

Notational Image, Transformation and the Grid in the Late Music of Morton Feldman

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Four and forty / all in placE / eventually / eDges disappear¹

Introduction

Analysis of conventionally notated Western music typically ignores how a score looks on the page. This article is about the precise visual appearance of the late period manuscripts of Morton Feldman (1926–1987), and how this appearance relates to processes and transformations that occur in other musical domains within the pieces, presenting challenges, dilemmas and opportunities for the analyst, performer and publisher.² The notational techniques employed by Feldman underwent many changes in the 1950s and 60s, in sympathy with his later belief of “the almost hierarchical prominence I attribute to the notation’s effect on composition.”³ These techniques ranged from conventional notation, graphic notation, to a more standard notation where either the note durations or pitches were not specified. With a few exceptions, from 1969 Feldman employed entirely conventional notation,⁴ but on closer inspection this notation is often less conventional than it at first appears, and is our starting point here.

The majority of Feldman’s late manuscripts have a fixed number of bars per system – usually nine – and these bars are evenly spaced across the page, giving the manuscripts a striking visual appearance.⁵ (The starting point of Feldman’s late period is a matter of debate⁶, but for our purposes could be said to begin in the late 1970s). Given Feldman’s well known self-professed interest in painting and later, Near and Middle Eastern rugs, this visual feature of his manuscripts, if remarked upon, has usually been related to the visual arts and rugs. There has been good deal of research in this area, most exhaustively by Sebastian Claren,⁷ and more recently by Steven Johnson,⁸ writing on the relationship between the paintings of Jasper Johns and *Why Patterns?* (1978).⁹ But possible relationships to other artforms has arguably been an interesting but too easy way in to what is famously difficult music to analyse.¹⁰ Furthermore, Feldman himself claimed that most of his work was not inspired by the non-musical, stating that *Why Patterns?* was “one of the few pieces I ever wrote where I was actually inspired by an extraneous idea, outside of the music itself.”¹¹ Our approach here, then, is to consider Feldman’s layout of his manuscripts in relation to other aspects of the music itself. In this context it is useful to compile a kind of taxonomy of Feldman’s unusual notational techniques which relate to the synchronisation of parts and layout of scores.

The “grid” and notational types

The manuscript layout of the late pieces, in which bars – since each is the same width – are aligned in periodic sequences, forms a grid, creating a consistent visual segmentation, which invites comparison of bars in the same column (or even across diagonal positions) between systems and pages. As such, these pieces bear a relationship to Feldman’s graph notation pieces of the 1950s and 60s, in which horizontal space in the form of each box of the graph represents the duration of a single pulse. In a 1983 interview Feldman explained, “I still use a grid. But now the grid encompasses conventional notation”.¹²

The grid in the late pieces, however, differs in an important respect from the earlier graph pieces, in which the relationship between notated space as represented by a box in the grid and duration remains uniform, a constant duration.¹³ In the late pieces where the grid is comprised of bars notated on the page with uniform widths, there are whole pages where the time signature is constant – typically in 3/8 – for example *Neither* (1977),¹⁴ *Triadic Memories* (1981)¹⁵ and *For Samuel Beckett* (1986).¹⁶ But more typical is a constant change of time signature (sometimes in groups, to be discussed presently), in which, in contrast to the graph pieces, the relationship between notated space on the page, and the duration it represents is constantly changing.

In the late pieces, the grid functions in conjunction with other notational temporal aspects of the scores, which from a

notational perspective, can be divided into two main groups. Pieces where:

- 1) conventional notation is used, laid out according to the grid, such as *Palais de Mari* (1986); *Clarinet and String Quartet* (1983);
- 2) the alignment of parts on the page does not coincide with their alignment in performance. Within which there are pieces with:
 - a. totally unsynchronised parts: in performance, the bars align only on the first beat of the bar, notably *Crippled Symmetry* (1983) and *Why Patterns?* (1978);¹⁷
 - b. periodic synchronisation: Pieces where in performance the bars align only after a given number of bars, such as *String Quartet* (1979) and *For Phillip Guston* (1984).

