12 Dots, Squiggles, and Words

Notation in Recent Music

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Notation has provided an interface between composers and performers in the European art music tradition for hundreds of years, yet musicians' understanding of the significance of notation is always changing. Notation can mean anything, from an idealised visual representation of how a piece of music should sound to a set of instructions that performers can use to produce a musical event, and a composer's notational practice will usually occupy a number of positions along this continuum from ideogram to instruction. Today, any composer who uses notation to communicate musical ideas must first try to resolve how this graphic interface will function in their work, not only to make that communication as effective as possible but also as a means of understanding the nature of their own creativity.

As is the case for most musicians, my understanding of notation derives from practical engagement with it, and in this chapter, I want to relate ideas about notation to specific examples from compositional practice in the last eighty years, some of them drawn from my own work as a composer. I will move from a consideration of staff notation, the symbolic language at the heart of western art music, to a more extended reflection on notations that go beyond this familiar code, either by inventing new graphic devices or by replacing dots and squiggles with words. The chapter goes on to a discussion of scores whose content is transmitted orally and aurally rather than through notation, and concludes by exploring some hybrids of these different approaches.

Above all, I want to address what seems to me to be a central issue in all notated music, the status of the notation. If something has to be written down, are these marks the beginning of a creative process or are they an objective that needs to be successfully achieved? Although this is a question whose significance has varied from era to era, composer to composer, piece to piece, it has always yielded interesting answers. Some musicians, whether composers or performers, may be reassured by a process that culminates in a predetermined goal, when the music has been 'got right'. Others find the alternative – a process in which the music gradually reveals

more and more of its potential – more exciting, and it is the ambiguity implicit in this latter process that I particularly want to explore, just as, in old maps, the clear delineation of known territory hints at the opportunities in the unknown lands beyond.

Notes, Staves, and Clefs

For much of the twentieth century and for most musicians practising within the western art music tradition, the conventional understanding of music notation was that it offered a graphic representation of how music would *sound*. If, in rehearsal, a composer asks a performer to make a more aggressive attack at the beginning of a note, the performer can point to the score and ask why there was no accent on the note. Or, if the composer asks that a dotted rhythm be played more smoothly, the performer can ask why the rhythm was not written as a triplet. In each case the performer may be implying that there is a mismatch between the score and the composer's conception of the piece; that the composer's head held a version of the music which had not been fully and faithfully represented by the notation. Or the performer may also be trying to imply that the mismatch between the score and what the composer now wants is evidence of incompetence: the composer's notational skills, or their aural imagination, or perhaps even both, are faulty. Whatever the performer's motivation, the exchange is the product of a shared understanding of the score: that it represents something that has been imagined and then represented symbolically, in such a way that it can be accurately realised in sound.

In the twenty-first century, however, the near-universality of the use of music-processing software has introduced a new point of friction. Composers often create their music in software, listening to simulated versions of their scores as they go along, and the transition from this virtual realisation of their work to the actual reality of live instruments in a physical space can sometimes be quite shocking. Software tends to make some changes in notation – pitches, rhythms, registers, for example – much more audibly effective than others and the default instrumental sounds in most notation software will not allow a student to hear, for example, how much the timbre of a flute varies across its range or how different types of bowing can transform the sound of a string instrument. Some instrumentalists will have even heard student composers complain that their music 'sounded much better' in programs such as Sibelius,

Finale, or Dorico. Yet the problem here lies not so much with the students or the software authors as with the composition teachers who have allowed their students to accept a view of the musical universe in which, as Daniel Leech-Wilkinson describes, the score has the status of 'divine law'.[1]

If the score has such an aura of authority, then composers can also use this as a defensive weapon. After conducting Karlheinz Stockhausen's *Kontra-Punkte* (1953) at the Darmstadt Summer Courses in 1958, Bruno Maderna reassured Stockhausen that although the performance had not been very good, it nevertheless 'made the piece known' and that audience members would be able to read the score and 'correct what the performance had omitted'.[2] The history of notation, however, has consistently demonstrated that scores are conditional documents, contingent on compositional and performance practices that change over time. In the twentieth century, composers' fascination with noise-rich instruments, and percussion instruments in particular, led to notational compromises such as those in the scores that John Cage made for his works for prepared piano. In the scores for *Amores* (1943) and *Sonatas and Interludes* (1948) Cage uses staff notation and appears to notate pitches, but in reality the score prescribes the piano keys to be played. The sounds which emerge from the prepared piano strings rarely contain the pitches shown in the score and the details of the music's richest domain, its proliferation of extraordinary timbres, are invisible.

The conditionality of scores means that they require interpretation: a rich and complex process, often affected by the amount of notational information provided. Some performers read carefully and conscientiously, others are keen to hurry into action, and composers must decide the extent and types of information that they provide since this will, in turn, affect the ways in which performers exercise their interpretative powers. In choral music singers today expect to sing from a score that shows them all the vocal parts, but in most instrumental chamber and orchestral music the practice has been to play from an individual part. The German composer Hans-Joachim Hespos, on the other hand, has always insisted that in his ensemble music all the musicians should, like singers, play from copies of the full score; he believes that this gives them a much better understanding of their role within the music. If interpretation is contingent upon the amount of information in the notation, then, necessarily, much of what follows will be as much about interpretation as it is about notation.

