Allan Pettersson: Symphony No. 10

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Abstract

PETTERSSON's *10th Symphony* (duration 25') contains very reduced material. Signals or vectors are used to condense, obeying strict mathematical and technical principles. Increasing the flow velocity in the middle section causes a transition to turbulence and chaos. The turning point in the last part represents a dream state, before the final Coda repeats the material extremely compacted. The symphony has autobiographical elements and describes PETTERSSON's traumatic nine-month hospital stay. The sterile, mechanized and ruthless world, characterized by devices, threatens the man to fail.

Modern Times

OLLEFS reports for the *10th Symphony* a *»high symphonic density«* and a *»fast rhythmic compulsiveness in a confined space«*.[6, p.49]

How does this happen?

The Symphony contains many signals, producing the impression of velocity and acceleration. These signals have a magnitude and direction, so that they can be described as EUCLIDEAN vectors ($\vec{a} = \overrightarrow{AB}$). Examples are velocity, acceleration or momentum.

Figure 1: *Signal A*

One of these signal or vectors is the ascending »cell« in Figure 1[1] played by the trumpet and violins at the beginning of the symphony, The motive is constituting element of the »exposition« of the sonata form. This element is a good example for the very reduced tone language PETTERSSON's in this symphony.

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[1] All snippets from Score *NMS 10651* Copyright © 1989 by AB Nordiska Musikförlaget, Stockholm and © Internationale Musikverlage Hans Sikorski.

Signal A appears in the first third of the symphony 34 times, nearly unchanged (Figure 2). Till Minute 10 (Bar 340) the signal occurs more and more often. In the Coda it occurs the last time (in Figure 2 omitted). At the beginning alone, than as twin, later permanent in every bar (Bar 280 and Bar 300).
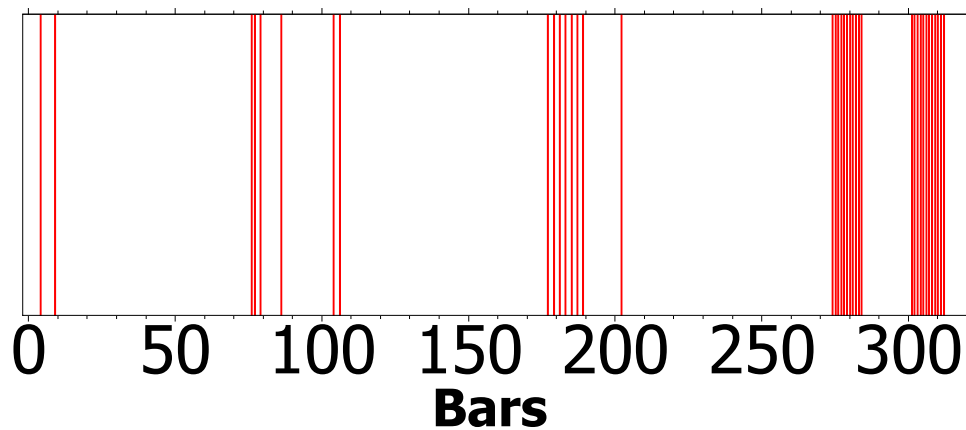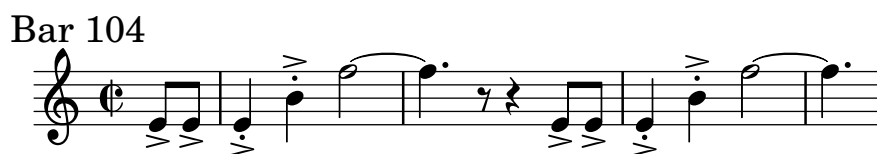

Figure 2: Condensation of *Signal A*

Figure 3: Twin of *Signal A*

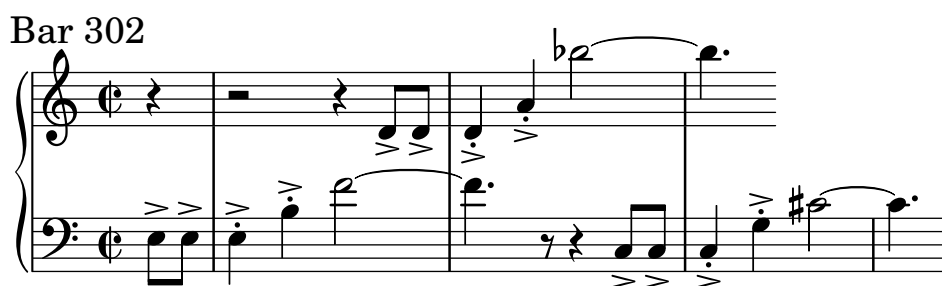*Signal A* walks through the registers, first solo, then unisono, later polyphonic.

