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Graphic Notation – Lecture, Hochschule für Musik, Freiburg, June 13th, 2007

[This paper on graphic notation was intended as a lecture to be delivered at Freiburg on the date in question, but because of difficulties with flights at the last minute, it was sent in written form instead]

Good morning. The subject I am to speak about today is specifically the use of graphic notation in contemporary musical composition. A precise definition of this phenomenon can be elusive, since the very term encompasses a wide range of activity, some of which needs to be related to the broader field of musical *indeterminacy*. So let me begin by outlining categories of notational innovation in the post-war period. These can be viewed as follows:

1. The use of a wide range of new symbols to denote unusual playing techniques on instruments, such as the use of ‘breath’ sounds on wind instruments, the bowing of parts of string instruments other than the strings themselves, a wide range of techniques on percussion, extended vocal techniques, and so on. The following example, from Helmut Lachenmann’s first string quartet *Gran Torso* (1971-72), exemplifies this.

The image displays two pages of a handwritten musical score for Helmut Lachenmann's *Gran Torso*. The notation is highly graphic and experimental, featuring a variety of symbols, lines, and text to denote playing techniques. The score is written for four parts: Violin I (I), Violin II (II), Viola (V), and Cello/Double Bass (C). The notation includes traditional musical symbols like notes, rests, and dynamic markings, but also incorporates many non-standard symbols, such as wavy lines, zig-zags, and various letters and numbers, to represent specific playing techniques. The score is divided into measures, with some measures containing multiple staves. The handwriting is in German, and the overall style is characteristic of Lachenmann's graphic notation. The first page is numbered 31 and the second page is numbered 32. The page number - 3 - is centered at the bottom of the second page.

Fig. 1. Helmut Lachenmann, *Gran Torso*

Now, all of the symbols employed by Lachenmann, whilst unusual in terms of more conventional notation, have precise and specific meanings, which are fully detailed in the printed score. For example, in the fifth bar of the first violin part, the performer is to play *col legno* on the strings at a position roughly corresponding to the alignment

with the ‘bridge clef’ he specifies. This is no more ‘indeterminate’, in the sense of relinquishing musical decisions to the performer, than most more conventionally notated music is.

2. The use of alternative modes of notating pitch or rhythm. I have two quick examples to show you here. The first is from Henry Cowell’s piano piece *Fabric* (1917).

5. Fabric

Henry Cowell
(1917)

Andante

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Fig. 2. Henry Cowell, *Fabric*.

In this piece, Cowell introduces a variety of new types of note-heads to denote various types of rhythmic tuplet groupings – five in the time of four, seven in the time of four, and so on. This practice never really became more widely used, with composers

PRÉSENCE

1^{ière} scene, introduction et pas d'action
(Don Quichote)

Bernd Alois Zimmermann
(1961)

wir jagen das wild
das uns opfert.

Rilmi liberi

ppp

ppp

ppp

l. sori.

ppp

ppp

l. sori.

ppp

ped. sempre.

5 Ritmo fisso
8 ♩ = 72
Violon con sord.
pp sul pont.

5 Ritmo fisso
8 ♩ = 72
Violoncelle con sord.
pp sul pont.

col legno tratto

col legno tratto

In this case, Zimmermann completely bypasses conventional use of sharps, flats and naturals. Instead, he employs a system whereby a full notehead denotes a natural, whilst an open notehead denotes a flat. Thus the first chord in the piano contains, from the lowest note upwards, A, B, B-flat and C, whilst the next chord contains G, A-flat, A, B-flat, C-flat. Zimmermann extends this notational practice further to encompass quarter-tones through the use of diamond shaped noteheads. Whilst this practice made for an illuminating alternative to the necessity to ‘spell’ a note (in the sense of deciding whether, say, it was to be notated as a G-sharp or an A-flat, which would bring various tonal implications), still it did not achieve any wider currency.

3. The use of notation which is specific with respect to some musical parameters, but not with respect to others. The first example of this I will give, to which I will return shortly, comes from Morton Feldman's *Projection 4* for violin and piano (1951).

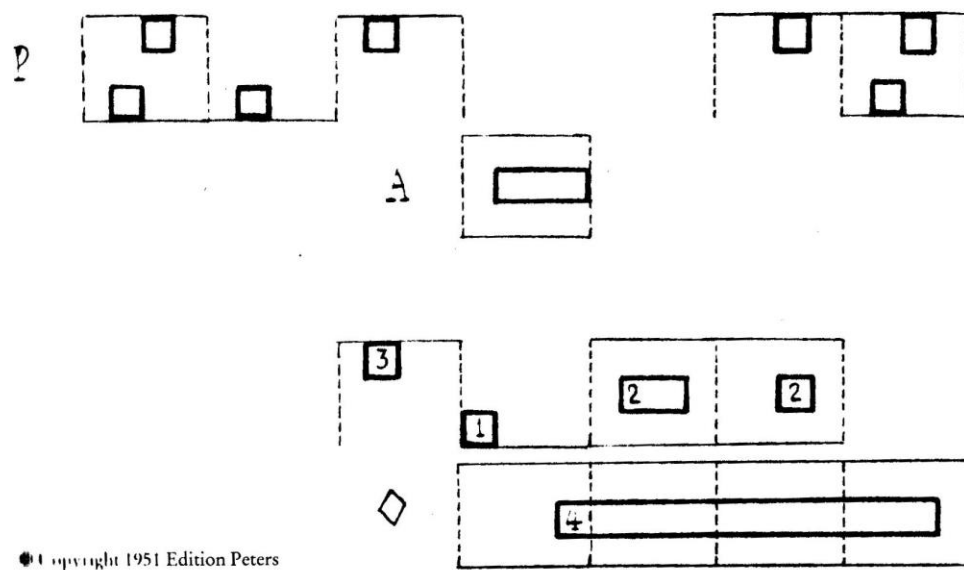


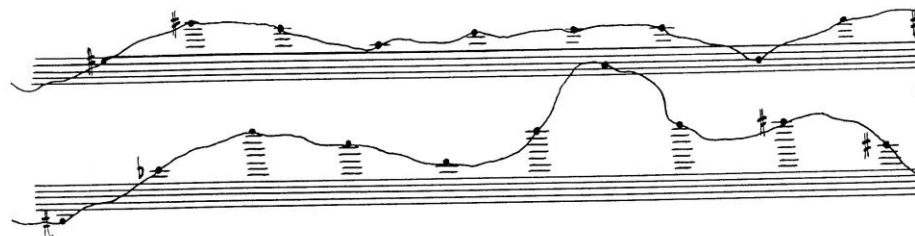
Fig. 4. Morton Feldman, *Projection 4*

Here we have a violin part above a piano part. The symbol 'P' indicates pizzicato, 'A' arco, whilst the diamond shape for the pianist indicates pressing notes silently (so as to produce harmonics from other sounds). The squares in the solid boxes indicate notes to be played in certain registers – the higher boxes in an upper register, middle ones in a middle register, lower ones in a lower register. Numbers in solid boxes signify numbers of notes to be played. Each box enclosed by dotted lines represents a duration of four pulses, with a tempo of 72 pulses per minute. The horizontal position of the solid boxes indicate the rhythmic placement of the notes relative to these pulses. Dynamics are equal throughout but very quiet. The important point here is that the precise choice of pitches,

4. The use of graphic designs which the performer is intended to translate into sound following a certain set of basic rules. This is found especially in some of the works of John Cage, such as the following section from the *Solo for Piano* within the *Concert for Piano and Orchestra* (1957-58).

50 like A, but det ambiguous

BH
1:23



H(c)



Single sand. Boundaries are frequency
Proximity as in BB

BJ

BI

Use 1 or 2 numbers
followed by 1 or 2
numbers. 1st = frequency
2nd = time units, continue
or not

13457

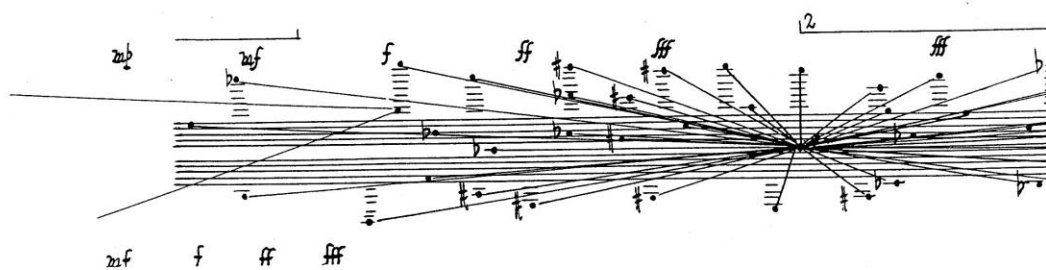
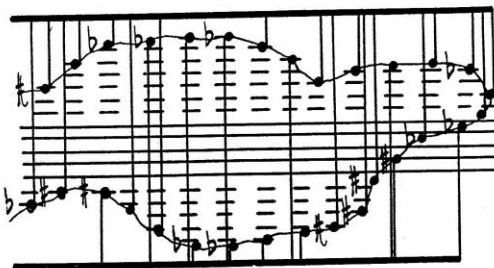


Fig. 5. John Cage, *Solo for Piano*, p. 50.

5. The use of notation whose overall visual design is intended as a stimulus to the performer's creative interpretation, whilst using some attributes of conventional notational practice within a type of surrealistic score. Here is the fourth of Sylvano Bussotti's *Five Piano Pieces for David Tudor* (1959).