Nils Vigelend, one of the performers with whom Feldman often toured during this late period, sums up the performance reality of these pieces (type 2a above), when writing of *Why Patterns?* he states, “The score consists of three completely notated but metrically unaligned parts. Theoretically one could say the notation is fixed but in playing the piece many times, one discovers a fair degree of latitude concerning vertical coincidence.”¹⁸

The first page of the score of *Crippled Symmetry* illustrates this: downbeats in each part coincide only on the page, a fact indicated by the lack of a solid bar-line joining instruments in each system (see Example 1). To understand what is going on here, we look at the bar level, each bar usually contains a single motive (Feldman called these patterns),¹⁹ or silence. And since motives – and therefore bars – are of various durations, there is a more than usually complex relationship between the look of the score and its performance, compounded further by different patterns of repeated bars in each instrument. Thus these evenly spaced bars function not to line up the same ‘vertical’ space played by the other instruments, but to divide the score into motives. In one of the pages of the score where all instruments share the same time signature, Feldman inserts the following comment (page 25): “(a reminder that this page and what follows is not a synchronised score)”. As an example of this, Example 2 shows one of these pages.

Turning to the second subcategory of non-synchronised score in which the parts realign every so often, it can be noted that there are more of these type than of 2a. Examples include *String Quartet II* (1983), *For Philip Guston* (1984), and *Bass Clarinet and Percussion* (1981). Feldman discusses an example of this technique as found in his first *String Quartet* (1979), in his 1981 essay, “Crippled Symmetry”. In the example cells align in performance either side of the phrase, in the silent bars (Example 3a). Feldman writes of this phrase in the piece, “Only after rehearsals, and by following the score, could I catch an individual pattern as it criss-crossed from one instrument to another.”²⁰ Note here how this technique functions in conjunction with its notation within the grid, so that as in the piece *Crippled Symmetry*, visually disjunct sounding bars are aligned, but also conjunct sounding bars that begin and end the phrase are correctly aligned in the manner of standard notation. The phrase is also notable in that when it occurs, as it does a number of times in slightly different guises in the first half of the piece, it is always fortississimo, in stark contrast to otherwise very quiet dynamics employed throughout.

The “grid” as transformational constant

One of Milton Babbitt’s fundamental insights into the nature of so-called 12-tone music was the observation that transposition of the 12-tone chromatic aggregate “can be regarded as effecting a permutation of order numbers [of the set]”.²¹ This is because the aggregate is a closed system – in twelve-tone equal temperament there are only theoretically 12 pitch-classes – and so transposition just rearranges the same notes. Speaking in 1984, Feldman told a story of described Leo Tolstoy cutting up and rearranging the sentences of *War and Peace*, in the manner of a film editor, stating of his own work, “If I have something [comprising parts] A to F, I’m talking about a complete set. I’m also very interested in retrograde. And I have pieces where I don’t repeat the tones retrograde, but I repeat the whole module retrograde.”²²

The ordering of the bars in the phrase from the *String Quartet* just discussed can be thought of in these terms. The phrase has an obvious correspondence between the vertical and the horizontal: a quartet both of instruments and number of cells. Furthermore we notice that each instrument gets a different ordering of the same four time signatures and rhythmic subdivisions in each cell, whereas in all other instances of this phrase in the piece, rhythmic unison is used between the instruments²³. But we can regard the arrangement as the swapping of the order of pairs of bars, one that can be more formally