Figure 4: Interlacing of *Signal A*

The whole passage describes also a vector.

It is possible to state, that there is a raise in dimension.

- Signal corresponds to point (0D)

- Signal twin corresponds to line (1D)

- Interlacing signals correspond to a two-dimensional surface (2D)

Also a raise in dimension is: quaver/crotchet/minim and solo/unisono/polyphony.

There are also several variations of *Signal A*, approximately the same number as unchanged signals. Figure 5 shows a selection of the variations. All vectors are effectively orientated causing the impression of restlessness and acceleration.

Figure 5: Variations *Signal A*

The answer to *Signal A* is the motive from Figure 6 played by oboe and clarinet. This fragment is repeated several times during the symphony. It has high symmetry and is ascending. A monotone and mechanical element. Here is also a relationship to material from the *8th symphony*, derived from the »female« part of the main theme of the first movement of MOZART's »*Jupiter*« *Symphony*.

Bar 6

Figure 6: Answer to *Signal A*

Shorter variations of this ascending line can be found very often.

Another example of a composition technique based on vectors is a passage between 7th and 9th minute. Descending *Signal B* (Figure 7) builds a two-dimensional surface after Bar 239.

Bar 239

Figure 7: *Signal B* descending

The descending *Signal B* in the horn is part of a superior context. Five single elements of *Signal B* are building a sequence. The sequence is, in opposite to the descending line of *Signal B*, an ascending line (Figure 8). Interesting is the split (to the fourth) and the reunion of the voices. This composition technique was very common in the Medieval era (Organum)[2].

Bar 239

Figure 8: *Signal B* descending, Sequence ascending

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[2]In its earliest stages, organum involved two musical voices: a GREGORIAN chant melody, and the same melody transposed by a consonant interval, usually a perfect fifth or fourth. In these cases the composition often began and ended on a unison, the added voice keeping to the initial tone until the first part has reached a fifth or fourth, from where both voices proceeded in parallel harmony, with the reverse process at the end. (Wikipedia)

The next higher context is the repetition of the ascending sequence (Figure 9). These repetitions are also ascending with a definite interval of 4 bars. The rules are very rigorous mathematical and technical.

Figure 9: Repetition of the Ascending Sequence

Signal B is directed, the context is axially symmetrical (the pitch of the context is also directed). The passage has a rigid structure like a fugue, quasi a insertion of a monolithic block building a two-dimensional plateau.

Note the rhythmic gradient of dynamics of *Signal B* between 7th to 9th minute (Figure 10). The high density is achieved by the aggregation of directed signals (cluster). The clusters are pulsating periodical. A dynamics vector. A forced standstill, causing the impression of a threat.

Figure 10: Dynamics *Signal B* (Bar 239 - Bar 302)

Back to the beginning of the symphony. Another important element is *Signal C* ([Figure 11](#)). This motive is a reminiscence and reference to the waves of *9th Symphony*. The motive vanishes shortly after presentation. It can be seen as the »introduction« of the sonata form. It possibly symbolizes the former intact life of PETTERSSON.

Figure 11: *Signal C*

The part between Bar 340 and Bar 600 is very heterogeneous. It is dominated by several rhythmic, sometimes syncopic passages. The texture of the music is polyphonic. A strong rhythm and an immense number of intonations of short signals has the effect of restlessness, but also the effect of mechanical sterility. This phase of the symphony reminds at the white water rapids in *9th Symphony*. Sometimes a transition from highly ordered »laminar flow« to chaotic »turbulent flow« happens. The transition happens, if a critical flow velocity is exceeded. The music becomes psychedelic.