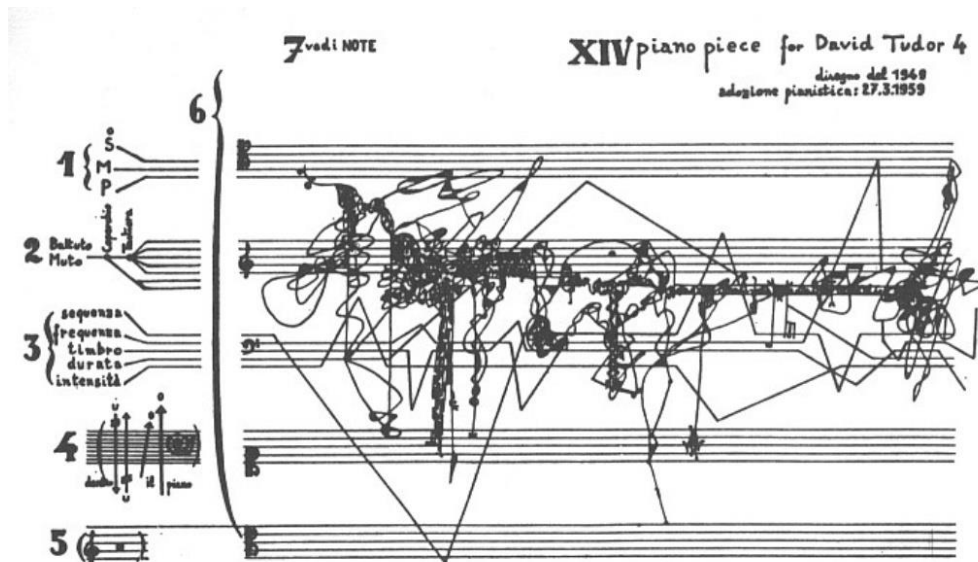
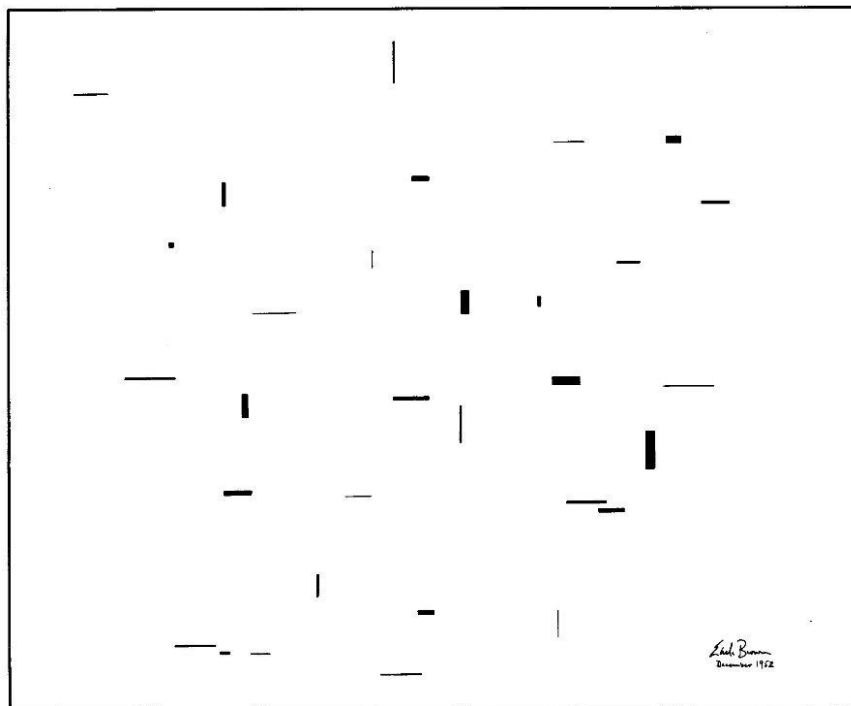


Fig. 6. Sylvano Bussotti, *Five Piano Pieces for David Tudor*, no. 4.

Here we have staves, clefs, some rather cryptic markings relating to mode of playing and other musical parameters, but with a wild cacophony of lines, some actually constituting distortions of the staves themselves. I will return to this example later.

6. A score consisting of free graphics without employing any clear allusions to traditional notation, for the performer to interpret as they choose. The most infamous example of this is Earle Brown's *December 1952*, which consists of the following:



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Fig. 7. Earle Brown, *December 1952*.

For the purposes of this talk, I am going to limit the definition of ‘graphic notation’ to categories 3, 4, 5 and 6. Categories 1 and 2 are of a palpably different degree of specificity and as such simply constitute an extension of conventional notational practices rather than a break with them. So this excludes scores of Lachenmann, Hans-Joachim Hespos and others who have developed an extensive range of symbols to denote particular instrumental and vocal techniques. Drawing boundaries in this sense is always problematic, for various reasons – some might argue that some of the categories I choose also constitute an extension, and in examples I will give from Ligeti and Penderecki this does seem to be the case. However, for the most part the types of notation I am defining as ‘graphic’ entail some degree of notational indeterminacy over and above that which is common in musical notation. To clarify what I mean by this latter clause: practically all musical notation still requires some creative input from the performer, whether this is about determining fine dynamic nuances in a passage simply notated at an overall dynamic, or simply how one executes a trill or a triplet. The difference with indeterminate music (indeterminate specifically in terms of the role of the performer with respect to the score) is one of degree, markedly so. Whilst there are some ambiguous cases that lie on the boundaries between determinacy and indeterminacy, hopefully the distinction is relatively clear. More importantly, I am suggesting to you here that graphic notation cannot be conceived wholly independently of questions of indeterminacy.

So, let us return to the Feldman *Projection 4*, one of the earliest examples of graphic notation, as seen in Fig. 4. The five pieces in this cycle all use similar notational devices. Here is a recording of the work by the violinist Marc Sabat and the pianist Stephen Clarke.

[Play a few minutes of the recording]

Now, both performers are free to choose any pitches they like within the specified registers, though you should be able to hear certain characteristics in their actual choices – intervals of tritones, major sevenths and minor ninths, close chromatic chords, generally suggesting a post-Webernian atonal musical language. Those familiar with other Feldman works where pitch is fully specified, as these players undoubtedly are, will recognise such an approach to pitch as forming a link between this graphic work and such other pieces. Was this what Feldman desired? It is difficult to ascertain for sure; what *can* be discerned on the basis of his various writings and interviews is that he did not view all possible approaches to this form of graphic notation as being of equal value. One could play the piece in such a way as to create maximum consonance, choosing each pitch from within a triad in various registers, or even to create some harmonic progression. Feldman, however, was at this stage in his compositional life interested in the abstraction of sound, an exploration of its purest properties, which these latter strategies might counteract. He did however extend these notational techniques, as for example in the *Intersections* series. The following is the first page of the third piece of this set, for piano, written in 1953.

To David Tudor
INTERSECTION 3

Morton Feldman
(1953)

□ = 176

10										20										30									
5	/	7	4	2	9					1	3	//	4	3		7	2												
3	6	4	3	1	4	1	3				2		//	2		3	5												
4				1	3	5					4	4	1	5	1	4		1										6	

40										50										60										70									
	//			4	6	5	2	3	1	//	5	9	7	//	2	1	3		6									9											
7	//			8	3	1	5	8	1	2	1	3	5	2	5	4	5	1	5	1								4											
7	2		1	5		3	1			6		4	1	2	6	3	7																						

80										90										100									
3		//	8		1		5	5	1	5			3	2	6	3	2	2	6	3	9	6	//						
3	4		5	3			3	4	4			2		9	1	7	3	4	3	2	3	8	1						
3		4					4	1		3			8	4	5	4	5	1	1	1		4	3						

Each box is equal to MM. 176. Each system is notated vertically as regards pitch: high, middle, low. The numbers indicate how many keys one plays. Where there are two numbers for one register any part of the register can be used. The player is free to choose any dynamic and to make any rhythmic entrances on or within a given situation. Sustained sounds once played must be held to the end of the notated duration.

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Fig. 8. Morton Feldman, *Intersection 3*.

This work is considerably more animated, with each box representing a pulse at a rate of 176 per minute. The numbers in the boxes once more represent the number of notes to be played in one of the three registers – high, middle and low – whilst this time the dynamics are free, and the performer can choose rhythms however they wish within a box. Here is a performance by the pianist John Tilbury.

[Play recording of *Intersection 3*].

In other cycles such as the *Last Pieces* for piano (1959) or the five *Vertical Thoughts* for various instruments and voices (1963-64), Feldman was specific with respect to pitch but left durations up to the performer (generally with the proviso that the piece should be very slow, however). In his *Piece for Four Pianos* (1957) he gave each player the same part to each performer, but allowed them to choose their own tempo. Here is his *Vertical Thoughts 4* (1964) for piano:

Vertical Thoughts 4

Morton Feldman
(1963)

Extremely soft. ♩ = 66 - 88

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Fig. 9. Morton Feldman, *Vertical Thoughts 4*.

Now, it interests me that this score would not generally be described as ‘graphic notation’, whilst the *Projections* or *Intermissions* pieces would. It is possible to notate this type of work in standard notation save for the omission of stems or beams on the notes to define duration. Yet in many ways this work is as indeterminate as the others, just with respect to a different parameter. With this in mind, we should consider that common conceptions of what makes ‘graphic notation’ have to do with the relationship of the score above all to *pitch*.