CRIPPLED SYMMETRY

Morton Feldman

FL. *(no motor)*

VIB. *ped. →*

PF. *ped. →*

FL. *ped. →*

VIB. *ped. →*

CEL. *ped. →*

FL. *ped. →*


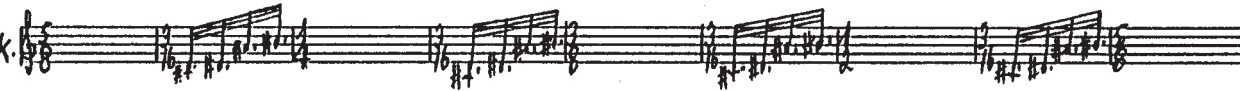

GLOCK. *(GLOCK.) (L.V.)*

PF. *ped. →*

Example 1: *Crippled Symmetry*, page 1

B. FL. 
 GLOCK. 
 PF. 
 1/2 ped. →

B. FL. 
 GLOCK. 
 PF. 
 1/2 ped. →

B. FL. 
 GLOCK. 
 PF. 
 1/2 ped. →

B. FL. 
 GLOCK. 
 PF. 
 1/2 ped. →

Example 2: *Crippled Symmetry*, page 1

Example 3a: *String Quartet*, page 40, first system, bars 1-6

expressed in terms of rotation and/or retrograde of the top line, as shown in Example 3b²⁴. In fact order x in this example is itself derived in a similar manner from the previous instance (in rhythmic unison) of the phrase on page 33, whose relation to x is r_1 (i.e. order DABC). Note that in Example 3b the order of time signatures form retrogrades between the inner and outer instruments as notated, and matching diagonals (5/2s and 7/4s). A way to describe the symmetry in the result of these operations is to consider the changes in order intervals between the bars. If we can say that the sequence of intervals (the interval vector) between the sequence A, B, C, D of is $\langle 1, 1, 1 \rangle$ (i.e. the difference between successive elements), then the interval vector of the second violin line (in relation to the first), arrived at by the retrograde and rotational transformations Rr_2x , is the symmetrical $\langle -1, 3, -1 \rangle$. This compositional structure forms a visual game, as it were, a structural organisation arguably as much for the eye as the ear.²⁵

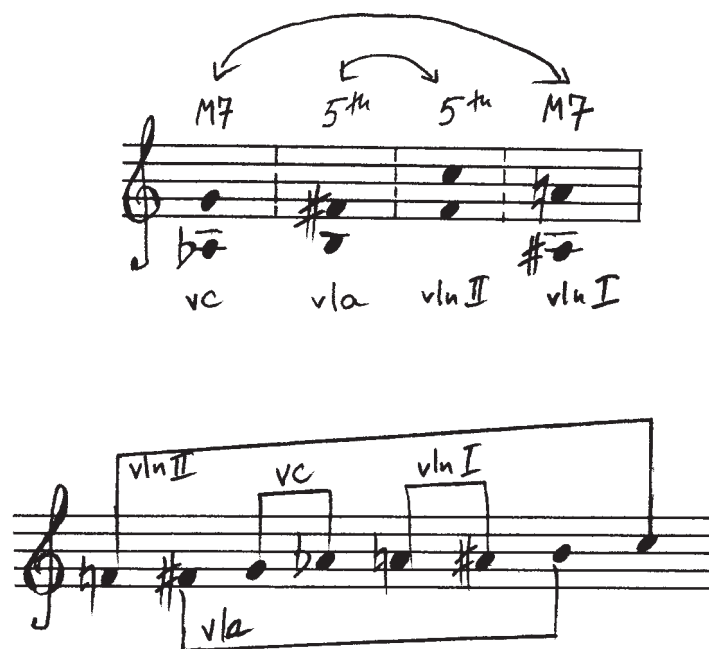
x	A	B	C	D
Rr_2x	B	A	D	C
r_2x	C	D	A	B
Rx	D	C	B	A

Example 3b: Bar structure of Example 3a

The chord that is articulated in Example 3a is an octachord of evenly distributed double-stops between instruments, as Feldman puts it, “dispersed in an overlay of four different speeds”²⁶. Within the rhythmic cell of each bar, divisions of 3, 4 or 5 are found, forming in Violin I and the ‘cello “crippled symmetries” of sequence: the two fastest pulses of 3 divisions per bar surrounded one side by a slower group of 5 iterations and at the other end by a slow group of 4 divisions: a total of 15 attacks per instrument in four groups (slow, fast, fast, slow).

The octachord is formed, typically for Feldman, from a chromatic segment in this case whose segmentation into dyads between instruments is entirely symmetrical (Example 3c). What we have here, then, as Babbitt reminds us, is a correspondence between the time and pitch domains, as well as the visual: musical materials moved around – transposed – according to various

symmetrical operations. Thus a retrograde is a time-based inversion of sequence (order), comparable to an inversion of pitch, both operations form kinds of symmetries with their original material. An ascending (that is, prime-form) chromatic segment is itself symmetrical in terms of adjacent intervals (semi-tones), as it is “self-inversional” under inversion and transposition. It is this arrangement of the segment that reveals the symmetrical partitioning used to create the dyad in each instrument, as shown in Example 3c²⁷.



Example 3c. Pitch structure of Example 3a

Bass Clarinet and Percussion (1981) demonstrates another example of periodic synchronisation of bars in terms of the visual alignment of parts on the page and their reality in performance. Throughout this piece, the two percussion parts are aligned through a time signature (3/4) that does not change, but in the bass clarinet part the time signature varies with each bar. In contrast to *Crippled Symmetry*, however, the score is not unsynchronised throughout. At the bottom of the first page, Feldman placed an explanatory note, as follows: “Every five systems = 135 [crotchet symbol] for both the B.Cl. and Perc.” This turns out to be true, and leads to a few observations in comparison with previous examples.

