

## OPENING OFFER OR CONTRACTUAL OBLIGATION? ON THE PRESCRIPTIVE FUNCTION OF NOTATION IN MUSIC TODAY

Christopher Fox

---

**Abstract:** This article explores some of the diverse forms that musical notation has assumed in the early twenty-first century and discusses its use along a broad spectrum of creative intention, which includes visual representation of sounds, verbal lists of instructions or provocations, and much else. Drawing upon his own experience as a composer, and on studies of the work of composers both older and younger (Stockhausen, Lucier, Wolff; Molitor, Lely), the author examines the changing meanings of notes, staves and clefs, and the possibilities of graphic scores, text scores, and hybrid forms of notation.

---



Christopher Fox (photo by Carole Evans)

The use of notation as an intermediary between composers and performers is at the heart of the European art music tradition and its subsequent global developments. Yet the significance of notation can be remarkably variable, and one of the tasks for any composer who attempts to use notation to communicate musical ideas is to determine what these graphic symbols should actually mean. Notations may be an idealised visual representation of how a piece of music sounds, or they may be a set of instructions for performers to use to produce a musical event. More usually, a composer's notational practice will occupy a number of positions along this continuum from ideogram to instruction. Drawing on more than three decades of my own experience of putting notations in front of performers, I want to suggest that musicians today have the opportunity to work in an unprecedentedly rich field of notational possibilities.

It is important at the outset to acknowledge that few, if any, of the ideas I will be discussing are new, and they are not unique to my music; indeed I will attempt as often as possible to trace their ancestry. If they are nonetheless still quite unusual, it is because the consideration

of notational innovation is generally regarded as the business solely of musicians working at the margins of normal practice in notated art music. I am neither a historian of notation nor a philosopher, but then neither are most users of music notation. As is the case for most musicians, my understanding of notation derives from the practical application of received ideas about how it works. What follows is an attempt to place aspects of my own practice as a composer within the wider context of notational developments in avant-garde and experimental music, and to consider the ways in which performing musicians relate to the notations I employ.

### Notes, Staves and Clefs

The conventional understanding of music notation is that it offers both a symbolic and graphic representation of how the music sounds. If a composer asks a performer to make a more aggressive attack at the beginning of a note, the performer will point to the score and ask why there is no accent on the note. If a composer asks for a dotted rhythm to be played less abruptly, the performer will ask why it wasn't written as a triplet. In each case the performer is implying that there is a mismatch between the score and the composer's conception of the piece, that the composer's head held, or perhaps still holds, a version of the music which has not been fully and faithfully represented by the notation. Alternatively, performers may claim that a mismatch between the score and what a composer asks for in rehearsal is evidence that the composer's aural imagination is faulty. Composers, too, can use the score as a defensive weapon. After conducting Stockhausen's *Kontra-punkte* at the 1958 Darmstädter Ferienkurse für neue Musik, Bruno Maderna tried to reassure Stockhausen by observing that, while the performance may not have been very good, it nevertheless 'made the piece known', and audience members would be able to read the score and 'correct what the performance had omitted'.<sup>1</sup>

In all these cases the central argument hinges on the belief that there can be an exact equivalence between the score and the performed music. But, as any historical consideration of notation demonstrates, scores are always conditional documents, contingent on compositional and performance practices whose evolutions have accelerated and mutated in the last 100 years. For example, composers' growing fascination with noise-rich instruments – percussion in particular – resulted in a series of pragmatic notational compromises, which by the mid twentieth century had led to anomalies such as John Cage's prepared piano scores. In these scores Cage precisely notates the actions of the pianist's hands on the keyboard, but the sounds that emerge from the prepared piano strings generally bear little relation to the pitches shown in the score.

Scores also require interpretation, a rich and complex process executed by performers who may be painstakingly scholarly readers or equally may well be careless charlatans; one of the key decisions for the composer is the extent to which performers will be invited to exercise their interpretative powers. Interpretation may also be affected by the amount of notational information provided. The German composer Hans-Joachim Hespos has always insisted that in his ensemble

<sup>1</sup> Karlheinz Stockhausen, 'Musik und Graphik', *Darmstädter Beiträge zur neuen Musik* (Mainz: Schott, 1960), p. 7. My translation.

music all the musicians should play from copies of the full score since this gives them a much better understanding of their role within the music than they would gain from an individual part. The corollary – that musicians will behave with less of a sense of collective responsibility if they have just a part – is something I explored recently in the final section, ‘Chanson baladee’, of my vocal ensemble work *comme ses paroles* (2006–08). The singers’ music consists of long melismata, marked ‘flessibile’, but made up of a stream of notes all at the same tempo; by providing parts rather than a score I eventually overcame the singers’ instinctive desire to behave like an ensemble and instead to sing freely, individually and with no regard for coordination.