Definition. Laminar flow, sometimes known as streamline flow, occurs when a fluid flows in parallel layers, with no disruption between the layers. At low velocities the fluid tends to flow without lateral mixing, and adjacent layers slide past one another like playing cards.[3]

Figure 12: Rhythm of Center Part of *10th Symphony*

Definition. In fluid dynamics, turbulence or turbulent flow is a flow regime characterized by chaotic and stochastic property changes. This includes low momentum diffusion, high momentum convection, and rapid variation of pressure and velocity in space and time.[4]
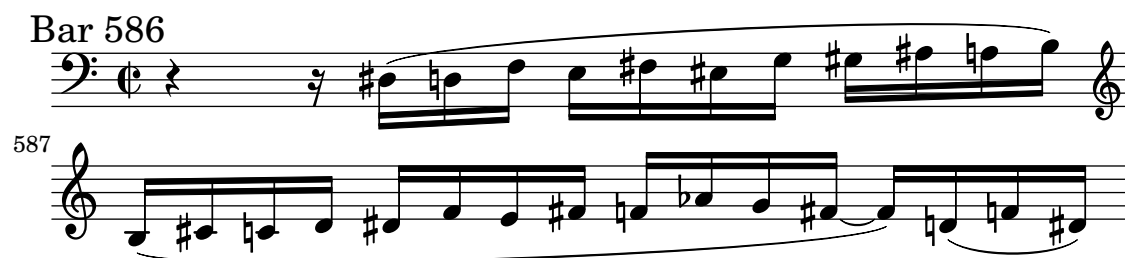
Figure 13: Turbulence and Chaos in Center Part of *10th Symphony*

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[3] Wikipedia.

[4] *Ibid.*

At Bar 600 a two part caesura begins. New thematic material is introduced in bass. A complete theme is presented (Figure 14). First part of the theme is a reminiscence to a motive used in *8th Symphony*. Second part of the theme is a reminiscence to the *Ack Värmeland* melody in *9th Symphony*.

Bar 603

Figure 14: Theme 1 in Caesura

Later in caesura the triplet containing, elegiac variation of Theme 1 is appearing, played by oboe and clarinet.

Bar 690

Figure 15: Variation of Theme 1 in Caesura

First violins are playing an endless coloratura of already known material, for example *Signal C* from Figure 11,

Bar 705

Figure 16: Accompanying Coloratura I

or

Bar 709

Figure 17: Accompanying Coloratura II

a modification of third example from Figure 5 (Modification of *Signal A*).

Concluding Coda summarizes the whole thematic material of the *10th Symphony* extremely condensed in a few minutes.

The tempo profile of the *10th Symphony* is at 84 beats for the minim. The cæsura between Bar 600 and 792 is an exception and has 63 beats for the minim.