Firstly, like the small example from the *String Quartet*, it shares the qualities of having asynchronous bars realign after every so often, with two main differences:

1. The realignment occurs not as a result of a permutation of the same combination of time signatures among instruments, but because here we have different combination of time signatures whose total durations are the same (in this case 135 crotchets).
2. The realignment occurs not at phrase level, but at a higher level of form, see below.

The whole of *Bass Clarinet and Percussion* – the piece is ten pages long – is organised around these five system blocks. At four systems per page, there are in total eight sections of five blocks, each division being easily heard as the piece unfolds, a relatively unambiguous aurally perceivable form for a late Feldman piece. At the lower level, the subdivisions within these blocks in the bass clarinet part that warrant attention. On the first page of the piece, subgroups are of 45 crotchet’s duration over 15 bars, with a suggestion of further segmentation into five bar sub-groups related to register and rhythm (Example 4). Note also the characteristic use of a chromatic (tetrachord) segment in the clarinet part, and how that within its unfolding over the first six bars, there is a lovely simple pitch symmetry around the third note (E-flat), which forms a pivot between two overlapping chromatic trichords (D-flat to E-flat and D-flat to E-natural). Expressed another way, this symmetry can be shown by the interval succession around the central E-flat: -1, +2 [E-flat], -1, +2.

FOR HARRY SPARNAAY

BASS CLARINET AND PERCUSSION.

♩ 63-66 Morton Feldman

PPP

Cymbals
3 PPPPP
4

Gong
P
PPPPP

delighted triplet

3 4

3 3

3 4

Example 4. *Bass Clarinet and Percussion*, page 1.

Page four of the piece comprises the last three systems of section three, followed by the first system of section four, and is also a good illustration of the type of sectional and sub-sectional divisions mentioned above (Example 5). These sub-sections are in groups of nine bars, coinciding with the grid boundaries as partitioned by the chromatic descending bass clarinet line. Here we can observe a 1:1 relationship between the grid – the piece as it sits on the page – and the structure of the heard piece. At a higher level, we have a kind of giant 4:5 (or 8:10) polyrhythm between the beginning of each the five sections that group the piece, and the transposition of their placement on the page (page 1, system 1; page 2, system 2, etc.). We know we're halfway through the piece when we reach section five, as it begins on the first system of page 6. It is worth noting that this piece is exceptional among Feldman's late pieces, in the clarity and regularity of its sectional and sub-sectional divisions, and their ease of segmentation, both on the page and off, as it were.

For Philip Guston, at around four hours long, is one of the very long late pieces, the only piece that Feldman wrote in 1984. It is one of a four pieces that Feldman wrote for his touring group "Morton Feldman and Soloists", that began in 1978 with *Why Patterns?*, included *Crippled Symmetry* (1983) and ended with *For Christian Wolff* (1986)²⁸. In common with other pieces from the period, the notational style of *For Philip Guston* includes both regularly-aligned and periodically synchronised bars on the familiar nine bar grid.

Example 6 shows the opening page of the piece, the first system of which comprises four bar phrases of equal duration placed symmetrically around a single empty bar ($4+1+4 = 9$).²⁹ The neat symmetry of this first system is broken in the next by a second empty bar, establishing a five bar phrase division that phases in a manner described previously for the entire form of *Bass Clarinet and Percussion*, but which here operates at a more local level on a single page against the grid (a ratio of 10:9). This *augenmusik* aspect of the first page, which continues in one form or another for several further pages can be contrasted and compared with later pages in the piece, where phrases or blocks comprise groups of three bars, thus fitting evenly onto the grid, as though the piece can't resist the pull of this visual aspect of its notation (Example 7).