Realising that he could not guarantee that performers would necessarily make choices that would be to his liking, Feldman eventually abandoned graphic notation (though he wrote a few other works of this type in the 1960s) and all forms of indeterminacy. Ultimately, it seems to have been a forlorn experience for him, though the works in this form can sound very beautiful when played by sympathetic performers.

John Cage, on the other hand, continued to experiment with various forms of notation throughout his life. A wide range of different strategies for graphic notation can be found in his *Solo for Piano*, the piano part from his *Concert for Piano and Orchestra*. Cage supplies a set of instructions on how one should translate the various symbols into a musical form. The performer can use any number of the fragments indicated in

the score. My own strategy for realising this, involves making a transcription from the graphic score, a practice established by the pianist David Tudor, who was very closely associated with Cage and other composers during this period. Tudor would do this with practically ever graphic or otherwise indeterminate score he performed. In some cases, it is questionable whether this is the optimum approach to take, as some works might be argued to benefit from the spontaneous engagement of the performer with the graphic score at the very moment of performance, lending the music at least in part a quasi-improvised quality. But in this case, I believe it is the only practical solution, as the explicitly indicated means of converting the score into sound is not something that could realistically be achieved at sight.

I will start with one of the fragments marked 'M'.

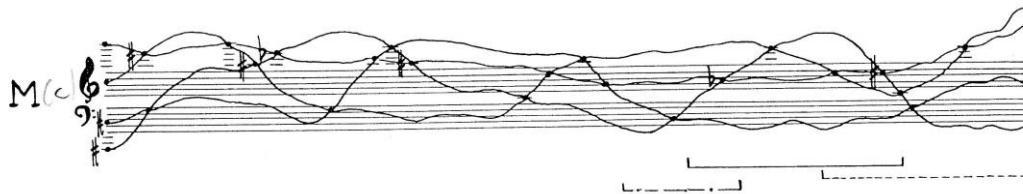


Fig. 10 John Cage, *Solo for Piano*, from p. 22.

This is just part of 'M', which continues on a further page. Cage's instructions for this say 'Begin at left, end at right, changing direction at intersections if desired. May be expressed as one voice, a 'counterpoint', or as 3 or 4 voices. Pedals only in areas indicated, not obligatory'. A solid line indicates the right pedal, a dotted line the left (the *una corda*) and a line made up from dots and dashes the middle pedal. In this case I simply followed the line from left to right, measuring the exact distances between notes. I used some random device to determine a basic duration for the whole segment, then wrote out the score with durations approximately corresponding to these distances, relative to a metronome mark designed to ensure the required duration. This is what I came up with as a result.

① d=c. 66 0"-35" *legatissimo* SOLO FOR PIANO John Cage

M(c) *mf*

Ped

P3

P3 OFF

uc

tc

uc

tc

P3 OFF

Fig. 11. Realisation of section 'M' from Cage, *Solo for Piano*.

A different notational strategy is employed in the fragment 'K'.

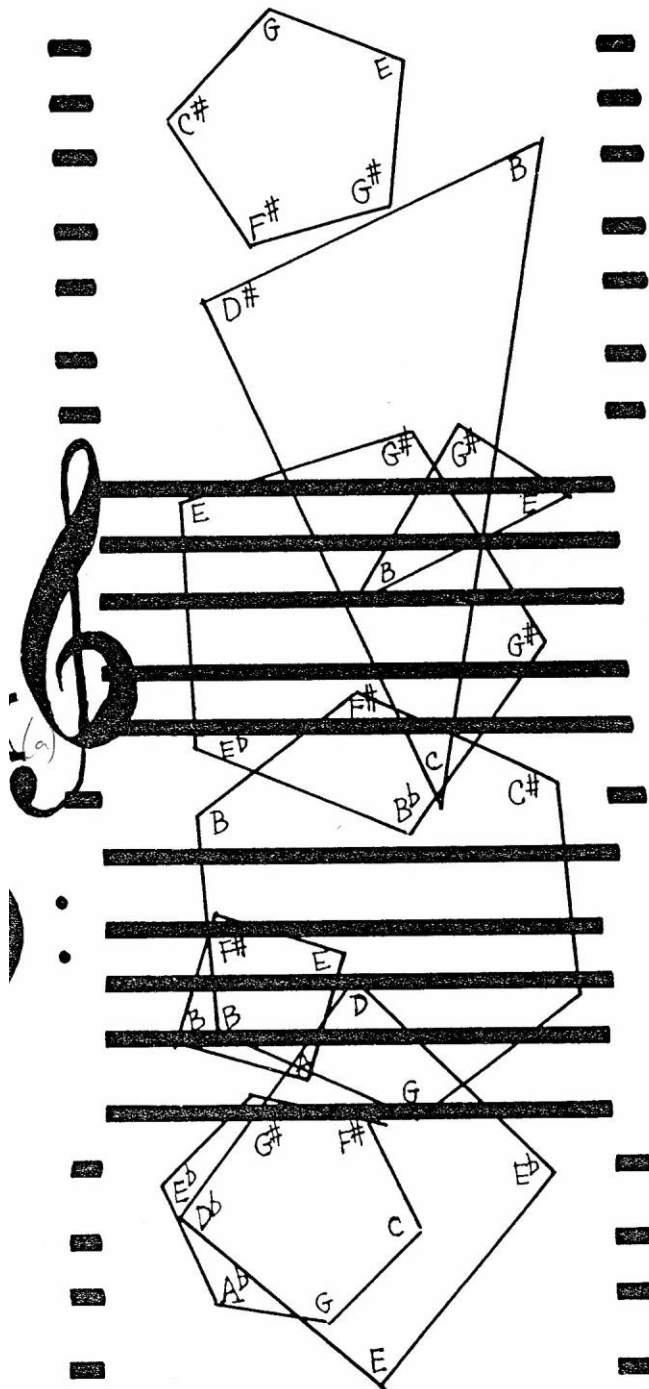


Fig. 12. Cage, *Solo for Piano*, from p. 8.

Here Cage gives a looser indication of how to translate this into sound: 'Disregard time. Play only odd or even number of tones in a performance, using others of a given 3, 4, 5 or 6 sided figure as graces or punctuations. So for example, in the pentagon that covers most of the treble stave, I used the high G# and low B-flat as grace notes, whilst in the smaller pentagon overlapping this on the right side, I used both the B and the G# as grace notes. Here is the resulting passage:



Fig. 13. Realisation of section 'K' from Cage, *Solo for Piano*.

Other examples are much freer. For the fragment 'AY', Cage indicates to 'play in any way that is suggested by the drawing', the only detail being that the indicated numbers give amplitude, with a range of 1 to 64 encompassing a spectrum from *ppp* to *fff*.

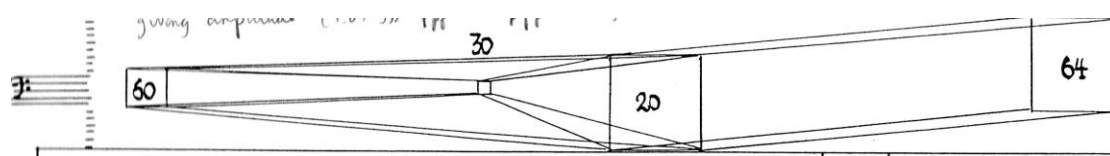


Fig. 14. John Cage, *Solo for Piano*, p. 38.

This fragment I converted into tremolos (so as to sustain sonorities as they rise upwards or downwards) and clusters (for the vertical lines), as follows:

Handwritten musical score for section 'AY' from Cage's *Solo for Piano*. The score is written on three systems of grand staves. It includes various musical notations such as notes, rests, and dynamic markings like 'ff', 'subito mp', and 'subito p'. Above the staves, there are handwritten time intervals in minutes and seconds (e.g., 3'42"-4'12", 10.5", 4", 1.5", 11", 3'56.5", 3'58", 4'09", 3", 4'12"). Some notes are marked with 'X' and have arrows indicating movement. Text annotations include 'Move upward in pitch', 'Move downward (reduces to one note)', 'Move upwards (reduces to one note)', 'Move downward (quietly)', 'subito mp', and 'subito p'.

Fig. 15. Realisation of section 'AY' from Cage, *Solo for Piano*.

For fragment BE, Cage indicates that the numbers refer to events to be expressed and the notes refer to fingers. The hands and forearms are to be used in playing. Here I used a range of other sonorities to be obtained from the piano as well as playing notes and clusters.

from one of Cage's writings, modifying the pitch and duration of each word according to the details of the fragment concerned.

The *Solo for Piano* is an important score to study for all interested in graphic notation, not least for the range of ideas it can produce in terms of how to translate such notations into sound, in ways that are applicable not just to this piece but also to others.

One of the most notorious of all graphic works is from slightly earlier, Earle Brown's *December 1952*, as shown in Fig. 7. This comes with no instructions as to how to realise it in sound, such decisions being left entirely to the performers. The most obvious way is to simply treat the vertical dimension as representing pitch, the horizontal as representing time. Then the distances in either direction can be measured in order to determine notes and clusters of various durations. This seems to be how the work is realised on this recording by the pianist David Arden.

[Play recording]

This is one way of realising this piece, though not necessarily the only way. The score impresses itself on the viewer not just as a form of unusual musical notation, but also as an abstract art work, clearly influenced by the work of painters associated with *De Stijl*, including most obviously the geometric compositions of Piet Mondrian, but also those of Gerrit Rietveld and Bart van der Leek, whose *Geometric Composition* of 1917 resembles this score. I would have shown this painting to you, but couldn't locate a copy of it at the short notice, I had, so will show you another. This is simply *Composition* of 1918.