Necessarily, then, much of what follows is as much about interpretation as it is about notation. I want to discuss the ideas about interpretation that have informed the notation in a number of my own works, and to consider the extent to which interpretation is in turn contingent upon the types of notation used. If notation is usually some sort of hybrid – in part a codified visual representation of musical events, in part a set of instructions for performers – then it is perhaps useful to create three sub-categories of notation: more or less conventional scores, scores in which the visual domain is emphasised, and scores in which visual information is more or less replaced by verbal instructions. In my own output the majority of works fall into the first of these sub-categories: they use staff notation, specifying a series of note-events with fixed pitch, timbral and durational characteristics that are to be interpreted in sequence, the staves read from left to right, from the first page to the last page.

My reasons for presenting so much of my work in this way have generally been pragmatic. Although I have been fascinated by notational innovation ever since I went to secondary school and came across an article about Klavarscribo and Equiton pinned to the music room wall, I also realised quite early in my musical life that many musicians are 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. In Britain at the end of the 1970s, musicians and promoters favoured music that could be brought to performance standard as quickly as possible – and they still do. Usually this means that the visual presentation of the music should be as straightforward as possible; five minutes spent in explaining an unusual notation to a performer is five minutes of ensemble rehearsal time lost. Since audiences are, quite rightly, much more interested in how a piece sounds than in how it looks on paper, I decided that the notational experiments which had been a feature of many of my student scores would have to be abandoned, at least temporarily.

Cynics may say I was sacrificing principle for public exposure. But this Faustian pact seemed unavoidable if I wanted professional musicians in Britain to play my music. I consoled myself with honourable precedents: I knew of a number of works where composers had made realisations of scores that converted complex abstractions into more conventional notations. If Cage could turn the multivalent materials of *Fontana Mix* into *Aria*, or Cardew could read *Volo Solo* from *Treatise*, then I too could make performance scores that fixed the variable elements of my sketches. This became my normal working method throughout the 1980s and well into the 1990s in every project for which I knew that rehearsal time would be limited. What I gained from this compromise, however, was a much greater sense of the

different sorts of interpretative space that could be incorporated within notations that, at first glance, appeared quite conventional. In particular, I became fascinated by the priority performers would give to different levels of notational detail and, consequently, I became interested in enriching or impoverishing some of these levels in such a way that the performers could be led to what, for me at least, was 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. Consequently, 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 and the score offers no practical help to either player such as pauses for breath or page-turns. The initial response to the piece from the dedicatees, clarinetist Roger Heaton and percussionist Nigel Shipway, was a telephone call after their first rehearsal. 'We can't play it and it doesn't sound right', said Roger. In fact, they gave a wonderful performance, with exactly the qualities I had hoped for, but with their comments in mind I have sometimes explained to the work's subsequent performers that the score is an indication of what should be done to create the work, *Reeling*, rather than a definitive representation of that work (see Figure 1).

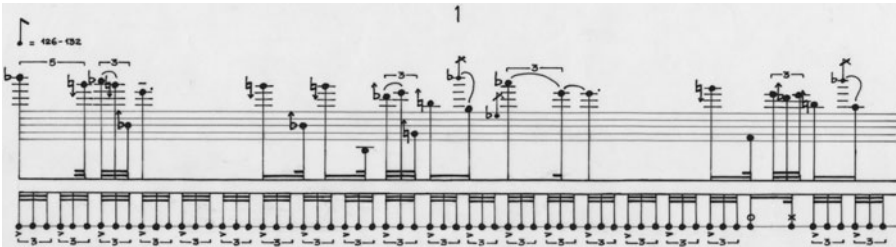


Figure 1:  
Christopher Fox, *Reeling*, extract. ©  
Fox Edition; used by permission.

I think it is unlikely that the clarinet part, in particular, could ever be played live from beginning to end as it appears in the score; but in making the attempt each clarinetist presents not only the piece I wrote but also a revealing portrait of the individual characteristics of their instrument, their technique and their energies. It would be possible to make a version of the score, based perhaps on transcriptions of a number of different performers' accounts of the work, which could be realised more consistently. Such a version might be less intimidating but it would also defeat one of the objects of the piece, making safer something that is not intended to be safe.

This seems to me to confront the central issue in all notated music, the status of what has been notated. Something must be written down – that after all is what notated music is about – but do these marks constitute the beginning of a creative process or are they an objective to be more or less achieved? The answer to this question varies from composer to composer and from piece to piece, but for me the first possibility is almost always more interesting. Some musicians may find reassurance in a process that culminates in a predetermined goal, when the music has been 'got right', but the alternative, a process in

which the music gradually reveals more and more of its potential, seems much more exciting to me.

To a large extent such a process thrives on ambiguity, another reason for enriching some aspects of a score's notation and impoverishing others, since, as in old maps, the clear delineation of the known territory is in obvious contrast to the land that still needs to be explored. In many of my pieces, the use of natural harmonics is just such an area of ambiguity; and in the latter stages of writing this text I have been reminded of this through rehearsals with ensemble recherche of *A landscape without figures*, the first part of my trilogy *Terra incognita* (2005). The score notates pitch in equal temperament but sometimes combines natural harmonics on flute and strings with conventionally produced notes. The pitch of all these sounds is given as a degree of the semitone scale even though there will be inevitable differences of intonation between notes produced as a first overtone, second overtone or as a fundamental.