Another example of the use of transposition and symmetry is in the pitch material of the piece, its well-known motto. As can be seen in the heterophonic opening of the piece, the reordered note names spell out Cage: C, A-flat, G, E-flat (Example 6)³⁰. Note here the accidentals, which change the pitch-classes of the collection from one kind of symmetrical chord, a minor 7th, into another, a major 7th chord (Feldman once joked that he had to add the accidentals, otherwise the music would sound Indonesian).³¹ In its normal order (A-flat, C, E-flat, G), the inversive symmetry of collection can be seen as in its interval-class succession of 4, 3, 4. The inherent symmetry is reflected in the sequence of notes as they appear in the motto, C, G, A-flat, E-flat: two Perfect 4ths/5ths (interval-class 5s) symmetrically placed around a second interval, a semitone, forming an ordered pitch interval succession of -5, +1, +7). Again we find a correspondence between the types of symmetrical structures found in different parameters of the piece, such that, for example, we can observe that this pitch symmetry finds a correspondence with the unfolding of the sequence of opening phrases in the first system as described above.

In Feldman's last solo piano piece, *Palais de Mari* (1986), there is a similar large-scale polyrhythmic phasing between the grid and some sense of phrases of durational blocks in the music, producing the same visual design on the page (lost unfortunately in the typeset score, more on this below). The visual effect is less clear than in *For Philip Guston*, however (Example 8). Here we have, as in *For Philip Guston*, a ten bar unit of sorts, against the familiar nine bar grid. Bar 11 returns to a variation of the opening cell of the piece, bar 21 introduces the first 4-note chord (simultaneity) which in bar 31 is varied with voice exchanges, and bar 41 contains another large chord, a septachord – more on this below.

There are a number of other symmetrical features present on the page. Since the grid is comprised of odd numbered elements in this piece (nine bars by five systems), a visual central point exists, on page 1 bar 23, the central bar of the central system. As can be seen in Example 8, this centre is distinguished from its surrounds by a relative "still-point", a bar and its neighbour where only one note is sounded per bar (the only single note bars in the piece). Further symmetry around this point can be seen in the correspondence between second bar of the next system (bar 29), and the second last bar of the previous system (2) – bar 17. Another example of such symmetry is shown in Example 8, in which bar 42 contains a shortened version of the cell in bar 33, and recurs in accordance with the periodicity of the grid (after 9 bars). Around this is formed an inversion of cells

System 1: Three staves. The top staff contains a melodic line with various rhythmic values and rests. The middle staff contains a complex rhythmic pattern of vertical strokes. The bottom staff contains a series of chords, some marked with a dynamic of *p*.

System 2: Three staves. The top staff features a melodic line with a triplet of eighth notes and a dynamic of *pp*. The middle staff continues the rhythmic pattern of vertical strokes. The bottom staff contains chords, some marked with a dynamic of *p*.

System 3: Three staves. The top staff features a melodic line with a triplet of eighth notes. The middle staff continues the rhythmic pattern of vertical strokes. The bottom staff contains chords, some marked with a dynamic of *p*.

System 4: Three staves. The top staff features a melodic line with a triplet of eighth notes. The middle staff contains a series of chords, some marked with a dynamic of *pppp*. The bottom staff contains a series of chords, some marked with a dynamic of *pp*.

Example 5. *Bass Clarinet and Percussion*, page 4.

For Philip Guston

for flute, percussion and pianoforte

Morton Feldman
(1926-1987)

$\text{♩} = 63-66$

The musical score is presented in four systems, each consisting of three staves. The first two systems feature Flute (FL.), Vibraphone (VIB.), and Pianoforte (PF.). The last two systems feature Flute (FL.), Glockenspiel (GLOCK.), and Celeste (CEL.).

System 1: FL. (ppp, no motor), VIB. (ppp, ped. ->), PF. (ppp, ped. ->). Time signatures: 3/8, 3/8, 3/8, 3/8, 3/8, 3/8, 3/8, 3/8, 3/8, 3/8.

System 2: FL., VIB. (GLOCK.), PF. Time signatures: 3/8, 3/8, 3/8, 3/8, 3/8, 3/8, 3/8, 3/8, 3/8, 3/8.

System 3: FL., GLOCK., CEL. (loco, ped. ->). Time signatures: 3/8, 3/8, 3/8, 3/8, 3/8, 3/8, 3/8, 3/8, 3/8, 3/8.

System 4: FL., VIB. (GLOCK.), CEL. (PF.). Time signatures: 3/8, 3/8, 3/8, 3/8, 3/8, 3/8, 3/8, 3/8, 3/8, 3/8.

Example 6. *For Philip Guston*, page 1.

Musical score for three instruments: Piccolo (PICC.), Glockenspiel (GLOCK.), and Celesta (CEL.). The score consists of three measures. The Piccolo part features a sequence of notes with stems pointing up, changing pitch and rhythm. The Glockenspiel part features a sequence of notes with stems pointing down, also changing pitch and rhythm. The Celesta part features a sequence of notes with stems pointing down, changing pitch and rhythm. The measures are separated by vertical bar lines.