Fig. 18. Bart van der Leek, *Geometric Composition* (1917).

One might alternatively arrive at a spontaneous improvisation based upon one's instinctive response to the score viewed as a whole, as an art-work. The result might not have any direct correspondence with the details of this score as a result, or alternatively it might constitute a combination of an engagement with the details and with the whole. But in one sense or another, the final result will in my opinion be different from that which had been produced without this score as a stimulus.

Karlheinz Stockhausen used various graphic means for notating the electronic parts in works such as his *Kontakte* (1958-60) either for tape alone or tape with piano and percussion, but these serve simply to indicate to the performers what is going on on the tape, so they can co-ordinate and synchronise their attacks and so on. Such notation is not something in this case for performers to interpret. In his *Zyklus* (1959) for percussionist, however, he ventured into free use of graphics.

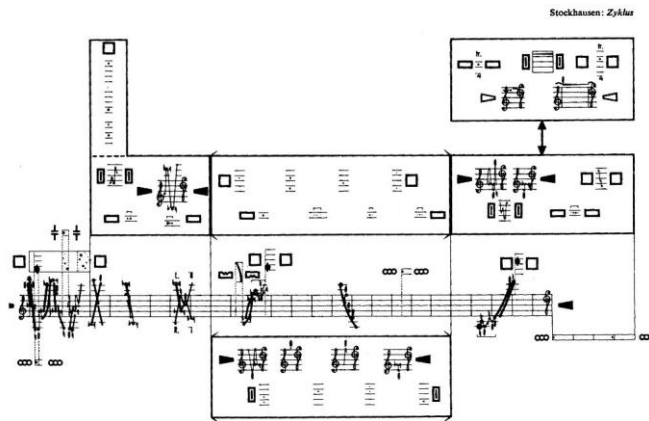


Fig. 19. Karlheinz Stockhausen, *Zyklus* (1959).

This work contains boxes with various spheres of activity from which the performer can select according to various rules specified by Stockhausen. Whilst some of the notation is unusual, it is generally relatively exact in terms of its specifications, as with the Lachenmann work (of course written some time later) shown earlier. In this sense, *Zyklus* might be considered simply as an example of an ‘open form’ work, akin to the *Third Piano Sonata* of Pierre Boulez, Stockhausen’s own *Klavierstück XI*, or certain works of Mauricio Kagel, Henri Pousseur, and others. However, Stockhausen here also includes the provision that the score can be read upside down if so wished. You will see that the indicated clefs allow for different readings in this respect.

This is a case of a work for which it is ambiguous whether we can call it a graphic score in terms of the categories I selected earlier. This is equally the case with certain other works from what might be referred to as the post-war European ‘mainstream’, such as the organ piece *Volumina* (1961-62) by György Ligeti. Here are two passages from this

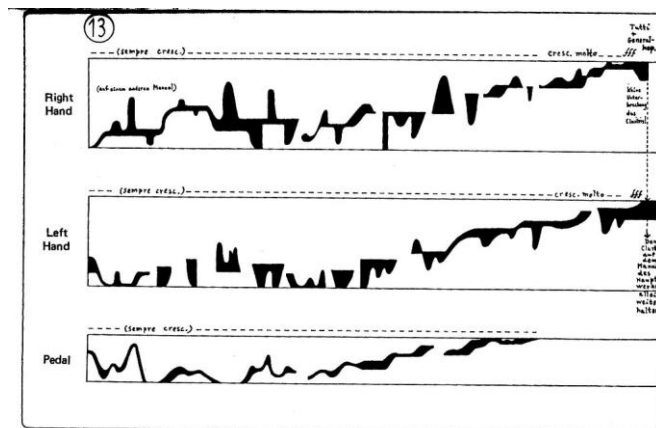
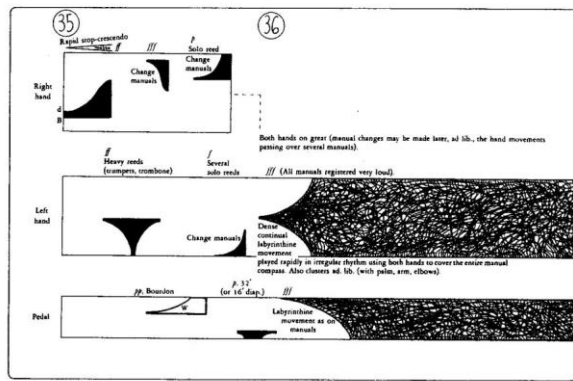


Fig. 20. Two passages from György Ligeti, *Volumina* (1961-62).

In these cases, the graphic notation is used simply to denote certain generalised areas of activity, usually in the form of clusters whose shapes and durations correspond to the symbols on the score. This is not really an indeterminate work, simply one that is constructed in terms of 'sound masses'.

[Play *Volumina*]

Comparable use of notation can be found in various works of Krzysztof Penderecki, most obviously in his *Threnody for the Victims of Hiroshima* (1960). The precedent for both Penderecki and Ligeti's work can be found in the early mature compositions of Iannis Xenakis, such as his *Metastasis* (1953-54) and *Pithoprakta* (1955-56), both for large orchestra. However, Xenakis only used graphic means during the process of composition, for his sketches; he converted the results into conventional notation from which the performers play. How such different notational strategies might engender different types of results from the performers is an interesting question that you might like to ponder, but which for now I will not dwell further upon!

Other European composers employed more radical approaches to graphic notation. Primary amongst these were Sylvano Bussotti and Roman Haubenstock-Ramati. Bussotti was in some senses influenced by both the work of Boulez and Stockhausen on one hand, and John Cage on the other (following Cage's visit to the Darmstadt Summer Courses in 1958), yet also aiming for a type of music distinct from any of these models. In a series of works from the late 1950s onwards, Bussotti created a

variety of highly extravagant and visually flamboyant graphic scores to stimulate performers' creative imaginations. Let us return to the fourth of the *Five Piano Pieces for David Tudor* of 1959, as seen in Fig. 6. Bussotti provided the following explanatory note for the work:

das element „for David Tudor“ im titel ist keine widmung, sondern gleichsam eine instrumentangabe. die musikalischen aufzeichnungen realisieren eine skala von der bekannten notenschrift bis zur unbekannten: zeichnung.
in einem falle (piano piece 4) ist eine vor zehn jahren vom autor ausgeführte autonome zeichnung pianistisch adaptiert worden.
vielfach bleibt das schallereignis, das solche zeichnungen auslösen mögen, in den händen des pianisten.

the element “for David Tudor” in the title is not as it were a dedication, but an indication of instrument. the musical notes are a realisation of a range of notation from the well-known to the unknown: design. in one case (piano piece 4) an autonomous design carried out by the author ten years previously was adapted for the piano.
there are multiple sound events which may be produced by such designs in the hands of the pianist.

With only these directions, clearly a great deal of creative input is required from the performer. It *might* just be possible to measure all the gnarled lines and contours across the staves and diligently transcribe these in terms of pitch; this would of course be a long and arduous task. Alternatively, one might simply look at the broader elements of the design, from which to deduce some macroscopic properties of what is to be played, and then use a more improvisatory method for filling in the details. This might involve a more intuitive response to what is perceived to be ‘expressed’ by the score as an art-work, as mentioned in the context of the Earle Brown piece.

But the score otherwise provides some other guidelines. The indication (1), with ‘S’, ‘M’, and ‘P’ indicated, may refer to *Superiore*, *Mezzanine* and *Basso*, so those parts of the contours that venture into this stave can be interpreted in such a manner according to register (or this scale could be applied to other staves). (2) refers to beating or playing silently, either on the keys or the body of the instrument, (3) to various other musical parameters, (4) to playing inside the piano, and so on. One might even conceivably do something employing these various parameters in the sequence indicated by the numbers, then to the main score, then to the cryptic ‘vedi NOTE’ (you see notes), or alternatively apply one or more of the means of interpreting the staves to the large picture in various sequences. Any performer’s realisation of this piece is sure to be radically different, but I would continue to assert that they are likely to come up with something that they would not have done without the stimulus provided by the score.

This is one of Bussotti’s most extreme graphic scores, I would like to show you another, from his *Pre tre sul piano* (1959).