Notation is in part a codified visual representation of musical events (descriptive) and in part a set of instructions for performers (prescriptive). It falls roughly into three sub-categories:

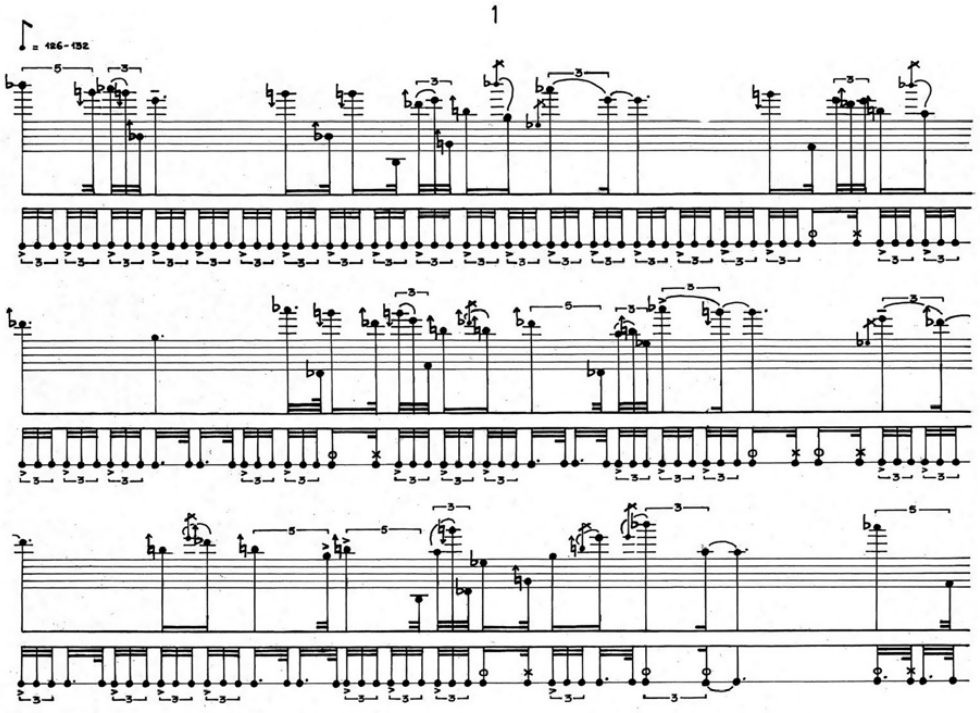
1. more or less conventional scores,
2. scores in which the visual domain is emphasised, and
3. scores in which visual information is more or less replaced by verbal instructions.

In my own music the majority of works fall into the first of these sub-categories; their scores use staff notation, specifying a series of note-events with fixed pitch, timbral, and durational characteristics which are to be interpreted in sequence, and the staves read from left to right, from the first page to the last page. Presenting so much of my work in this way has been pragmatic. As a student I became fascinated by the notational innovation I found in graphic scores such as Cornelius Cardew's *Treatise* (1963–7), but I also discovered that performing musicians are often suspicious of any departure from conventional practice. This became particularly clear when performances of my music began to move from the relatively indulgent ambience of the university campus into the world of professional concert-giving.

For a host of economic and aesthetic reasons, British musicians and promoters favour music that can be prepared for performance quickly. Consequently, the visual presentation of the music is expected to be as straightforward as possible; five minutes spent in explaining an unusual notation to a performer is five minutes of expensive rehearsal time lost. I soon decided that the notational experiments that had been a feature of many of my student scores would have to be sacrificed, at least temporarily, on the altar of affordability. This Faustian pact seemed unavoidable if I wanted professional musicians in Britain to play my music, and there were honourable precedents: I knew of a number of composers who had made realisations that converted the complex abstractions of their original score into more conventional notations. John Cage had turned the multivalent materials of *Fontana Mix* (1958) into *Aria* (1958), Cardew had extracted *Volo Solo* (1965) from *Treatise* (1963–7), so I too made performance scores which fixed the variable elements of my sketches.

This became my normal working method throughout the 1980s and well into the 1990s, a compromise, but one from which I gained a much greater sense of the different sorts of interpretative space that could be incorporated within apparently conventional notations. I became fascinated by the ways in which performers would prioritise different levels of notational

Example 12.1 Christopher Fox, *Reeling* (1983), opening. © Christopher Fox.



detail and I began to experiment, enriching or impoverishing some of these levels in such a way that the performers could be led towards what I regarded as the heart of the music. In the clarinet and hi-hat cymbal duo, *Reeling* (1983), for example, I was interested in the vitality of the rhythmic counterpoint between the two players, in the timbral contrast between the different registers of the clarinet and the different tonal properties of the cymbal, and in a sense of virtuosity at the edge of technical possibility (Example 12.1).

The score is very precise in its specification of pitch content for the clarinet, rhythmic content for both players, and the use of the pedal for the percussionist. By contrast there are very few expression marks, nor does the score offer either player anything as useful as a pause for breath or an easy page-turn. The initial response to the piece from the dedicatees, clarinettist Roger Heaton and percussionist Nigel Shipway, was a telephone call after their first rehearsal – 'we can't play it and it doesn't sound very good'[3] – yet their performance had exactly the vitality I had wanted. Nevertheless, and with their comments in mind, I have often

explained to the work's subsequent performers that the score is an indication of what should be done rather than a definitive representation of what has to happen. It is unlikely that the clarinet part will ever be played exactly as it appears in the score but, in making the attempt, each clarinettist presents not only their version of the piece that I wrote but also a revealing portrait of their technique and their energies. *Reeling* is not a piece that is intended to be safe.