Musical score for three instruments: Piccolo (PICC.), Glockenspiel (GLOCK.), and Celesta (CEL.). The score consists of three measures. The Piccolo part features a sequence of notes with stems pointing up, changing pitch and rhythm. The Glockenspiel part features a sequence of notes with stems pointing down, also changing pitch and rhythm. The Celesta part features a sequence of notes with stems pointing down, changing pitch and rhythm. The measures are separated by vertical bar lines.

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Example 7. *For Philip Guston*, page 29.

FOR FRANCESCO CLEMENTE

Commissioned by Bunita Marcus

PALAIS DE MARI

Morton Feldman
— 3X5 —

Example 8, *Palais de Mari*, page 1, manuscript.

positions which is caused by an inversion or sequence, in other words through a retrograde or bar orders (Example 8).

At this point we reiterate the correspondences between what is happening to the ordering of the cells in time and visual space, and what is happening to the ordering of pitches within the cells. In both cases, there are transpositional and inversional relationships: cells and pitches are being moved around inversionally – transposed and rotated in both visual and pitch space. One example of this is the (registral) voice exchange (and, for the performer, hand exchange) between bars 21 and 31, which is also visually a spatial inversion between staves (Example 8).

Notational image

Discussing his early graph pieces in relation to Jackson Pollock's working method, Feldman wrote that, "each sheet [of graph paper] framed the same duration and was, in effect, a visual rhythmic structure"³² (emphasis mine). The manuscripts of the late period arguably are also rhythmic structures, but ones in which the grid does not form segments of same the duration. This results in a more complex relation between duration and its visual representation, corresponding perhaps with the composer's interest in the "crippling" of symmetrical relations. What is needed is a descriptive term that mediates between the acoustic and visual domains of these scores, something to which Feldman's phrase "notational image" seems well suited. He uses this term to describe the small rhythmic patterns in his music, as being "in part notational images that do not make a direct impact on the ear as we listen."³³

This term "notational image" has since been picked up by theorists in relation to analysis of Feldman's music in this context,³⁴ but we extend its use to include the notational image of a page of manuscript, the grid and its parts. These notational images exist as the result of particular notational practice, a "visual rhythmic structure" that holds interpretive significance for the analyst, performer and, thus, at the very least indirectly, the listener. Considering the Feldman's notation in this manner takes us beyond debates about correspondences between his manuscripts and the Abstract Expressionist painters, towards regarding his notational practices as part of the usual prescriptions for performance, but a part that expands the ways in which tradition notation functions.

Walter Zimmerman drew in 1984 graphical "pattern carpet" ("Muster Teppich") representation / analysis of Feldman's *String Quartet II* (1983), which formed part of a 1985.³⁵ The drawing, which appears spread over two pages in the essay, was described by Feldman as a "duplication graphically of the kind of material that comes and goes in the piece."³⁶ The drawing is made up of a grid, wherein each box represents one of the 124 pages of the quartet's manuscript, and each box is divided into three parts, one for each system of the score. Musical "material" is represented by straight or wavy lines, asterisks, squares, dots, circles, triangles and so on, and even a quick glance shows the significance of the Feldman's page and system grids – changes of material occur at the page and system level. The drawing also shows that, as with most of Feldman's late scores, the final manuscript page of *String Quartet II* is completely composed out (followed by a blank page of score cover) – the piece is over when the bottom of the page is reached, reinforcing the visual primacy of the page grid as a notational image within which the music sits. Furthermore, it can be argued that Zimmerman's drawing is not only in itself a notational image of sorts, the notation being graphical as described above, but therefore a meta-notational image of *String Quartet II*.

Musical typesetting and the notational image

The roughly quarter of a century since the beginning of Feldman's late period has witnessed a number of changes in how Feldman's scores have been made available to the public, coinciding with changes within the classical music publishing industry involving financial constraints and technological advances. In addition, since his death in 1987, Feldman's reputation, or at least public profile, has increased markedly, as measured for instance by the number of CDs of his music released. In the 1970s, many of Feldman's scores were "engraved" by Universal Edition in the traditional manner, however by the 1980s the majority of Feldman's scores were available only as "special order" copies of the original manuscripts.³⁷ Since the 1990s, UE have typeset a few more of the compositions (mainly the piano pieces) using the by now ubiquitous computer software typesetting programmes.

