear it as "a string with a certain tension being lifted and struck against the fingerboard"⁵. He seeks for his audience to perceive musical sound in the same way we do all other sound information in our lives – from the perspective of 'What happened?'

There are some ways in which Lachenmann's musique concrete instrumentale more closely resembles the German movement of elektronische musik rather than its name sake (not surprising considering his German nationality). Where Pierre Schaeffer attempted to transform everyday sounds by trying to mould them into something new and remove them from the circumstance that created them, Lachenmann wanted the opposite for his musique concrete instrumentale – to draw attention to this very element that Schaeffer was trying to hide – the conditions and circumstance that created the sound. This could be described in parallel to the workings of electronic music as a kind of reverse synthesis of cause and affect. His concepts also reflect elektronische musik in their common philosophy of the breaking down of sound into its base components, then reconstructing these pieces in whatever ways possible. Although this obviously has different meanings in the respective fields of electronic and instrumental writing, Lachenmann translates the very literal breaking down of the sound in electronics in a different way, taking all sound possibilities

⁴ Ryan, David. "Composer in Interview: Helmut Lachenmann." *Tempo* New Ser., no. 210, no. Oct 1999: p.22

⁵ Steenhuisen, Paul. 'Interview with Helmut Lachenmann-Toronto, 2003' *Contemporary Music Review* Vol 23, No. 3/4 (2004), p. 9-10

of the cello as a sound spectrum to work with and picking individual and 'bands' of sound from this to create his music.

"...the ripping fortissimo pizzicato open C-string on the cello is an element which is no longer consonant or dissonant or somehow otherwise functional as an interval: it is instead an explosive, physically controlled 'natural' event in the physical world. In order to develop this aspect, a process of 'deconstruction' of the sound-technique must be invented, which leads of its own accord to unexpected possibilities. And what is decisive is not the joy of discovery, as though one were a musical botanist, coming across unconventional sounds – rather it is the fresh orientation of our ears which thus becomes possible. The above-mentioned cello pizzicato is by no means anything unusual to us – but suddenly, in such an altered context, it proves, after all, to be something rather strange."⁶

6-Extended String Technique

The advent of electronics and the plethora of new sounds made obtainable by it stimulated the invention of many new sounds and effects from traditional instruments and voices. Lachenmann's music is a prime example of the integration of non-pitched, noise based sounds in music, though he was by no means the first or only composer to do so. Early attempts at noise music were made by the futurists as discussed in part one, and from there many composers began branching out into more adventurous soundscapes using every means possible on new and traditional instruments, but particularly on string instruments. Percussive effects such as knocking, tapping and slapping became almost common place, as did the practice of bowing on or below the bridge, on the tail piece, the body, and anywhere else the composers could think of. They also began to combine and extend more traditional techniques such as harmonics, glissandi and pizzicati, utilising them in such a way that they created an entirely new and foreign effect, as in Xenakis' *Pithoprakta* (1956). Penderecki also uses extended techniques on strings to great effect, as in *Threnody to the Victims of Hiroshima* (1960) creating a varied range of new orchestral timbres, often just by using well known techniques orchestrated in a novel way, such as very high pizzicato and irregular tremolo.

⁶ Ryan, David. "Composer in Interview: Helmut Lachenmann." *Tempo* New Ser., no. 210, no. Oct 1999: p. 21

Although, as shown, extended string techniques are not a new invention in the music of Helmut Lachenmann, he does take the use of these techniques to more extreme levels than his predecessors, especially as exemplified in *Pression*. Where others use these techniques to create interest and add colour to their music and while it may be an important part of the overall conception of the sound, the music has other structural elements moulding the music. In Lachenmann's music the very structure of the piece grows from the nature of the techniques themselves. He also searches for many more unique extended techniques, many of which reflect his philosophies of *musique concrete instrumentale*. Lachenmann uses the creation of new and varied techniques as an opportunity to break the sound (or methods of sound production) down into its separate elements. A classical expression marking, such as *cantabile*, comes with a set of predetermined actions. The performer immediately knows the expected bow speed, bow inclination, nature of contact between the bow and the string etc. Lachenmann separates each of these elements and uses them independently of one another. This is illustrated in his use of techniques that use one or the other hand exclusively, or swap their traditional roles, and the use of separate notation for the actions of the left and right hands (see fig. 1). Many of the techniques he utilises also draw attention to the other main purpose of Lachenmann's *musique concrete instrumentale* - that of drawing attention to the method and action of sound production. The opening sound of the cello work, a harsh rasping, is created by extreme pressure of the bow on the string. Audible movement of the left hand on the fingerboard also draws attention to an action and its resultant sound, particularly interesting in its subversion of the classical tradition in which this is considered an undesirable effect of bad cello playing.