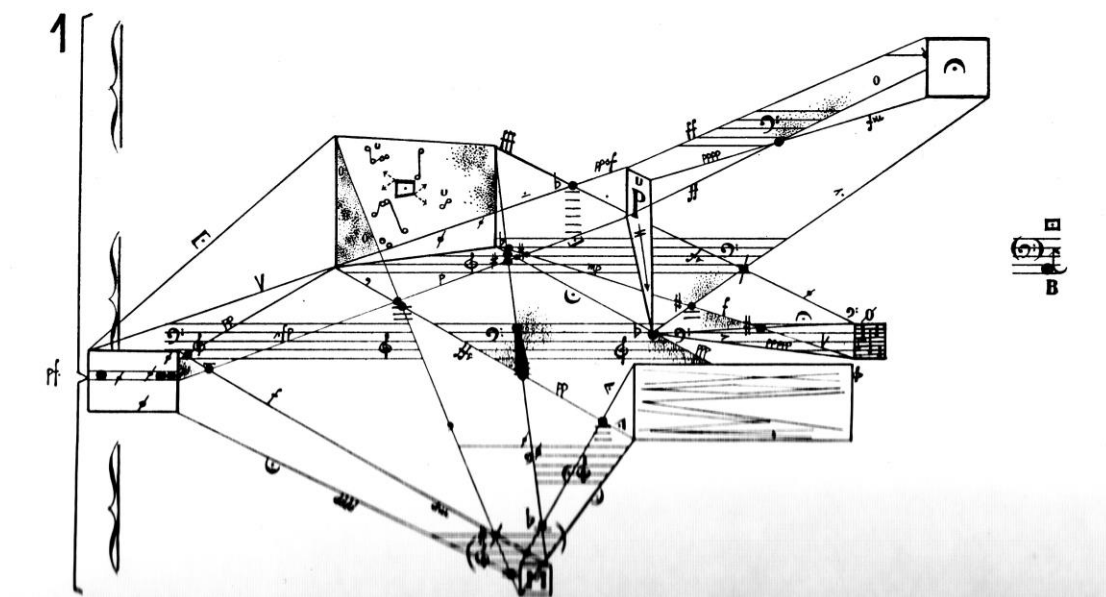


Fig. 21. Sylvano Bussotti, *Pre tre sul piano*

This is a work for which a certain performance tradition has grown up, by which the instrument is in some way used as a sensual object of desire, to be touched, caressed, stimulated by the three performers involved. Whether or not one chooses to adopt this general mode of performance, the top section of the score suggests various possibilities. One might start by isolating the sections delimited by rectangles or other shapes, and determine some sort of sequence in which these are played, possibly allowing one to metamorphosise into another gradually, taking account of some of the added details that can be found in the connecting sections. Or one might discern musical lines from notes connected by lines and use these as the basic outline, somehow interpreting the other details around them. I'd like to open this out and ask how any of you might think of realising aspects of this score.

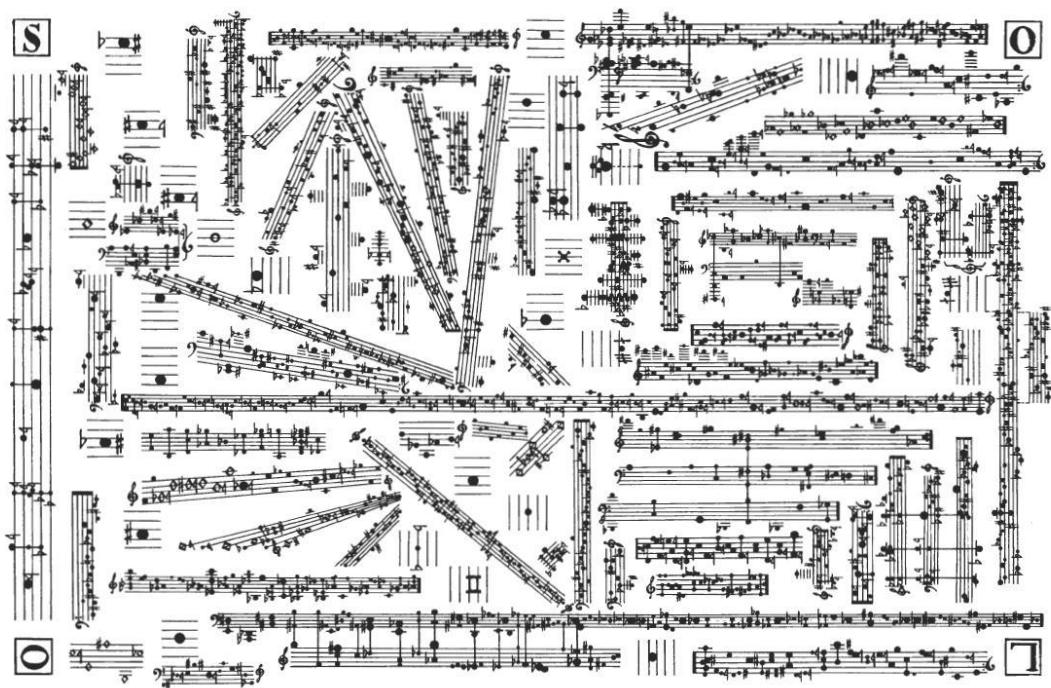
[Open up discussion]

Let me now show you a few more straightforward pieces from Bussotti's major music-theatre work *Le Passion selon Sade* (1965-66), together with a recording of the 'Extraits de Concert' from this work .

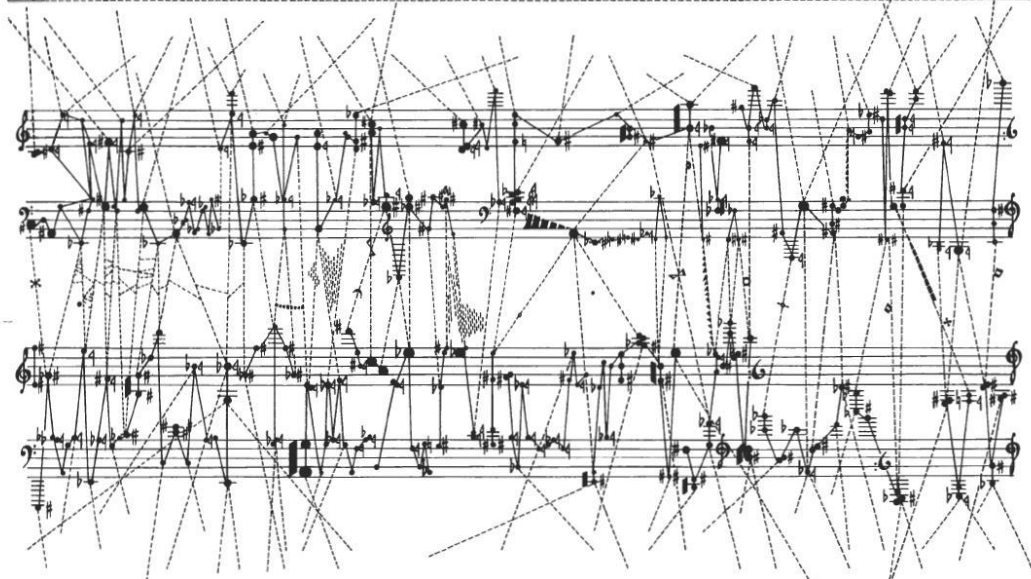
The image displays two pages of a musical score, numbered 1 and 2, from the work 'Le Passion selon Sade' by Sylvano Bussotti. The notation is highly complex and graphic, featuring multiple staves with various musical symbols, including notes, rests, and dynamic markings. The score is interspersed with numerous dramatic and descriptive instructions in Italian, such as 'calmo', 'PAUSA', 'grave', 'morendo...', and 'il pianoforte...'. The notation includes a variety of clefs, key signatures, and time signatures, along with extensive use of dynamics like *pp*, *mp*, *f*, and *ff*. The overall style is highly experimental and expressive, reflecting the composer's unique approach to musical notation.

Fig. 22. Sylvano Bussotti, *Le Passion selon Sade*, pp. 10, 11.

This piece operates with varying types of notation and varying degrees of ambiguity in a type of fusion of the purely graphic and the notationally specific.



Inizio nel 1910, da usare a piacere in un qualsiasi momento, niente qualsiasi modo a meno di seguire, nel "quattro" a pezzi, come per le pagine precedenti; i tratteggi per le
 due coppie di pentagrammi suggeriscono relazioni, riprese, ripetizioni ritornellanti fruibili in seno ai due testi paralleli e interscambiabili; i tratteggi che si perdono verso l'esterno alludono
 a cadenze improvvisabili, totalmente libere, da intercalarsi; il doppio senso-lato del testo ha altezza determinata (in "musica" e "danza") il doppio senso-stretto del testo è inesprimibile.



i ritornelli, salvo particolari precisazioni, si ripetono sempre un numero di volte ad libitum; stabilito però in precedenza dagli ascoltatori o dal concertatore.

Realisieren heißt „interpretieren“ (p. 3)

Am schönsten sind die Rätsel die verschiedene Lösungen zulassen: Man kann immer sagen, daß die Lösung (nicht) stimmt.

Der zweite Schritt kann durch den ersten, der dritte durch den zweiten, etc. erklärt werden:
Der erste Schritt kann überhaupt nicht erklärt werden! (p. 4)

Diese Blätter entstanden als Versuch (oder Wille) die Idee einer Musik, die mir gerade vorschwebte, so schnell wie möglich zu fixieren, sie quasi „in flagranti“ zu erwischen.

Am Anfang jedes Werkes liegt eine zeitlose Idee, die – primär – mit irgendeiner bekannten Notation nichts gemeinsam hat, und deren „Bild“ eher einer graphischen Aufzeichnung ähnelt.

Die ganze sogenannte „Konsequenz“ ist nur ein Gedankenspiel, dem Ablesen einer Patience ähnlich.
Meine größte Zuneigung gilt dem „Unaufführbaren“. (p. 5)

“Mobile” ist ein formales (formenes) Prinzip: nicht alles was „Mobile“ heißt, ist es auch.

Auch die Nicht-Determination ist ein formales Prinzip und nicht nur ein Problem der Notation.

Wird man eine version des Mobile ausschreiben, so ist das eben die Version, die nie stattfinden könnte:
die fixierte Version ist nämlich ein vollkommen anderes Werk.

Wie gut, daß diese Werke – auch wenn aufgeführt – noch immer auf ihre „Uraufführung“ warten dürfen. (p. 6)

‘Das Mischen der Karten ist keine Form: es bezweckt gerade das Gegenteil: das Verwischen jeder Form. Das Kartenspiel dagegen ist eine Form, weil es auf Prinzipien der erdachten (erfundenen) Ordnung(en) oder des Ordners beruht.