In the typesetting of conventionally notated music, the horizontal space a bar is accorded is determined by in general the number of notes or rests therein. Thus space for a bar is a function of the density of its musical activity, bars are given just

for francesco clemente
palais de mari
for piano (1986)



morton feldman
1926-1987

$\text{♩} = 63-66$

ppp

And. →

7

14

22

28

36

Example 9, *Palais de Mari*, page 1, score.

so much space as needed to be clearly legible and allow for suitable page breaks, and so on.³⁸ Example 9 shows the opening page of the typeset edition of *Palais de Mari* laid out according to these principles. Compare this with the opening page of Feldman's manuscript score of the same piece (Example 8), where as a result of the notational image of the grid, each bar has the same space, regardless of its contents; in the typeset version all sense of the grid is lost. According to Bill Colleran – who signed up Feldman to UE in 1967 – Feldman never brought up the issue of typesetting to the grid, though once quipped that he liked UE typesetting his scores, as they made him a “legitimate” composer.³⁹ In any case typesetting the grid presents practical problems. In the case of piano scores, for example, to fit the nine bar grid in a system would require either a large score (Feldman's manuscripts are usually A3) or a small typeface – neither considered practical for a performer. In the typesetting of the initial pages of *Triadic Memories* (1981) a compromise has been reached in which a six bar grid realigns with the nine bar grid of in the original manuscript every three systems.

In 2000 Edition Peters collected Feldman's piano music which they held the rights into a single volume, *Solo Piano Works 1950–1964*. With the exception of the graph pieces included, the works were re-typeset in a manner showing awareness and sensitivity towards Feldman's grid. In a note to the edition, the volume's editor Volker Straebel writes, “We have attempted to retain the design of Feldman's original manuscripts in this newly engraved edition,”⁴⁰ noting that in the *Variations* (1951), “the chords [...] clearly reflect a visual structure that in fact may have determined the musical structure”⁴¹ (the piece is laid out on an eight bar grid). In what rapidly becomes an apologia however, Straebel then writes that with the exception of the *Variations*, “using modern technology for these new engravings, it proved impossible to maintain the original length of the individual measures and the same number of measures on each system”. The compromise that Peters has used is similar to UE's typesetting of *Triadic Memories* as described above, in that for the most part a grid (fixed per piece) of a four or six bars has been used. The problematic aspect here is that both the notational image and for the most part, the position of a given bar within Feldman's original grid, has been lost. It is ironic that the advance of the personal computer, which has made music typesetting available (and largely compulsory) to the unpublished composer, also has to date largely resulted in a compromised typesetting of Feldman's music.

Conclusion

It is clear that Feldman was concerned from his early days with the visual aspect of his manuscripts, however far from these elements being interesting as *augenmusik* or metaphor for painting or something else, this visual aspect adds an additional parameter to the complex musical interrelationships that exists in Feldman's late pieces. If Feldman's notational images, as he claims, “do not make a direct impact on the ear as we listen”, they make an impact all the same which has a bearing on the music's analysis, performance and publishing.

In the interview with Jan Williams earlier quoted from, Feldman says, “One of the problems I had with the early grid is that there was a tendency for it to be too design-oriented. It was very easy to make wonderful designs on the page, which I did.”⁴² The implication here is that these early grid designs had little musical significance in comparison to later ones which were more involved with the musical design. In considering notational images formed by the grid as worthy of serious examination, we gain a layer of musical segmentation that can be related to traditional musical transformational domains. We thus have an appreciation of richer field of associational modes within Feldman's work, one that can help us to move towards a better understanding of the sounding music itself.

Endnotes

- 1 Cage (1996): 1. The poem was written for Feldman's 60th birthday in 1986.
- 2 An earlier version of this article was presented at the Third Biennial International Conference on Twentieth-Century Music at the University of Nottingham, UK, 29 June 2003. This article may not have been written without the memory of a talk on Feldman's piano piece *For Bunita Marcus* given by its dedicatee in 1996 at the Huddersfield Contemporary Music Festival, UK. To my knowledge Marcus has not published her work, and my memory of her talk was distant enough in 2003 so as to not be able to reference any points that may have been made by her there.
- 3 Feldman (2000a): 144.