Signs of Emancipation

The concept of the notated musical work as an entity which may embrace many different realisations is not a new idea. It has always been one of the great strengths of notated art music that the identity of, say, Beethoven's 'Eroica' Symphony is flexible enough to allow interpretations as various as those of Otto Klemperer, Arturo Toscanini, or Roger Norrington, which stretch the temporal and timbral characteristics of the music in a number of different directions. On the other hand, the body of musical material – the disposition of pitches and rhythms to a collection of instruments – that Beethoven created and the order in which that material is presented are essential constants in any performance that bears the work's name.

If performances of the 'Eroica' (or *Kontra-Punkte* or *Reeling*) can never encompass all the interpretative potential of those works, then perhaps we should regard what became known as 'graphic notation' as a logical extension of this principle. Certainly, the symbolic ambiguity of most graphic scores is the antithesis of what Richard Taruskin has called the 'literalism' of Toscanini's approach to notation[4]: one cannot play music *com'e scritto* ['as it is written'] if what is written is intended to be open to a host of different interpretations. But if the aesthetic roots of this revolution in notational practice are debatable, its beginnings are not and, as with many of the developments in post-1945 European music, the proceedings of the Darmstadt Summer Courses give us a precise date for the moment when these developments entered the consciousness of the international avant-garde. In 1959, Stockhausen organised a series of six Darmstadt seminars under the title 'Musik und Graphik' ['Music and Graphics'] and his introductory lecture was published in the *Darmstädter Beiträge zur Neuen Musik* ['Darmstadt Contributions to New Music'] in the following year.[5]

In the published version of the lecture Stockhausen traces the development of notational practice in European music from the Middle Ages to the present, illustrating his thoughts on contemporary graphic notations with

Sylvano Bussotti's *Piano Piece for David Tudor #1* (1958), a page from Cage's *Concert for Piano*, Cardew's *Klavierstück 1960*, two pages from Mauricio Kagel's *Transcicion II* (1958), and a page from his own *Zyklus* (1959). Stockhausen is typically thorough, assessing the implications of these very different works and the extent to which they have anything in common beyond being innovative. He is interested in the distinction, new in 1959, between different types of music: tape music, whose sounds can exist without a score but are in a fixed form (although Stockhausen expresses some concern about the durability of the tape medium itself); notated music in which the score is a fixed performance text; and 'graphic' music in which the notation is, as he saw it, 'emancipated' from realisation.[6]

Whether or not the validation of Darmstadt had anything to do with it, the production of graphic scores flourished for much of the decade after the 'Musik und Graphik' seminars. Composers as various as Jani Christou, George Crumb, and Gavin Bryars made scores in which staves were contorted, new symbols devised, and performers' imaginative participation invited. Some looked like architects' plans, others like surrealist frottage; some required the virtuosity of skilled improvisers, others were intended to stimulate the imagination of school-aged children or amateur musicians. In *Treatise*, Cardew created a graphic score whose sustained visual inventiveness lifts it out of the sonic domain so much so that no performance is ever likely to capture the sense of coherence offered by a solitary reading of the score as the eye traverses its symbolic fantasies. To borrow Stockhausen's formulation, *Treatise*'s musical notation is so thoroughly 'emancipated' that it is effectively beyond realisation.

In the 1970s and 1980s, interest waned: graphic scores were more likely to be found in art galleries and museums, or decorating music publishers' offices, than on composers' desks or performers' music stands. The compositional priorities of composers engaged in minimalism, spectralism, neo-romanticism, and complexity – the most vigorous aesthetic tendencies of the period – were not incompatible with the ambiguities of the graphic score. The deliberately restricted harmonic and rhythmic pattern of minimalism depended on the conventions of staff notation for its exact delineation, as did the acoustic phenomena carefully modelled in spectralism, although there are also instances in the scores of Gérard Grisey or Horatiu Radulescu, for example, where transitions between different acoustic phenomena are notated less precisely. In contrast, the creative practice of neo-romantic and complex composers was bound up with the possibilities of conventional notational practice; their music is enabled by staff notation