Die Realisation eines graphisch notierten Blattes ist dem Auflegen einer Patience ähnlich: es wird versucht in der Unordnung einen ordnenden Sinn zu finden, ihn zu entdecken, ihn sogar zu erfinden.

Die „Unordnung“ existiert im Grunde genommen überhaupt nicht:

Die Unordnung ist eine Situation, der wir noch keinen Sinn gegeben haben.’ (p. 7)

‘Nach monatelanger Arbeit an einer Partitur kommt man zwar zu dem vorgenommenen Rendezvous:
Das „Mädchen“ ist aber ein anderes.

Es gibt keine Improvisation; es gibt nur Interpretation.

Das einzige was man als „Improvisation“ bezeichnen könnte ist die Komposition: die Niederschrift einer neuen Musik.’ (p. 8)

‘Aufführen? Realisieren?

Im Zweifel, nie!’ (p. 9)

To realize is called "to interpret" (p. 3)

The mysteries permitted by the different solutions are most beautiful: One can always say that the solution is (not) correct.

The second step can be explained by the first, the third by the second, etc.: The first step cannot be explained at all! (p. 4)

These pages stand as a search (or a willing for) the idea of a music, which floated right in front of me, to fix it as quickly as possible, quasi „in flagranti“.

Because the beginning of each work is a timeless Idea, which - primarily - does not include any familiar notation together, and whose “picture” resembles rather a graphic recording.

The whole entire so-called “consequence” is only one play of the mind, similar to reading off a game of Patience. My greatest affection lies with the “un-performed”. (p. 5)

“Mobile” is a formal (formed) principle: everything which is called “mobile” is also that.

Also the indeterminacy is a formal principle, rather than being simply a problem of the notation.

If one writes out a version of “Mobile”, then that is just the way it is - a version which could never take place: the fixed version is a completely different work. As good as this is the fact that these works - even if performed- still may wait for their “premiere”. (p. 6)

Mixing the cards is not a form: it aims at the exact opposite: to smear each form. Against this, the card game is a form because it is based upon principles of the devised (invented) order (ordering) or arrangement. The implementation of a graphically noted page is similar to the presentation of a game of Patience: to find it a sense of arrangement within the disorder is to discover it or even to invent it. The "disorder" does not strictly speaking exist at all: The disorder is a situation, to which we have still not given any sense.' (p. 7)

'After months of work on a score one arrives at the rendezvous one has made:

The "girl" is however another.

There is no improvisation; there is only interpretation.

Only that which one could call "improvisation" is the composition: the transcription of a new music.'
(p. 8)

'To perform? To realize? That is never in doubt!' (p. 9)

Haubenstock-Ramati's seems to be presenting a particular type of 'idealist' conception of the score, as some type of elemental phenomenon in which one 'discovers' the piece when performing or 'interpreting' it. It is not so much a matter of imposing some order upon it as discovering forms of order that are somehow sedimented within. And at the same time the score is again a stimulus to a wide range of possible interpretations, as he makes clear. Fig. 24, from one of his best-known graphic scores, *Mobile for Shakespeare*, for soprano and six instruments, incorporates a fair amount of relatively conventional notation (at least compared to the Bussotti or Brown works encountered earlier).

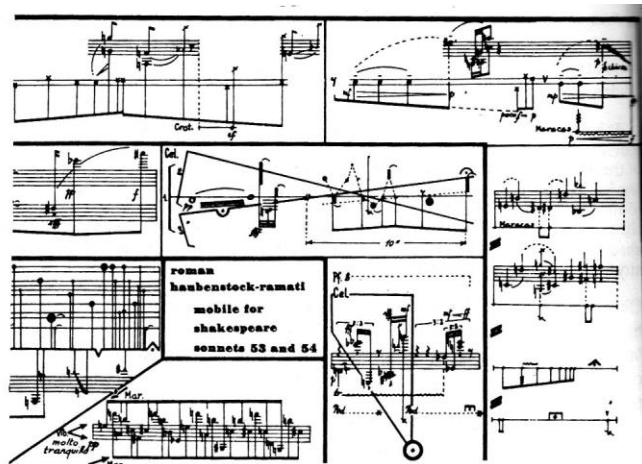


Fig. 24. Roman Haubenstock-Ramati, *Mobile for Shakespeare* (1960) (section from the score).

The score as a whole is divided into three 'areas' consisting of material for subsections of the players. The performers can begin at any point within their area and proceed either clockwise or anticlockwise through the area. The soprano part is somewhat more indeterminately notated than the others, though there does apparently exist a more conventionally notated version.

But in other scores of Haubenstock-Ramati, he moves further away from conventional notation. Some scores consist simply of abstract shapes, or a mixture of these with more conventional notation (see, for example, the section from *Liasons* in Fig. 25) or even figurative drawings (as for example a cartoon of a toga-clad Roman in *jeux 2*

(1964)), whilst the graphic qualities of the scores as a whole suggest other connotations (*Multiple 1* (1966) resembles somewhat a plan of a house on several floors).

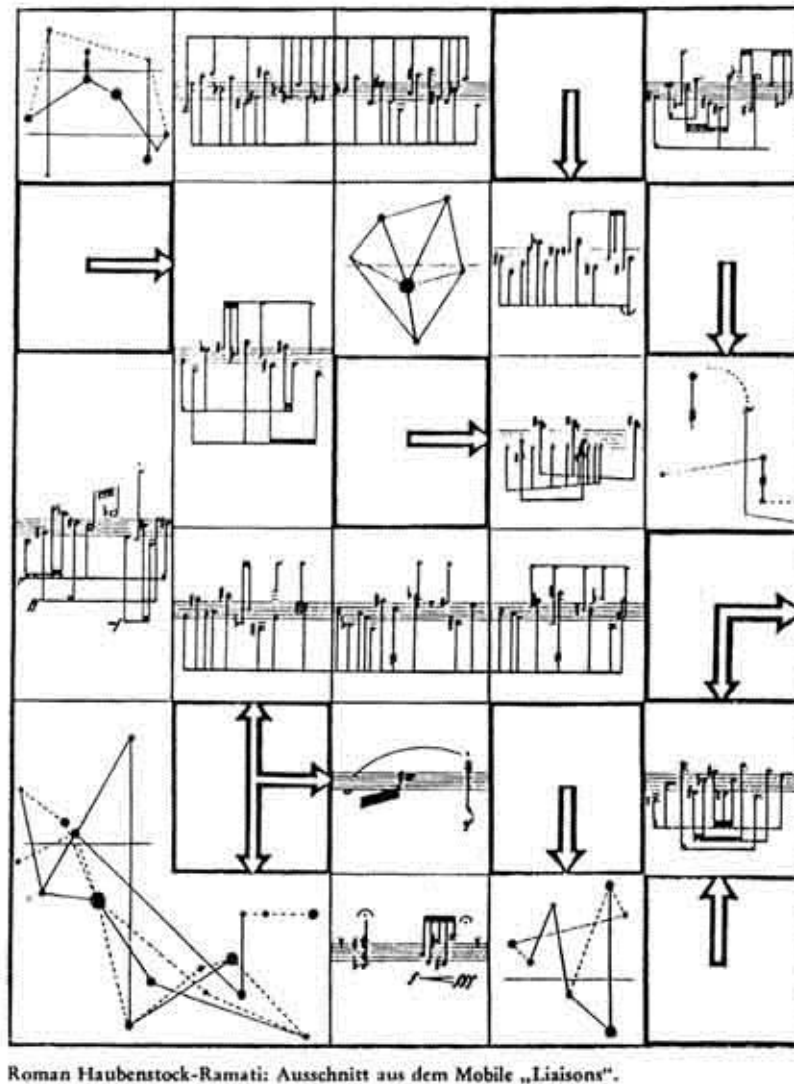


Fig. 25. Roman Haubenstock-Ramati, *Liaisons* (1958)/

In the instructions accompanying the series *Decisions*, Haubenstock-Ramati is relatively explicit about the ways to interpret the graphic scores (in terms of horizontal and vertical elements directly relating to pitch and time, whilst leaving dynamics and articulation mostly to the performer (though with some indications as to how certain types of lines represent crescendo and diminuendi). However, he suggests that the performer might either let their eye wander through the sheet continuously or in “jumps”, and either from left to right or right to left, as well as being able to omit some objects, perhaps not consciously apprehended, and repeat others. The idea of allowing the eye to wander freely makes for a link between this work and Stockhausen’s *Klavierstück XI* (1956), in which the pianist plays whichever section off the large score their eye lands upon.

For Haubenstock-Ramati, the use of graphic notation seems to have been connected with the necessity he felt to re-establish the issue of ‘style’ as seemed to have been excluded by serial techniques (his disillusionment with which he wrote in some detail). Whilst of a different nature to the scores of Bussotti, Haubenstock-Ramati’s graphic designs show an intense stylisation which should somehow be filtered into the performers’ realisations of them. Fig. 26 shows the percussion piece *Batterie* (1969), which exemplifies the semi-satirical, cartoon-like quality of many of Haubenstock-Ramati’s graphic scores.



Batterie (1969) by Roman Haubenstock-Ramati © Ariadne, Vienna

Fig. 26. Roman Haubenstock-Ramati, *Batterie* (1969).