The structure of the *10th Symphony* is in sonata form. A short Exposition and a long Coda are typical for the composers style.
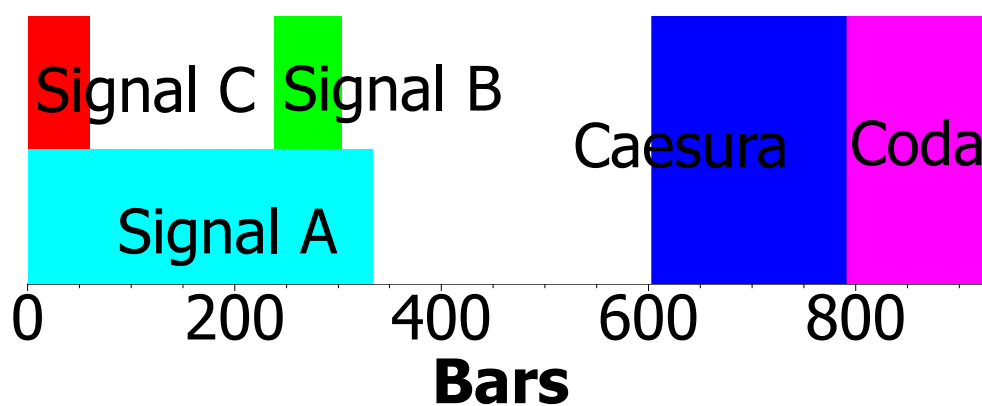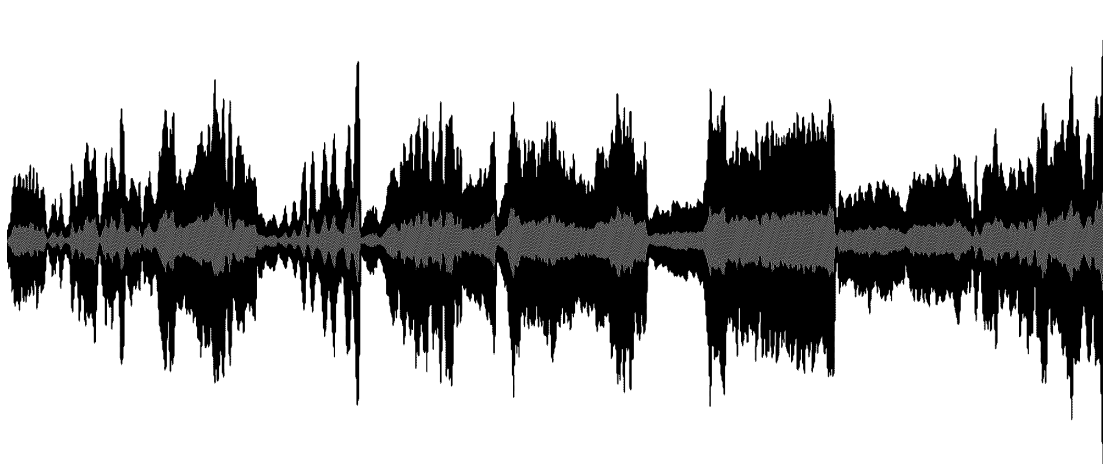
Figure 18: Structure of *10th Symphony* (schematic)

Figure 19: Waveform of *10th Symphony*

Summary

- Signal directed ($\to$ Vector)

- Time based Condensation of the Signals ($\to$ Vector)

- Strict Symmetry

- Transition to Turbulence and Chaos

- Caesura as a reflecting Trance or Dream Phase

- Coda as a Return to Scaring Reality

In painting art, impressionism has developed some mechanisms to interpret vectors like velocity or acceleration on canvas. An early example is TURNER's painting *Rain, Steam and Speed, the Great Western Railway.*[5]

Figure 20: JOSEPH MALLORD WILLIAM TURNER *Rain, Steam and Speed, the Great Western Railway* (1844)

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[5]Public Domain.

Interpretation

Signals A, *B* and *C* are examples of the very basic and reduced material Pettersson uses in *10th Symphony*. Because of the simplicity and effectiveness of these elements, they can be called directed vectors. Mathematically very rigid structures and permanent condensation with several layers (mechanical polyphonic texture, rigid imitation) unfold a certain threatening psychological effect.
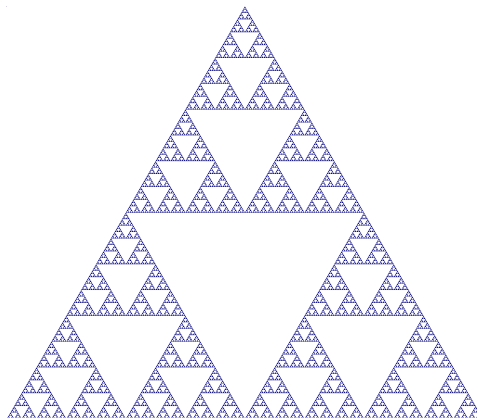

Figure 21: Self Similar Fractal (Sierpinski Triangle)

Fractals are build from very basic structural elements and the repeated application of simple mathematical operations. As one can see, very complicated structures are built (Figure 21)[6]. Fractals can be mechanical (Sierpinski Triangle) or organic structures (fern) and represent the transition from mechanical to organic structures.

It is possible to describe two fundamental composition techniques:

- Composition technique 1: Development of Material, Variation Building, Development of a Motive to a complete Theme creates an organic natural process of composition (Evolution of Thematic Material).

- Composition technique 2: Strict Mathematical Operations (Duplication, Sequences, Interlaced Structures, Imitation, Condensation) on an unchanged simple Signal or Vector leads to an artificial mechanical construction.