PRESSION

für einen Cellisten / for one Cellist

Helmut Lachenmann, 1969

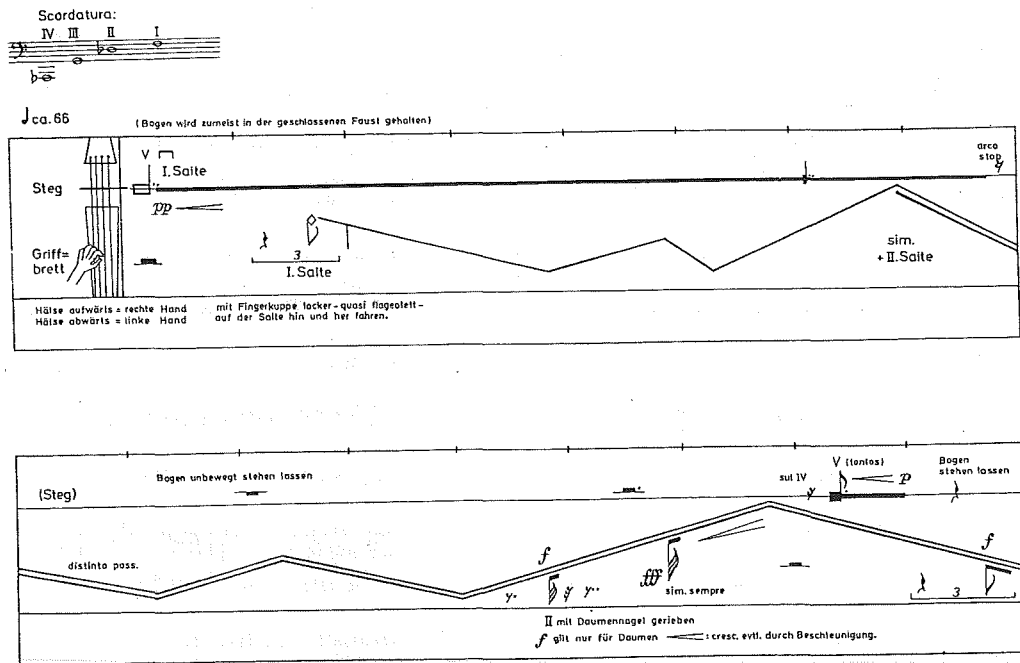


Figure 1. The opening systems of Lachenmann's *Pression*, showing the break down of technique into a separate left and right hand notation. Also the use of the 'cello clef' and the use of traditional metronome marking while lacking meter or barlines.

7-Notation

For electronic works to be recorded in a written format, new ways of notating music had to be created. Stockhausen was the first to seriously tackle this problem, creating his own method of notation, as used in the score of the electronic studio work *Studie II* (1956). This score consists of three horizontal portions, the uppermost denoting pitch and timbre on a graph, the middle portion containing the timeline, marking the tape's speed of 76.2cm/sec and the lower portion informing the dynamic envelope, again on a graphical background (see fig. 2). The notation of electronic music, a pre-existing material format, signified a radical shift in the method and function of notation. It no longer necessarily represented unheard sounds by means of abstract symbols. As instrumental composers began to adapt more techniques from electronic practises, as well as experiments with microtones and the

breakdown of the tempered twelve tone system, traditional notation became inadequate and restricting for many composers, demanding a new or revised system of notation. The graphical scores of electronic works such as Stockhausen's were a large influence in the search of new methods of notation for instruments.