This type of score offers as wide a range of possibilities for realisation as those of Bussotti. There are some elements that might be read by a percussionist as representing beaters or certain types of drums (perhaps roto-toms). But equally one sees something akin to a dragon, footballs, and scattered texts, very much in keeping with aspects of 1960s eclecticism or even of ‘Pop Art’. The percussionist Jan Williams described how he approached this score:

I decided that, rather than building a multi-percussion instrument on which I could make sounds in reaction to graphics which I would scan freely (choosing, ignoring, accepting, rejecting), I would, instead, pre-determine which graphic elements I would “play”. But first, I decided to divide the circle into quadrants in a clockwise direction, with a fixed starting point. I then decided to assign one primary instrument to each of the quadrants (tam-tam, drums, vibraphone, cymbals) and to use secondary instruments freely throughout all the quadrants. I associated the primary instruments with certain graphics and allowed myself the freedom to associate the secondary instruments with other graphics as I was playing the piece. If performing this realization again, I could, for example, start with a different quadrant, move counter-clockwise, or not pre-determine the trip routing. I liked very much playing the

“instrument” I constructed for this realization and, with the richness and variety inherent in the score, I could take the piece someplace totally different the next time.

[Play Williams’ rendition]

Dieter Schnebel’s *Glossolalie 61* (a particular realisation of the text work *glossolalie* (1959-61) is sometimes included in anthologies of graphic notation; it touches the boundaries of such a category in the senses I have been defining it (certainly as much so as the aforementioned works of Ligeti and Penderecki), though is not of a level of indeterminacy that can be compared to Bussotti or Haubenstock-Ramati.

III

51

S_{1,2,3}: tief Atem holen!

Alle Sprecher und Instrumentalisten: so rasch wie möglich

rv acc. nach vI

mp *mf* *mp* *f* *mp* *ff* *p* *sf*

und lIm

S₁

rh acc. nach vI

mf *mp* *f* *mp* *mf* *mp*

und lIm

S₂

uoie uoei uoei oieu ueio uico oelu oieu uioe

rm acc. nach vI

ff *p* *ff* *p* *ff*

sich den I zudrehen

I (scharf)

D

Auftakt zum Atemholen

80-110

Einsätze in beliebiger Folge

Warten, bis alle fertig sind

dann sofort S₁ und I₃ den Einsatz geben

I₁

Harm.

I₃

Guiro 2 (mit [a] Metallstäbchen)

Fig. 27. Dieter Schnebel, *Glossolalie 61*.

For the most part, the symbols that Schnebel employs are relatively unambiguous, and he gives instructions at the beginning of the score as to how to interpret the principal ones. But at the same time there are other elements to the score, including what he calls 'symbolic drawing's which are intended mostly as 'a sort of guiding line', which are 'seldom intended as object', rather as a 'stimulant for interpretative effort'. So in this sense the score is to be interpreted in terms of its overall graphical effect as well as in its details. In some places, the use of varying fonts and alphabets itself adds the multicultural effect that the very score gives off, as in Fig. 28.

Alle Sprecher (Eine Einheit ist von einem Instrumentalisten zu übernehmen):
 Sehr → äußerst rasch sprechen. Je nach Anzahl der Wörter pro Einheit keine → mittlere Pausen dazwischen. Evtl. aus dem angebotenen Material auswählen oder dieses kürzen. Einschübe an beliebiger Stelle immer ff / sehr rasch. Immer wieder sich plötzlich drehen oder rasch und regellos umhergehen.

63 hoch pp-mf
 Hódmezővásárhely São Paulo Bielsko Armagnac Nil
 Sholapur Thom-Penh Tschomolungma Sichota-Alin
 Bulhar Masbate Blagojewschtschenk P6
 Merauke Lydsdorp Maipures Cañuelas Kama
 Lulua Wallaroo Bangweolo Kuskokwim

64 Alle Sprecher: beim Atemausstoß Lippen stark zusammenpressen und vibrieren lassen. 1-2 Mal kurzen heftigen Atemausstoß (sff). Nach vorn gehen (langsam!)

S₁₋₃ tief pp-mf
 Tungting-Hu Pilkomajo
 Sitetu Cevapici Kunene
 Hachinohe Borschtsch
 Namuli Merluzzo Gaux
 Tokopilla Setid-Kuhi
 Bacalao Olekma
 Paiz de Vinho
 Entre-côte Lwow

mf
 Anagrama Fa:m' Ahniesgwow
 Apparitions Daidalos Kontakte
 Solo for voice II réactions Carré

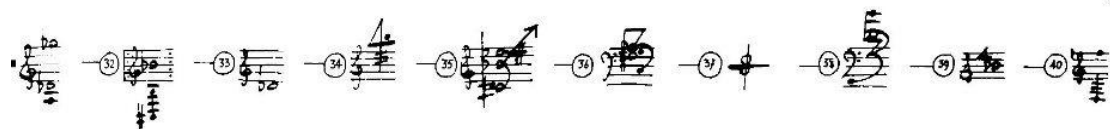
D
 Kontinuierliche Bewegung von links nach rechts und wieder zurück.
 Gesamtdauer: 10-12"

ff rasch tempo
 ca. 8"

Alle: die angegebenen Materialien in die von D gegebene Zeit disponieren oder während ihrer die angegebenen Aktionen ausführen.

Fig. 28. Dieter Schnebel, *Glossolalie 61*.

The British composer Cornelius Cardew, who worked in the 1950s as Stockhausen's assistant on *Carré*, moved in the early 1960s away from his essentially serially-derived earlier compositions towards an engagement with graphic notation. Cardew's *Octet '61 for Jasper Johns* presents something deceptively close-seeming to conventional notation, but which reveals more surreal shapes upon closer inspection (Fig. 29).

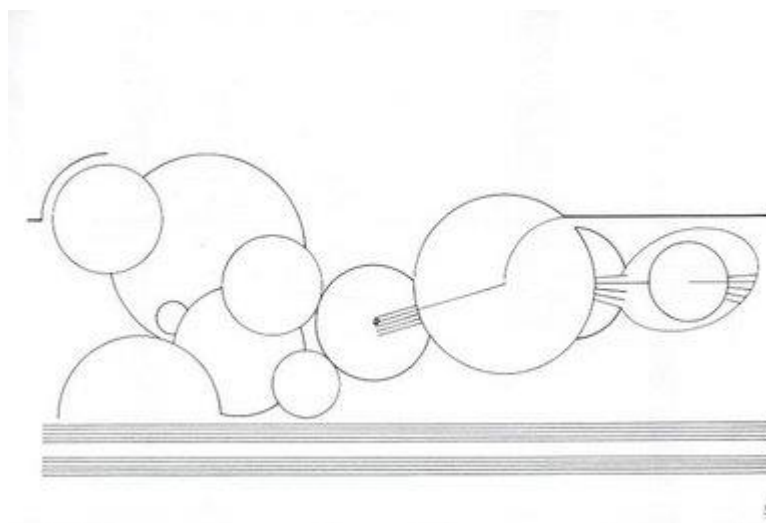
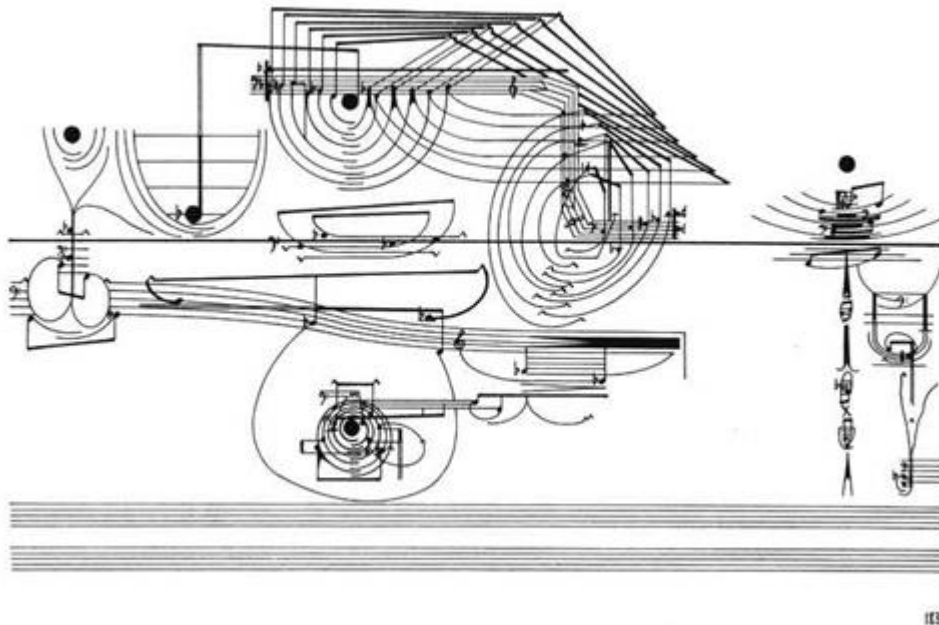


Cornelius Cardew: *Octet for Jasper Johns*

Fig. 29. Cornelius Cardew, *Octet '61 for Jasper Johns*.

Whilst the pitches in this score are relatively clear, the numbers are elusive – indeed, are they numbers or are they particular lines connecting the pitches (or both?). One might find a way of realising them that somehow combines both aspects and/or others. In fragment number 34, the number 4 could mean to play the high B four times, or in four different ways, or a long pitch slightly ascending with a glissando above and a cluster when it reaches its peak (and the two lines crossing the lower stem could also be interpreted as glissandi). The number 3 in fragment number 36 could also be read as an ‘emphasised’ bass clef, so that, for example, one might repeat what has already been played an octave or more lower?

Cardew’s most ambitious exercise in graphic notation was his large-scale work *Treatise* (1963-67), a visually spectacular score of sixty-seven pages which has received numerous very different performances.