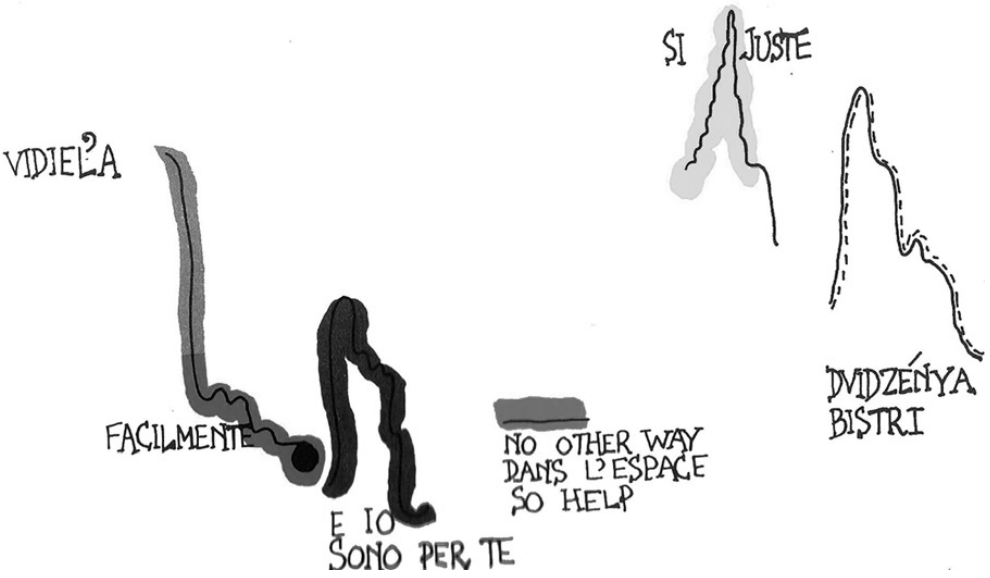
and its capacity to articulate, respectively, the revisionist gestural language of a composer like Wolfgang Rihm or the information saturation of a score such as Brian Ferneyhough's *Time and Motion Study III* (1974).

As a young composer I had become fascinated by the expressive potential in the graphic scores of the 1960s, but I also became aware that such calligraphic extravagance was regarded as a thing of the past by more mature composers. By the end of the 1970s my continuing enthusiasm for notational invention was definitely old-fashioned, and this sense that the 'Musik und Graphik' moment was over provided another motivation for me to use more conventional notations in the music I wrote over the next two decades. The emergence of a new generation of performers in the 1990s, however, saw a revival in a more inventive approach to the sign language of the score.

The musicians of groups like Apartment House in Britain and the Ives Ensemble in the Netherlands were interested in exploring the earlier innovations of avant-garde and experimental composers; they were also ready and willing to explore new work which built on these innovations. In scores such as *Everything You Need to Know* (2001–2) for the Ives Ensemble, or *Chromascope* (2005) for Apartment House, I presented them with a mixture of notational approaches: some familiar, some created specifically for these works, but all of them rooted within a notational tradition that goes back to the graphic scores of the 1950s and 1960s. This intertextuality is evident in my *Generic Composition #5* (2000), for example, one of a set of instrumental solo works within the collection of scores which makes up the ensemble installation work, *Everything You Need To Know* (1999–2001). Its most obvious ancestor is Cage's *Aria*: likewise a solo work that can be performed individually or can be heard within a larger work, whose score consists of a series of sloping lines, and, as in *Aria*, where the performer has to choose a variety of different types of tone production with which to interpret these lines (Examples 12.2 and 12.3).

Similarly, *Chromascope* is a descendant of Stockhausen's *Plus Minus* (1963) and Cardew's *Solo with Accompaniment* (1964), the latter itself a parody of the Stockhausen score, which Cardew had premiered in 1964. I had worked on a realisation of *Plus Minus* for the Ives Ensemble, for concert performances in 1999, and for a recording in 2002; I had also heard Apartment House give a number of performances of *Solo with Accompaniment*, and *Chromascope* is a score that, like the Stockhausen and Cardew works, consists of a series of matrices, each of which defines the behavioural features of a musical moment (Example 12.4). The main

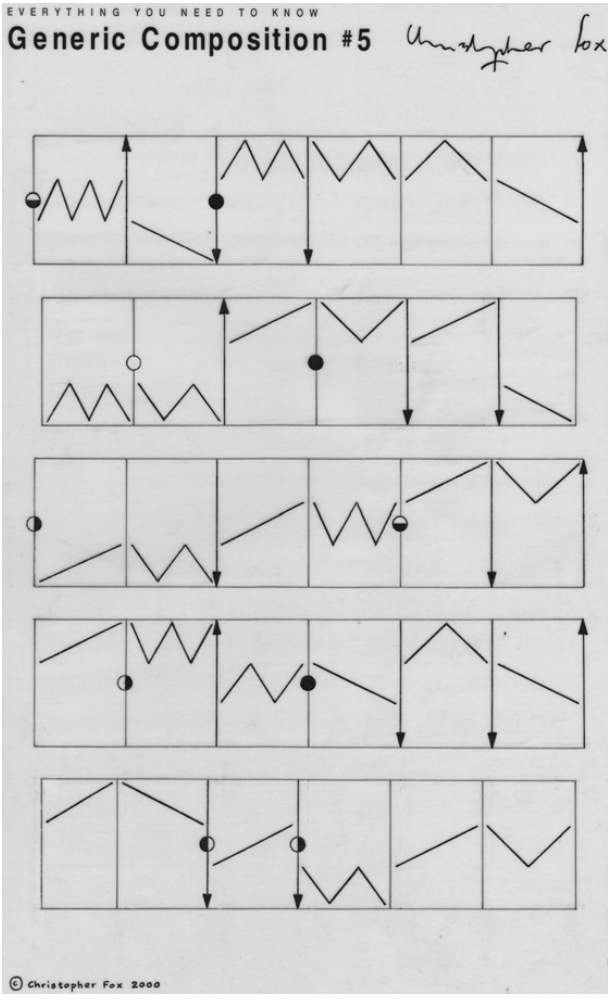
Example 12.2 John Cage, *Aria* (1958), opening. Reproduced by permission of Edition Peters.



difference between *Chromascope* and its ancestors is that its matrices can be decoded in minutes, instead of the hours it takes to decode Cardew, or the days needed to convert the Stockhausen into notations from which musicians can actually play. The other significant difference is that *Chromascope* consistently counterpoints four different matrices, one for each musician. In the Stockhausen each matrix provides the stimulus for all the musicians involved and in the Cardew there is a simple dialectic between the solo (mostly consisting of long notes) and the accompaniment (made up of the matrices).