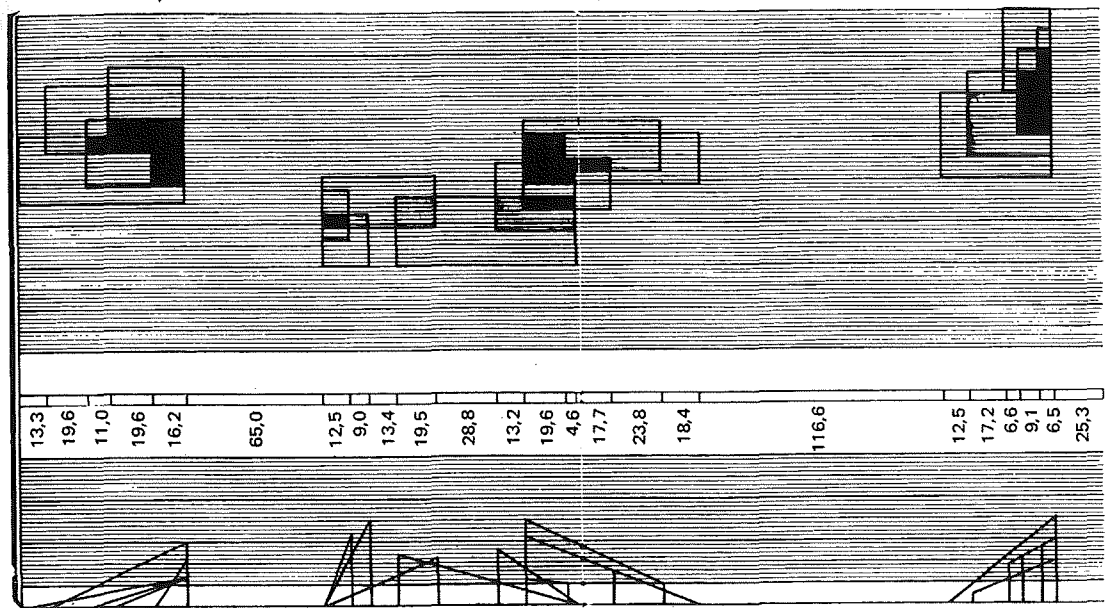


Figure 2. An excerpt from Stockhausen's score of *Studie II*, a huge leap in the conception of notation.

Penderecki was one composer who made use of graphical elements in his scores, although there were always elements of traditional notation in which to ground it. As used in *Threnody*, Penderecki often began with a traditional five line staff with appropriate clef and then used lines, blocks and symbols to signify notes, effects and select pitchbands (see fig. 3). Penderecki, among others, also used proportional notation, which meant the use of a time line measured in seconds as opposed to a meter and bar lines. This technique also originated with electronic music which contributed to the breakdown of vertical, horizontal and rhythmic traditions.

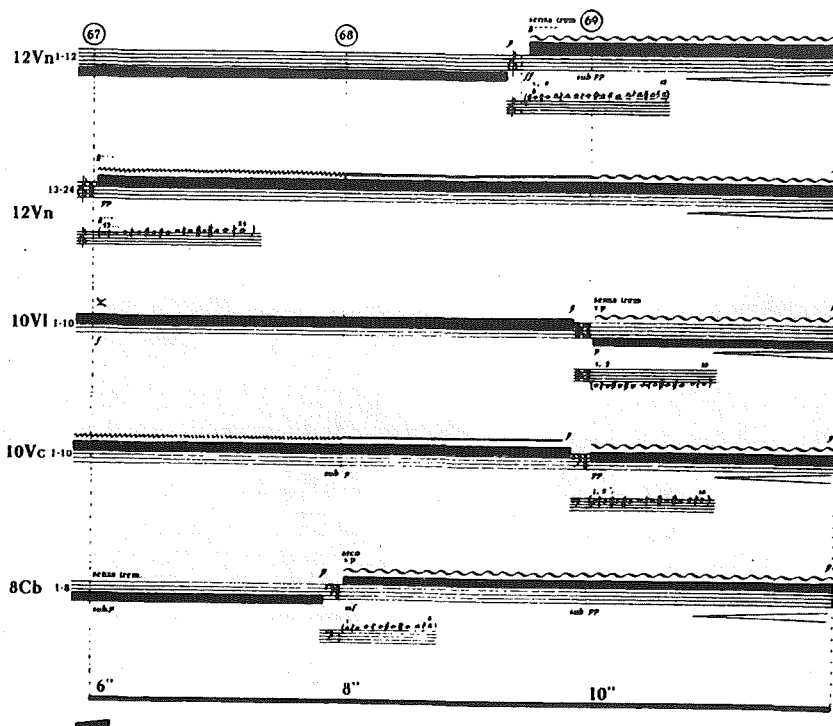


Figure 3. An excerpt from Penderecki's *Threnody*, showing the influence of graphical scores in instrumental composition.