In *10th Symphony* examples of both composition techniques can be found. Innovative is the detailed experiment with second technique.

- *Signal A*: Composition technique 1 and Composition technique 2

- *Signal B*: Composition technique 2

- *Signal C:* Composition technique 1

These composition techniques symbolizes the contrary poles natural and artificial (or humanistic and technical).

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[6]Public Domain.

The caesura can not be interpreted as resignation, but more as a breathing space or depletion condition. OLLEFS describes the caesura as »*Trance*«.[6][7] Indeed it is a dream state. All preceding events were sublimated handled. The reference to his former *8th and 9th Symphony* and modified actual material underlines this. The furious, extremely dense final (Coda, Bar 792) is the wake up and the return to unpleasant reality. The steady tempo is astonishing. The impression is that of an permanent acceleration, de facto there is no speed change. This psychological distracting effect could be caused by vectors on all musical levels.

The mathematical technical principles are:

1. mathematical: Vector (physical: Velocity, Acceleration)

2. mathematical: Duplication, Sequences, Interlaced Structures, Mechanical Imitation, Condensation

3. geometrical: Point, Line, Surface (Symmetry)

4. physical/technical: Laminar Flow, Turbulent Flow (ordered or chaotic)

PETTERSSON imitates the physical and technical processes in a very realistic way. Beside his knowledge of different historic compositional techniques he had obviously knowledge in basic Mathematics, Physics and Technology.

He is also aware of the psychological effect of his music. This is expressed by psychedelic effects and the Trance/Dream episodes. PETTERSSON music belongs to expressionism. The *10th Symphony* is to a certain degree experimental and has in this respect a parallel to *5th Symphony*.

AARE interprets *10th Symphony* as an »*exposure to the outside world*«.[4, p.111] More precise would be: An exposure of a human being to a *technical* dominated outside world. In opposite to that, the *6th Symphony* describes the exposure to a primitive, unpredictable nature.

People and technology are interdependent, they have a symbiotic relationship. A problematic symbiosis. PETTERSSON sees man in a strange incapacitated passive role in opposition to the overwhelming hostile accelerating technological environment. The man struggles helplessly, almost stunned and paralyzed. This are the changed laws, which the »Modern Times« entails. Man is fascinated, but don't understand the world in this form any more.

PETTERSSON describes *10th Symphony* as a »*punch in the face*« and he judges »*there is compassion in all of my symphonies, but not in the tenth*«.[8]

At the time of composition of *10th Symphony* the relationship between human and technology was also addressed in popular music. Exemplary are the albums »*The Man Machine*« (1978) and »*Autobahn*« (1974) by the electronic group KRAFTWERK. PINK FLOYD's album »*Wish You Were Here*« with the title »*Welcome to the machine*« was released 1974. At least in the former case, the musicians relate to the silent film »*Metropolis*« by FRITZ LANG from 1927.

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[7]See also Klaus Geitel in: *Die Welt*, 14.5.1988.
[8]Booklet *cpo 999 285-2*, p.8.

Biographic Context

PETTERSSON composed most of *10th Symphony* in KAROLINSKA HOSPITAL in STOCKHOLM, where he stayed for 9 month from September 1970, because of a life-threatening kidney failure (caused by polyarthitis medicament). *10th and 11th Symphony* were created under adventurous conditions in the hospital. Figure 22[9] shows a dialysis unit.
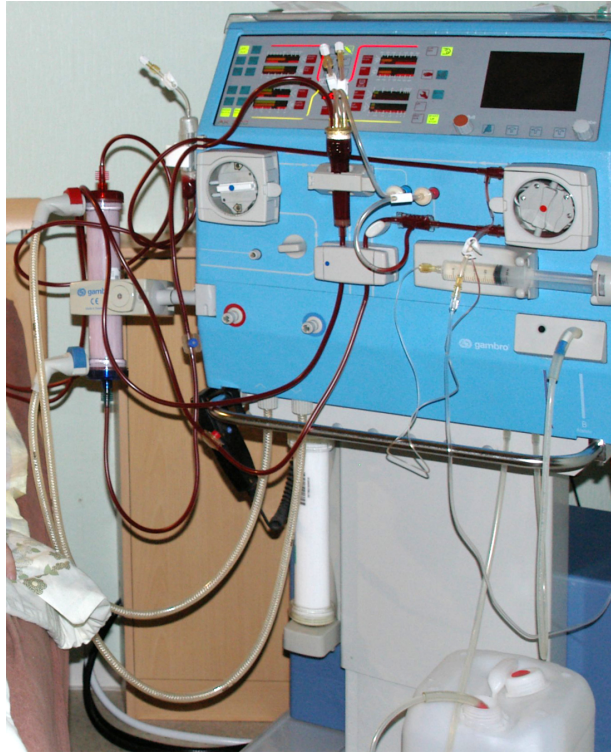