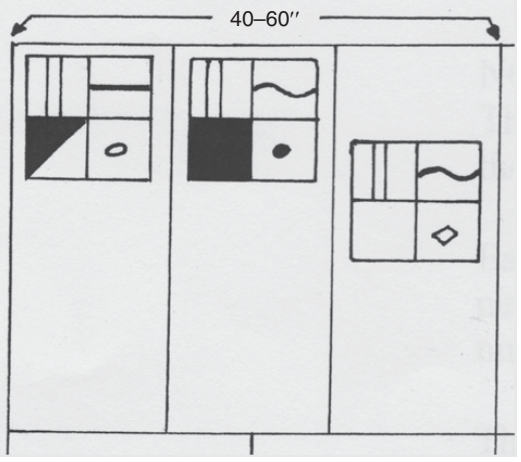
By shifting the focus from the score to the musicians I wanted to enable a creative process that was less burdened with the task of reading and much more about playing. The matrices in *Chromascope* may be relatively simple but they yield rich musical results, and because each musician has their own matrix, it is much easier to hear the particularities of what they are doing; in other words, the nature of each musician's playing and their interpretative response to the score is much more audible than in either Stockhausen or Cardew. This in turn reveals another aspect of graphic scores: because their notations are usually less specific than those in conventional scores, different interpretations will tend to be rather more evidently informed by the aesthetic preferences of the musicians involved.

Example 12.3 Christopher Fox, *Generic Composition #5* (1999–2001), opening. © Christopher Fox.



My return to graphic score production coincided with similar interest from a new generation of composers. The collection *Notations 21* demonstrated the extent and variety of this activity,[7] as does the work of Claudia Molitor. Molitor makes scores which involve many different types of notation, some conventional, others not, but her innovations go further still. She has made scores that involve the paper engineering found in the 'pop-up' books produced by children's book publishers, in particular the use of strips of paper which can be pushed and pulled from side to side so that different notations appear at windows cut into the score. The same

Example 12.4 Christopher Fox, *Chromascope* (2005), first three matrices.

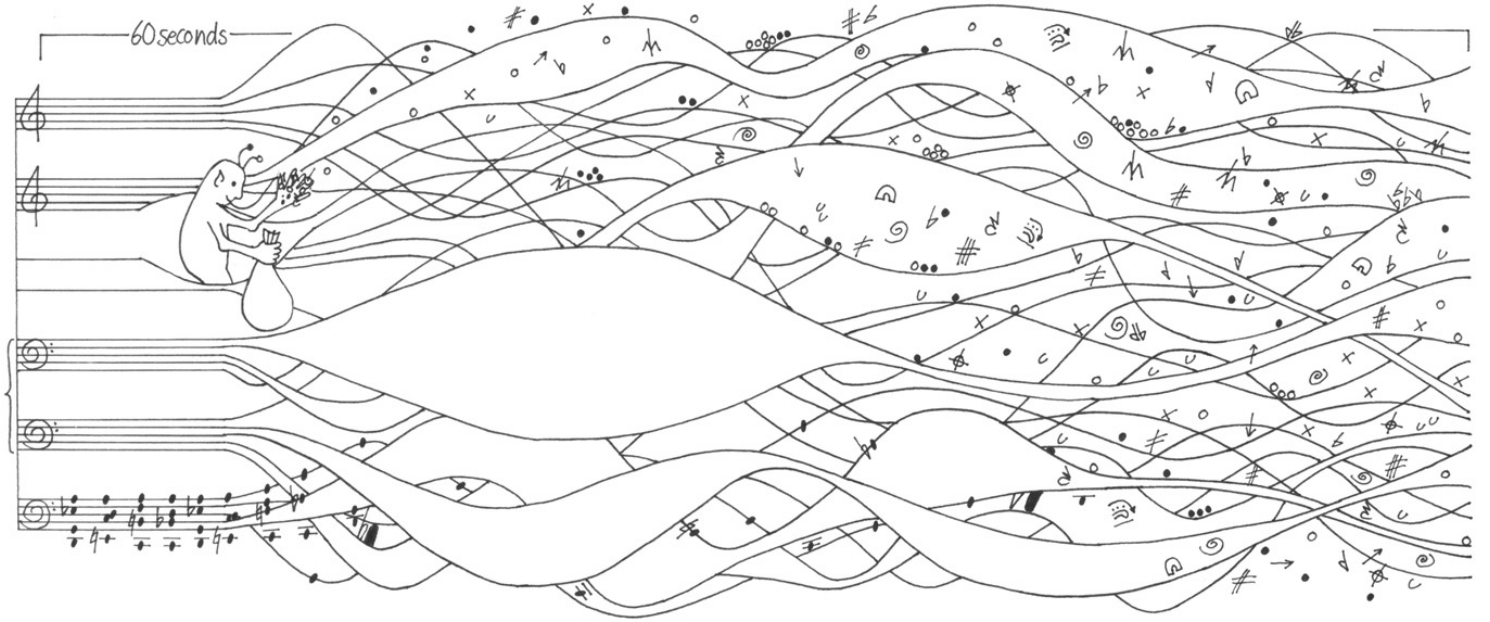


playfulness is evident elsewhere in Molitor's work, from the rapid switches between different sorts of musical material, to the use of sounds which are more usually associated with children's play, to the exuberance of those passages in her scores where graphic invention takes over from staff notations. Nowhere is this more apparent than in the passage in *untitled (fizzy paintings make me happy)* (2007), written for Apartment House, where a strange alien creature – a note elf, perhaps? – appears out of the middle of the score, seeding the staves with symbols (Example 12.5).