Even a cursory glance at the score of *Pression*, shows a definitively unique style of notation. Very much graphical in nature, the score reflects the materiality Lachenmann wishes to portray in his music and is a very direct connection to the physical action of the production of sound. This is facilitated by the use of the unique 'cello clef' (see fig. 1), the use of a diagram of the cello strings from fingerboard to bridge. There are then two lines that run across the system, each coinciding with the actions to be taken by the left and right hand. This reflects his desire to draw attention to the cause and nature of the sound being produced and the action used to produce it. This also serves to make the performer even more aware of their every movement in the production of the music. Despite the obvious differences from traditional notation there are still elements of the score that reflect aspects of a traditional instrumental score, though unlike Penderecki who uses a traditional base with some use of graphics, Lachenmann's notation only makes passing references to traditional notation. The use of the cello diagram in the position and function of a clef is one example and the creation of a stave, even if it marks something other than notes. This

nod toward the traditions of western music also falls in line with his philosophies, as he believes that there is more meaning in something old or familiar experienced anew in a fresh context than a situation with a completely clear slate. Another way in which he plays with the combination of new and old is in the marking of time. Similar to Stockhausen and Penderecki, the passage of time is marked by dashes on a line running across the top of the score with no time signature or barlines, but instead of marking the passage of time in seconds, there is a traditional metronome marking of 66 crotchet beats per minute (see fig. 1). This is particularly unusual in that there is only limited reference to notated rhythms, and those that are there are written in such a way as to ensure no definitive beat can be felt. Over the last four pages he even connects a dotted barline through every third beat (see fig. 4), implying a simple triple meter, though again this is not audible to the audience. The use of these elements of traditional notation show a great understanding of the psyche of the classically trained musician and the effect their training and these connections has. His aim in using them is not to create the effect they may have originally been used for, but to spur a certain recognition and reaction from the performer to conceive the music differently, and therefore play it with different results. This is also applicable to Lachenmann's use of 'virtual' dynamics, where a fortissimo marking means to play with the amount of energy and force associated with a fortissimo, even though the resulting sound may be the equivalent of piano because of the effect being asked for.