- 4 Anon (1998): 2.
- 5 Franco Donatoni is another composer to layout his manuscripts in this manner, however a comparison between the two composers's scores is beyond the scope of this article.
- 6 Eberhard Blum states that the late work had "already began in 1978 with *Why Patterns?*", and argues against Sebastien Claren's date for the late work of 1984. Blum (2000).
- 7 Claren (2000).
- 8 Johnson (2000): 217–247.
- 9 All compositions copyright Universal Edition unless stated otherwise.
- 10 Hanninen (2004): 226 sums up well the frustrations and challenges of the analysis of Feldman's late work.
- 11 In this case by the idea of colour variation and patterning in oriental rugs, not, as Johnson would have it, by Jasper John's techniques (see note 8, above). "Johannesburg Lecture 2: Feldman on Feldman". In Villars (2006): 178.
- 12 Williams (1983). In Villars (2006): 153.
- 13 An exception to this occurs towards the end of *Intersection 2* (1951) for solo piano (© 1962 Edition Peters). From box 1250 there are five tempo changes where the duration of the box/pulse changes over the course of 61 pulses.
- 14 Laws (2005). Laws points out that in *Neither*, there are two such episodes of a single time signature, at one point 18 bars of 3/8 (from one bar before Fig. 72), and later, 31 bars of 3/8 (Fig. 104). Skempton (1977): 6 notes that in *Neither*, each system of the grid sets half a line of Samuel Beckett's source text (in Villars (2006): 75–76).
- 15 The first 17 pages (of 25) of the manuscript of this piece are notated in 3/8, after which the time signatures vary to the end.
- 16 For example, the first five pages are in 3/8.
- 17 After Vigeland (1992a): 2.
- 18 Vigeland (1992a): 2.
- 19 Feldman (2000a): 140. The composition *Why Patterns?* also points to this terminology.
- 20 Feldman (2000a): 141. The example reproduced in the essay is the first six bars of Example 3a here.
- 21 Babbitt (2003): 55. Original article published 1960.
- 23 On p.27, first system (2 bars: 5/2 and 7/4); p.28, first system (2 bars: 7/8 and 14/16); p.33, second system (7/4, 5/2, 9/8, 2/2). After the instance shown in Example 3, a version of the phrase occurs one more time, on p.44, fourth system, (3 bars: 5/2, 9/8, 2/2). Note the durational "crippled" symmetry in terms of the sequential number of bars of these occurrences, the opening and closing instances being two or three bars long, the inner ones four bars long (2, 2, 4, 4, 3).
- 24 Retrograde (R) and rotation (r) as defined in Morris (1991): 98
- 25 Johnson (2000): 235–240 discusses a similar rotational strategy evident in the piano part of *Why Patterns?*, and relates this to similar techniques found in some of Jasper Johns' so-called crosshatch drawings. This is arguably the most convincing work done to date that concretely and measurably relates a correspondence between Feldman's musical techniques and those employed by a visual artist. It is a moot point as to whether or not the convincing nature of this research is a function the demonstrability of the correspondence.

- 26 Feldman (2000a): 141.
- 27 The only other example of this material in the piece that differs with respect to dyad arrangement, is that on p.28, where the same octachord pitch material is distributed also symmetrically, but in the following fashion: F-natural to C-natural ascending chromatically, the dyads go to Vln I, Vc, Vla, Vln II – the symmetry here is the violins at either end, surrounding the dyads of the lower instruments. This distribution forms and is articulated as double-stopped major 7th, registrally distributed bottom to top in the standard notated order Vc, Vla, Vln II, Vln I.
- 28 Vigeland (1992b).
- 29 Bernard (2000): 206–207 writes about this same passage in relation to Guston’s work, describing the “aural image” produced by the notation.
- 30 Feldman (2000b): 199.
- 31 Feldman (2001).
- 32 Feldman (2000a): 147.
- 33 Feldman (2000a): 143
- 34 See for example, Hanninen(2004): 247.
- 35 Zimmermann (1985): 22–23.
- 36 Feldman (1985): 209.
- 37 Anon, (1998).
- 38 Thus the default settings in current music notation software usually “reflows” the spacing and number of bars per system and page of music as it is inputted, as is the case for example in Finale 2004 and Sibelius 3.
- 39 Personal correspondence.
- 40 Feldman (1999): 57.
- 41 Feldman (1999): 57.
- 42 Williams (1983). In Villars (2006): 153.

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