Grasshoppers and Stones

The advent of the text score was another development of the 1960s which, like the graphic score, was generally disregarded for much of the next three decades. The earliest significant text score is perhaps the prose notation of Cage's *4'33"* (1952) but the medium flourished in the 1960s, first with the Fluxus movement, particularly George Brecht and La Monte Young, and later with Christian Wolff, Stockhausen, and the composers associated with the Scratch Orchestra. The most successful text scores have a precision rarely found in graphic scores: La Monte Young's *Piano Piece for David Tudor #3* (1960), for example, presents the performer with just seven words; 'Most of them were very old grasshoppers'. It is an image that suggests both a particular soundworld – a performance that did not

Example 12.5 Claudia Molitor, *untitled (fizzy paintings make me happy)* (2007), p. 2. Reproduced by permission of Claudia Molitor.



Example 12.6 Christian Wolff, 'Stones', *Prose Collection* (1972). Reproduced by permission of Christian Wolff.

Make sounds with stones, draw sounds out of stones, using a number of sizes and kinds (and colours); for the most part discretely; sometimes in rapid sequences. For the most part striking stones with stones, but also stones on other surfaces (inside the open head of a drum, for instance) or other than struck (bowed, for instance, or amplified). Do not break anything.

sound anything like grasshoppers might well be regarded as a failure – and a way of making sounds – perhaps a performance could involve grasshopper-like activity and yet not produce grasshopper-like sounds? But there is scope for fantasy too, in the inclusion of a variable ('most of them') and the conditional 'very old'. Christian Wolff's *Stones* (1968) is more obviously prescriptive – as are all the pieces in his *Prose Collection* (1968–71) – yet it too leaves room for the performer's imagination (Example 12.6).

One might say that text scores delineate fields of musical activity and offer guidance as to how to operate in those fields; graphic scores, on the other hand, present images that, like the notations of more conventional scores, are intended as representations of the music. There is an illusory element in the notated score, whether 'graphic' or 'conventional', which is absent in almost all text scores. Cardew's *Treatise* is organised sequentially and continuously, in the manner of a traditional score, but because its symbolic discourse has been so thoroughly abstracted from the aural into the visual domain it is peculiarly resistant to the instrumental interpretation that is the intended outcome of any traditional score. Stockhausen's *Plus Minus* appears to have the visual authority of a set of electrical circuit diagrams but turns out to be more like a collection of linked riddles whose answers have frustratingly unpredictable consequences for anyone engaged in realising the score.

As I suggested earlier, a score like my *Reeling* is similarly partial in its notation, inviting interpretation without immediately revealing in which areas of the music that interpretative endeavour will be most fruitful. Text scores, by contrast, are usually less ambiguous. Because the very specificity of words makes language an awkward tool with which to describe and define musical events, successful text scores tend to be succinct and readily memorable. It is soon clear in most text scores which aspects of the music have been fixed by the composer and which are open to performer intervention. The first sentence of Wolff's 'Stones', for example, is a series of straightforward instructions ('make sounds with stones'), with just one conditional clause ('using a number of sizes'). The second sentence opens

up a series of options that performers need to resolve before they try to play the piece: what 'other surfaces' to use, how to sound the stones without striking them, how to avoid breaking things.

Alvin Lucier has made particularly effective use of the medium to articulate the specifications of a series of distinct musical entities. His scores are often the outcome of protracted periods of research into particular sonic phenomena and are designed to enable people other than Lucier to reproduce sound-generating situations that he has already successfully created. Necessarily their instructions are very specific: 'Place an EEG scalp electrode on each hemisphere of the occipital, frontal, or other appropriate region of the performer's head' (*Music for solo performer* (1965)); 'Extend a long metal wire (#1 music wire or equivalent) across or length-wise down a performance space . . . Drive the wire with a sine wave oscillator' (*Music on a long thin wire* (1977)); 'Find or make an object which can be excited by sound and which has at least one resonant frequency which lies within the range of the instruments in your group' (*Risonanza* (1982)).

Yet the scores also often include suggestions which propose variations around the central idea of the piece. Usually these are practical options for performance: in *Risonanza*, for example, performers can amplify the resonant object, or their own instruments, or they can use a sine-wave oscillator to excite the object continuously as an additional 'non-breathing' player. In other scores these alternatives move beyond practicalities into a more fantastical domain. The score of *Gentle Fire* (1971) includes two long lists of sounds, each defined by a noun preceded by an adverb; electronic transformations are to be made so that sounds in one list come to sound like sounds in the other list: 'creaking doors' could become 'ringing alarms', 'tapping canes' become 'clogging drains', and so on. But the text ends, 'store in your mind an imaginary synthesizer with which . . . you can wilfully bring about such transformations . . . without the help of external equipment', an instruction that takes *Gentle Fire* into the same virtual territory in which, as I suggested earlier, the most satisfactory readings of Cardew's *Treatise* take place.