Figure 22: Gambro AK 200, Dialysis Unit

[9]Werner Groß, *Creative Commons Attribution-Share Alike 3.0 Unported.*

Epilogue

10th Symphony is a deep cut in the work of PETTERSSON. This symphony has strong autobiographical elements. The expiring use of *Signal C* (stenographic symbolic waves of *9th Symphony*) and the intonation of alarming and mechanical *Signal A* symbolizes the departure from his previous intact life. In the middle section, the newly imposed constraints lead to a frenzy. This ends in a kind of trance and dream phase in the caesura. In the high registers the previous life and the new impressions were reflected. The final Coda shows a return to the oppressive, technocratic[10] reality. A surely traumatic event for PETTERSSON.

The Opus

- Composition: 1972

- Premiere: 16. December 1973, Swedish Radio Symphony Orchestra, Antal Dorati

- Staff: 3*/2*/3*/3* 4/3/3/1 1/2/0 cel str

- Score: NMS

- Duration: 25' Mayer Werkverzeichnis

- One Movement

- Working group 10-16, Late Work

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[10]Technocracy is a form of government in which experts in technology would be in control of all decision making. Scientists, engineers, and technologists who have knowledge, expertise, or skills, would compose the governing body, instead of politicians, businessmen, and economists. In a technocracy, decision makers would be selected based upon how knowledgeable and skillful they are in their field. (Wikipedia)

Discography

[A] Antal Doráti and Swedish Radio Symphony Orchestra. Sinfonie Nr. 10 (1971/72). *EM Odeon E 061-351 42 (LP), (1975)*, 1974-06-13 and 1974-06-14:Stockholm, Cirkus Djurgården (live), June 1974. 24'50.

[B] Alun Francis and Radio-Philharmonie Hannover des NDR. Sinfonie Nr. 10 (1971/72). *cpo 999 285-2 (1997)*, 1994-09:Norddeutscher Rundfunk, September 1994. 27'10.

[C] Leif Segerstam and Norrköping Symphony Orchestra. Sinfonie Nr. 10 (1971/72). *BIS-CD-880 (1998-04-25)*, 1997-03:Norrköping, Sweden, Louis de Geer Concert Hall, March 1997. 24'30.

[A] ★★★★
[B] ★★★
[C] ★★★★★

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[8] Allan Pettersson. Randnotizen zur 10. Symphonie [Karolinska Hospital Diary 1970-1971]. In *Allan Pettersson Jahrbuch*, pages 45–48. Im Auftrag der Internationalen Allan-Pettersson-Gesellschaft von Michael Kube, Saarbrücken: Pfau Verlag, 2002, 1989. 113 pp., ISBN-10: 3-89727-195-8, [7]. 16

[9] Wolfgang Schreiber. Symphonischer Schrei aus Schweden, [concert review, Pettersson Symphony No. 10]. *Süddeutsche Zeitung*, 1982-02-01, February 1982. ISSN: 0174-4917.

[10] Rüdiger Schwarz. Spaltungen der Klänge, [concert review, Pettersson Symphony No. 10]. *Münchner Allgemeine Zeitung*, 1982-02-01, February 1982.

[11] Matthias Theodor Vogt. Das gesegnete, das verfluchte Leben: Petterssons 10. in München, [concert review, Pettersson Symphony No. 10]. *Frankfurter Allgemeine Zeitung*, 1982-03-31, March 1982. ISSN: 0174-4909.