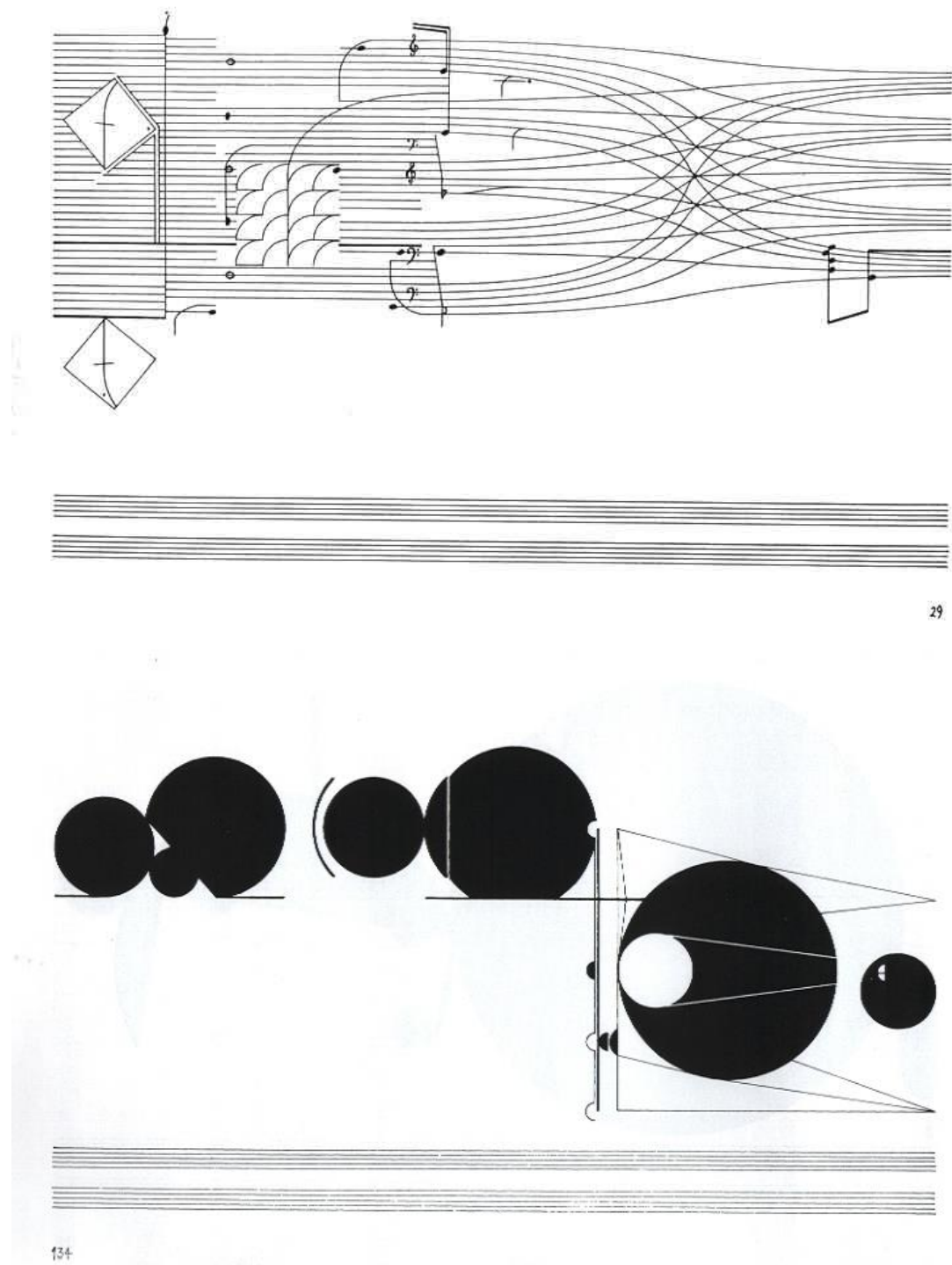


Fig. 30. Cornelius Cardew, *Treatise*, various pages.

Describing his methods as akin to those of the late Wittengstein in the *Philosophical Investigations*, where the latter ‘has *abandoned theory*, and all the glory that theory can bring on a philosopher (or musician), in favour of an illustrative technique’, Cardew (in a companion volume to the score entitled the *Treatise Handbook*) gives

various general guidelines for the type of attitude he wishes performers to take with respect to the score.

'The score must govern the music. It must have authority, and not merely be an arbitrary jumping-off point for improvisation'

"In the case of *Treatise* a line or dot is certainly an immediate orientation as much as the thread in the fog."

"Remember that space does not correspond literally to time."

"The notation is more important than the sound. Not the exactitude and success with which a notation notates a sound; but the musicalness of the notation in its notating."

"There is a great difference between: a) doing anything you like and at the same time reading the notations, and b) reading the notations and trying to translate them into action. Of course you can let the score work on previously given material, but you must have it work actively."

"Reflection before a performance. A musical score is a logical construct inserted into the mess of potential sounds that permeate this planet and its atmosphere."

"Performance advice. Divide the musicians into those involved in dot events (percussionists and pianists?) and those involved in line events. Dot events to be exclusively soft."

[Read these comments to students, then show them score and ask how they might realise it in sound.]

It is very clear from this that Cardew is concerned to warn against the possibility of such a score turning into a 'free-for-all' – on the contrary, he wishes the score somehow to dictate to the players, to move their improvisational activity (bearing in mind that at this stage in his career Cardew was regularly working with improvisers, in the group AMM, then later with the Scratch Orchestra). Just as strategies of high parametric organisation were able to act as a stimulus for the creative imagination of Stockhausen (and a means of exceeding the possibilities of momentary intuition), so a score like this can act upon the consciousness of improvisers or other musicians.

The final example I would like to present, slightly later than the others, is from Salvatore Sciarrino's *Prelude* (1969) for piano. In this work and the earlier *Sonata for Two Pianos* (1966), Sciarrino uses a form of notation that might be compared with that of Feldman in the *Projections* and *Intersections* pieces.

Prélude
pour le piano

SALVATORE SCIARRINO

à ANTONIO BALLISTA

Animé (avec une légèreté fantasque mais précise)

En animant

au Mouv!

ppp sans rigueur

pp

Toutes les arpèges sonores, sans dureté,
le reste très léger mais sans sécheresse.

PPPP sub. (sourdine)
pp

Fig. 31. Salvatore Sciarrino, *Prelude*.

All of Sciarrino's symbols are specific and relatively obvious – an unfilled white note-head indicates to play on the white keys, a black one on the black keys, a notehead with a dot in indicates to proceed chromatically, squiggly lines indicate a glissando (straight ones to use the wrist or forearm), mordents, trill signs, turns are used in the conventional manner. What is not specified is pitch other than in terms of general categories of register. Pitch becomes a matter purely of contour and gesture rather than of harmony. One hears a sense of pitch in broad 'regions', diatonic, pentatonic or chromatic (depending on which keys are being used) as well as perceiving forms of abstracted archetypes of historically-derived gestures (a concern that recurs throughout Sciarrino's compositions). The notation itself is an abstraction from conventional practice into the realms of the graphics, thus standing in a certain estranged relationship with tradition. Sciarrino did not continue this practice beyond these relatively early works, but the traces of the types of sonic experiences they engendered remain present throughout much of his output.

The use of graphic notation obviously raises various significant questions about the whole process of composition, and the extent to which a work can be said to be 'by' either the composer or the performer who converts the symbols into a sonic entity. In the case of the works of Bussotti and Haubenstock-Ramati, this question is particularly acute. To some, it may seem like an abdication of responsibility on the part of the composer, leaving the performers to 'do their work for them'. To a certain extent this may be true, but this is only a reasonable criticism if one demands a very particular division of labour in the process of composition. There is surely much to be gained from modes of music-making which involve a greater degree of input from the performer than hitherto, or at least a different type of input. If it is sometimes dubious to call realisations of graphic scores 'improvisations' (though some of them are), nonetheless they force a new relationship between performer and composer that stands radically at cross-purposes with other contemporary tendencies towards ever-increasing notational specificity. It was in the face of this that Haubenstock-Ramati, and arguably Bussotti as well, felt the need to develop this side of their work.

Yet graphic notation today seems like the product of a particular era (roughly from the mid-1950s until the late 1960s), and is seldom employed by composers of our time. Why did it fall from favour? There are various hypotheses one might offer for its decline, one of which would be a new type of conservatism and distrust of the avant-garde from the early 1970s onwards, leading to disdain for some of the more outlandish developments of early years. Personally, I also believe a growth in the 'professionalisation' of the performer of contemporary music was a major factor; as their work became gradually more accepted by the mainstream of music, there was a concomitant demand that they demonstrate their scrupulous fidelity to the finest details of musical scores, so as to counteract claims that it does not really matter what one plays when performing contemporary music. Graphic scores, for which even the concept of a 'perfect' realisation does not really exist in any meaningful form, were hardly the most appropriate vehicle for such performers to demonstrate their craft in this respect.

But the successful execution of graphic scores is a fine art, and one for which a sophisticated performing practice was indeed developed (and occasionally has continued to be developed since). The results are captured on many recordings, and

contemporary performers can learn much from these. Even if the use of graphic notation comes to be seen as the rather exclusive product of a particular moment in history (reflecting the influence of American-inspired indeterminacy, as well as providing a stark alternative to serial composition – neither of these things have quite the immediacy today that they had in the 1950s and 60s), there is everything to be gained from returning to and re-interpreting these scores, and developing new approaches and attitudes towards them.