More recently, as with graphic scores, there has been a revival of interest in the text medium among younger composers. In the UK, a 2012 book by James Saunders and John Lely entitled *Word Events* anthologised a range of scores from the 1950s to the early twenty-first century. Lely's work for bowed string instrument, *The Harmonics of Real Strings* (2006), is an elegant example of his own text scores (Example 12.7).

Example 12.7 John Lely, *The Harmonics of Real Strings* (2006). Reproduced by permission of John Lely.

An open string is slowly and regularly bowed back and forth. The string is activated in this way throughout. After some time, the performer lightly stops the string at the bridge furthest from the bow, and commences a very slow, consistent lateral movement along the string towards the opposite bridge. As the stopped point of the string approaches the bridge, the bow is repositioned to remain between the two. When the stopped point and the bow eventually converge on the bridge, the bowing ceases.

As in Wolff and Lucier, Lely's text score centres on a single acoustic phenomenon and prescribes the techniques with which to make that phenomenon sound. There are variables – how slow is 'slowly', how long is 'after some time'? – but there is a post-minimal rigour too – the string is bowed 'regularly' and the movement of the hand stopping the string is 'consistent', so the piece will always have a very clear two-part structure and a very visible mode of progression to its conclusion.

Shared Practices

No account of notational practice in recent music would be complete without a discussion of its absence. The western art music tradition is so thoroughly based on the concept of composition mediated through notation that it is quite shocking to think about a composed music for which there is no score. Yet to perform without a score is often seen as signifying an extra degree of authenticity: pianists and singers memorise scores because audiences imagine that this means that they are somehow inhabiting the music more completely. From the mid-1970s Stockhausen has insisted that performers of his music should commit it to memory and in the performance notes for his *ORCHESTER FINALISTEN* (1996), the second scene from his opera *MITTWOCH aus LICHT* (1995–7), he suggests that 'many orchestral musicians aspire to play soloistically without risking a career as soloist' but that this work will enable them to 'demonstrate their musicality and skill by … playing from memory … and projecting their personal aura'.[8]

The opposite approach is found in the works that Éliane Radigue has been making since early in the twenty-first century. This is music that must be performed from memory because it has never been notated, music made in collaboration with particular performers and existing only in their memory. For each of the works within the ongoing series entitled *Occam*

Ocean (2011–), Radigue has invited performers to her Paris apartment and then spent a number of days with them, talking, playing, listening. Images are discussed and then used as the basis of improvisations from which Radigue chooses particular sounds. The performers refine this soundworld, with and without Radigue, and at some point she declares the work ready for public performance.

Radigue describes this process as a 'heart to heart' transmission and her work has inspired a renewed interest in ways of making music that do not involve notation, what the composer Luke Nickel describes as 'orally transmitted' music.[9] Nickel's own work falls within this category, as does that of Cassandra Miller who began to make orally transmitted scores in 2014. Like Radigue, Miller's compositional method is centred on close collaborations with particular performers, ideas being exchanged both in rehearsal rooms and remotely through recordings, but eventually, as with Radigue, a work reaches a point where it can be learned, ready for performance.

Collaboration with performers has always been important in the development of composed music and has often provoked questions about ownership. Duke Ellington's *Concerto for Cootie* (1940) grew out of its recurrent melodic figure, a twisting ear-worm that Charles 'Cootie' Williams, one of the trumpeters in the Ellington Orchestra, would play as he was warming up before concerts. It is Ellington who is identified as the composer of the piece, but Williams would later say that it was 'entirely mine'.[10] When Stockhausen released recordings of the 1969 performances of his text score collection, *Aus den sieben Tagen* ['From the Seven Days'] (1968), the trombonist who had played in the ensemble, Vinko Globokar, similarly questioned how his improvising could become a composition for which Stockhausen took the sole credit.

Juliet Fraser, the singer with whom Cassandra Miller has collaborated on a number of works, most notably the series entitled *Tracery* (2017–), has also questioned why a 'shared practice' in the development of new works does not translate into 'shared capital' in the finished work, although she acknowledges that her contribution is perhaps not yet 'co-composition'. Fraser believes that we are at the beginning of a 'slow, collective shift' in the way in which these questions about authorship and curation are resolved, but no chapter on the notation of recent music would be complete within some consideration of these issues.[11] The creation of notated scores has been, throughout the history of western music, whether 'pop' or 'classical', the way in which ownership is reified. That ownership confers capital but, in music that is only brought into being by collaboration, to whom does it

belong? What happens to this capital if, as in the work of Miller, Nickel, and Radigue, the only 'score' is lodged in the memory of its performers or if the music is passed on to other performers. If it is not passed, how will it survive?