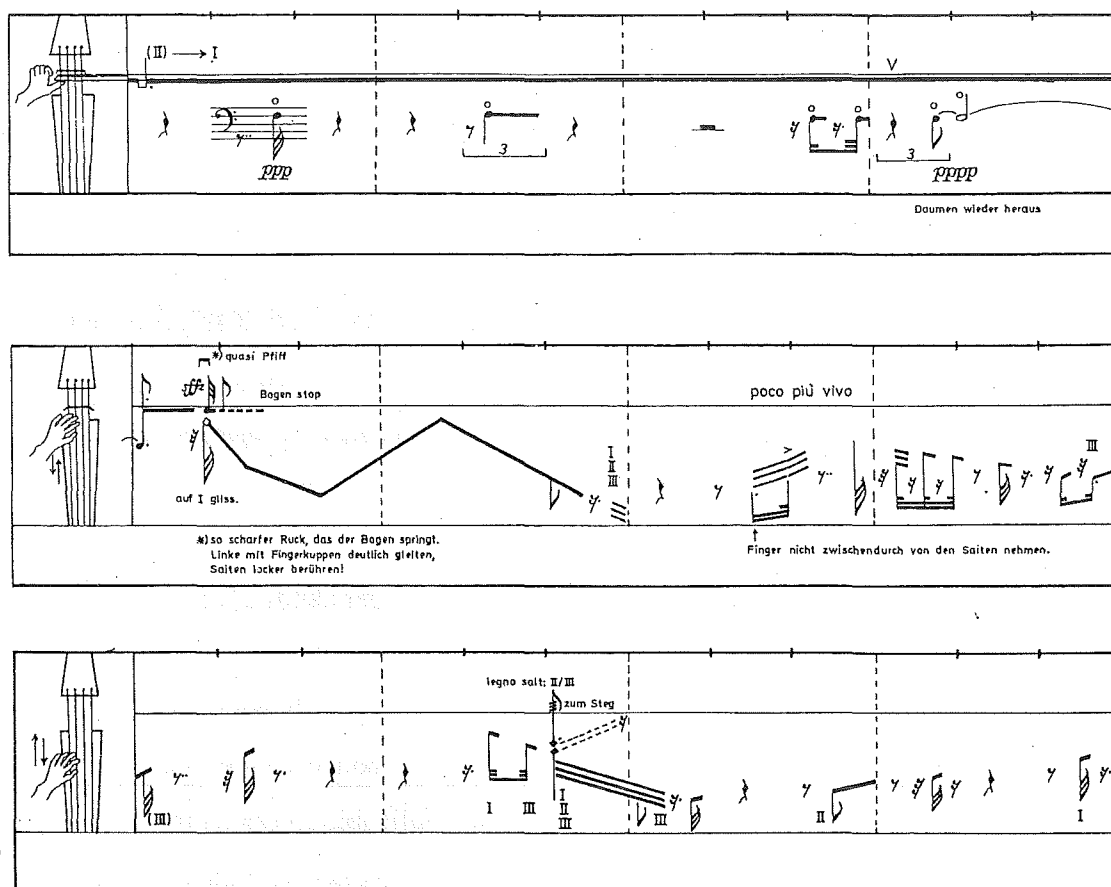


Figure 4. Page 8 of *Pression* shows Lachenmann's use of barlines in a regular triple meter although no sense of beat ensues.

There are many diagrams on the score directly relating the actions necessary to produce some of the desired effects (see fig. 5). Again this draws attention, especially for the performer, to the physical actions and energies necessary for sound production as it makes the performer very aware of their body's movements. This is a more unusual sensation for the performer than it may sound when taken in comparison with the movements used in traditional classical playing that have been drilled into them from years of conditioning, many of which are now unconscious and second nature to the performer. There are also points at which the 'cello clef' is extended across the page to create a four line stave, each representing one string of the cello. Once again this relates the directness and functionality of the score as it notates not the abstract pitch to be produced but the action taken to produce it. It also has connections to guitar tablature, again playing with the familiar in a new context.