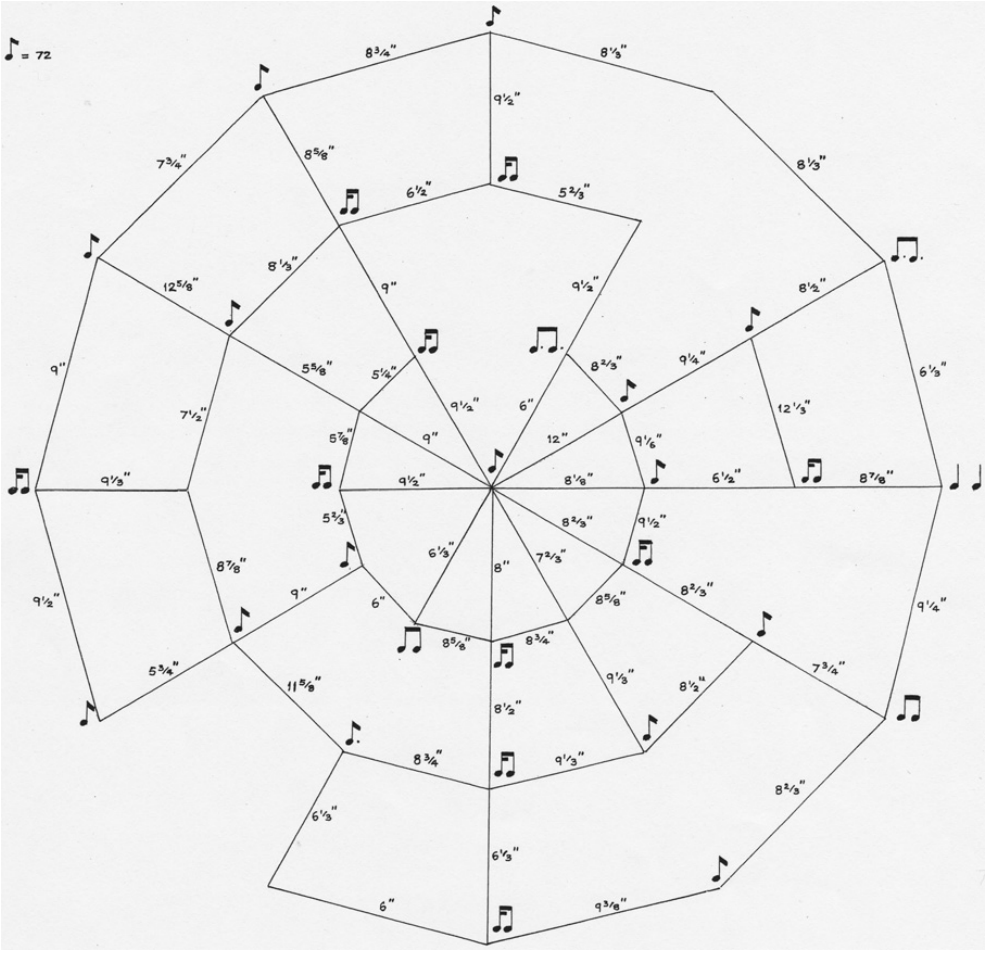
Whether the content of a score is transmitted orally from composer to performer, through staff notation, graphic notation, or a text, it will inevitably be limited by the medium within which it is created. As I have suggested throughout this chapter, each medium also has its own particular set of restrictions, variables, and ambiguities, and these in turn offer territory in which the imaginations of composers and performers can flourish. In this final section I want to consider one further possibility, a marriage of elements that uses text alongside graphic and staff notations.

In my own work I have developed this approach most thoroughly in the ensemble work *hearing not thinking* (2006–8). There are seven separate instrumental parts, one each for an unspecified woodwind instrument, trombone, bass drum, accordion, prepared piano, guitar, and an unspecified bowed string instrument. Any performance of the work can involve any four instruments; no more because each instrument should always be audible, no fewer because the desired effect is that each instrument should always be heard *through* the others. Each part consists of only one page, and each uses a different sort of notation.

When musicians are confronted with a score in which notations are preceded by introductory textual explanations, they will almost always start to play the notation without reading the text. Consequently, in *hearing not thinking* all the text material is on the same page as the other notations and runs down one or both sides of the score, describing and defining how the instrument is to be played. The graphic symbols in the centre of each page notate the incidental detail of the playing, the aspect of performance which text struggles to express. In the bass drum part, for example, these graphic symbols present not only a web of timed connections between single or double strokes of the stick on the skin but also a map of the position of each stroke on the skin (Example 12.8).

It is evident that the way a score presents information to a performer has a significant influence on how they understand their interpretative task. Good musicians especially will seek out the spaces available for their own creativity, and because different approaches to notations privilege particular ways of communicating musical ideas to performers they create types of space and different types of interpretation. Since so much compositional energy has been expended in developing each of these media, it seems

Example 12.8 Christopher Fox, *Hearing not thinking* (2006–8), opening, bass drum part. © Christopher Fox.



foolish for composers not to continue using all these possibilities, although not necessarily all of them all the time.

Yet the widespread availability of composer notation packages has made composers today, and perhaps young composers especially, far less likely to practise notational innovation. Typesetting programmes have had an insidious influence on composers' imaginations: why try to imagine music which will be awkward to notate on the computer? Why think about the sounds of real instruments or the behaviour of real musicians when a key stroke will start and stop the playback of the notes on the screen? It is a paradox of contemporary musical life that computer typeset

scores are legible but do not read well. The conservatism imposed by the default settings of notation software is surely only temporary, however, and the new ways of thinking about notation will continue to flourish.

Listening List

https://shorturl.at/otyL0

Notes

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