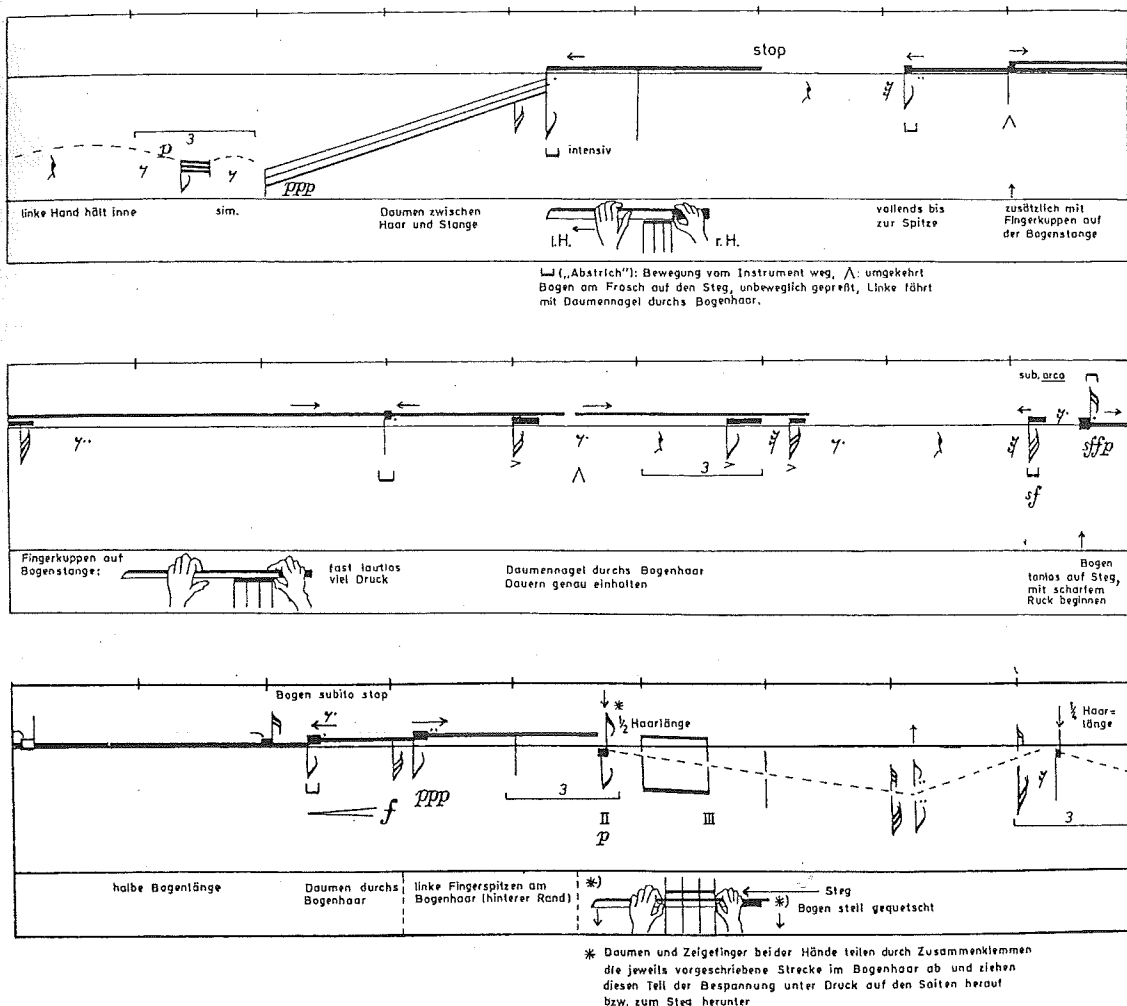


Figure 5. Page 3 of *Pression* shows Lachenmann's extensive use of diagrams and explanations of physical actions.

8-Structure

Many of Lachenmann's writings and music have been heavily influenced by the idea of the dialectic, as presented by writers such as Hegel and Adorno, and *Pression* is no exception to this. Throughout this work the dialectic is expressed through the juxtaposition, opposition and synthesis between differing forms of acoustic phenomena. This is evident in *Pression* through the tensions between the performer's gestures and the resulting acoustical perceptions, the expectations versus fulfilment of both the listener's and the performer's

preconceptions and tensions between varying presentations of tone and noise based acoustic phenomena. These all fit into Lachenmann's expression of form at the time of the piece's conception, which he describes as "sound and form, sensory and spiritual experience meet and interpenetrate in the double concept of sound-structure/structure-sound."⁷ This concept of 'structural sound' is pivotal to the construction of music from Lachenmann's 'musique concrete instrumentale' period, which he explains as when "the old dualism of sound and form disappeared because the idea of sound ultimately resulted from the tentative concept of form, and conversely the idea of form inevitably resulted from the tentative concept of sound."⁸

This inseparable concept of sound and form, just one of the results from the process Lachenmann calls 'dialectical structuralism' represents a possible solution to the deconstruction of classical music by modernist movements (who "still cling to the false belief that they can take as their point of departure an approach to their material which is entirely untouched – indeed innocent – of any historical or social influences"⁹) without resorting to the regressive thinking of neo-classical or post-modern thought. Of the developments in electronic music, although he drew inspiration from them freely, he also recognised its pitfalls in false assumptions on the part of the composer.

"With unstinted technological optimism they hope to establish a method of composing based on the regulated interplay of parameters determined purely by acoustical considerations and thus to create complexity, as it were, in a vacuum, where it disturbs no-one and where a "disinterested" listener can be impressed by technological elements as he takes a detached delight in the sounds."¹⁰

What Lachenmann's music offers is a genuine step forward into new territory, not only combining (without compromising) seemingly incompatible elements from various existing styles, including electronics, but forging a path that offers real potential for future developments rather than another dead end or more self destructive philosophies. All of this is offered within a context that is painfully aware of all outer and inner influences, a

⁷ Lachenmann, Helmut. "On My Second String Quartet ('Reigen Seliger Geister')." *Contemporary Music Review* Vol. 23 no 3/4, no. Sept/Dec 2004: p. 67

⁸ Lachenmann, Helmut. "On Structuralism." *Contemporary Music Review* Vol. 12, Part 1, no. 1995: p. 96

⁹ *ibid.* p. 93

¹⁰ *ibid.* p. 93

concept deeply connected with Lachenmann's concept of the Beautiful which is
"indissolubly connected with making perceptible the social contradictions in our reality:
because to make them perceptible is to make them surmountable."¹¹

¹¹ Lachenmann, Helmut. "On My Second String Quartet ('Reigen Seliger Geister')." *Contemporary Music Review* Vol. 23 no 3/4, no. Sept/Dec 2004: p.22

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