Superb musicians that they are, the recherche players offered me the possibility of a near-uniform tuning, an offer I declined in favour of the more satisfyingly complex result produced by allowing each instrument to be its natural self. This may be inconsistent with the received understanding of pitch notation – that notes with the same name should be in tune with one another – but it is consistent with my practice throughout this score of notating each instrument's activity in terms of that instrument's acoustic nature rather than in terms of a generalised ensemble norm. My obvious inconsistency in one notational area is intended to alert performers to a more widespread ambiguity; this ambiguity is in turn inviting them to become part of the creative process that I began by turning sounds in my head into notational symbols.

### Graphic Scores

The concept of the notated musical work as an entity that 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 sufficiently flexible to allow interpretations as various as those of Klemperer, Toscanini or Norrington, stretching the temporal and timbral characteristics of the music in a number of different directions. On the other hand, the body of musical material that Beethoven created and the order in which that material is presented are necessary constants in any performance that bears the work's name. Performances of the Eroica – or of the sorts of scores I described earlier – can never encompass all the interpretative potential of those works, and it is possible to regard the notational developments seen in many scores of the late 1950s as a quite logical extension of this principle. In these works, notational ambiguity is increased, and, consequently, interpretative possibilities proliferate. In the *Concert for Piano and Orchestra* (1958), for example, John Cage created a work that may, but generally does not, include all the material he composed. Such a work's identity is still bound up with a set of notations, but the reading of those notations is no longer bound by a set of conventions assigning a specific meaning to each symbol, an ordered sequence of reading or even the necessity that the reading must be complete.

As with many of the developments in post-1945 European music, the proceedings of the Darmstädter Ferienkurse give us a precise date for the point at which these developments can be said to have

entered the consciousness of the avant-garde. In 1959, Stockhausen organised a series of six Darmstadt seminars under the title 'Musik und Graphik' and his introductory lecture was published in the *Darmstädter Beiträge zur neuen Musik* in the following year. In the published version of his 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 Bussotti's *Piano Piece for David Tudor (1)* (1958), a page from Cage's *Concert for Piano*, Cardew's *Klavierstück 1960*, two pages from 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 innovation. He is particularly interested in the distinction, so new in 1959, between tape music – music which can exist without a score but is 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.<sup>2</sup>

Whether or not the Darmstadt validation 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 were invented and performers' imaginative participation was invited. In *Treatise* (1963–67) Cardew created a graphic score of such sustained visual sophistication and coherence that no attempt at sonic realisation is ever likely to capture more than a small part of the pleasure to be derived from a solitary reading. To borrow Stockhausen's formulation again, in *Treatise* musical notation was so thoroughly 'emancipated' that it was effectively put beyond realisation.

Then interest waned, and in the 1970s and 1980s graphic scores were much more likely to be found in 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 incompatible with the ambiguities of the graphic score. The harmonic and rhythmic pattern-making of minimalism, the acoustic phenomena carefully modelled in spectralism, the revisionist musical gestures explored by neo-romantics, the information saturation of complexity, each in their different way depended on the familiar calibrations of conventional notational practice.

As a young composer in the 1970s I was not so unusual in being fascinated by the graphic experiments I found in the scores from the 1960s by Bussotti, Cardew, Kagel and Stockhausen. But I discovered quickly that such calligraphic extravagance was regarded as a thing of the past by most mature composers, and by the end of the 1970s my continuing enthusiasm for notational invention was undoubtedly quite unusual, even old-fashioned. This sense that the 'Musik und Graphik' moment was well and truly past was another reason to adhere to more conventional notations in most of the music I wrote over the next two decades, and it was only with the emergence of a new generation of performers, in the 1990s, that

<sup>2</sup> Stockhausen, 'Musik und Graphik', p. 6.



my interest in a more inventive approach to the sign language of the score was revived.

The young musicians of groups like Apartment House, in the UK, and the Ives Ensemble in the Netherlands, with whom I began to work in the 1990s, were fascinated rather than disturbed by the earlier innovations of avant-garde and experimental composers; they were also ready and willing to explore new work that built on these innovations. In scores such as *Everything You Need To Know* (2001–02), for the Ives Ensemble, or *skin* (1998–99) and *Chromascope* (2005), for Apartment House, there is a mixture of different types of notation – some familiar, some created specifically for these works – but even the most unusual of my notations is still very evidently created within a notational tradition which goes back to the graphic scores of the 1950s and 1960s. One might even argue that there is a degree of intertextuality in much of my more recent graphic practice. *Generic Composition #5*, 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*, has its ancestral roots in Cage's *Aria*. Like *Aria* it is a solo work that can be performed individually or heard within a larger work; like *Aria* the score consists of a series of sloping lines, and, also as in *Aria*, the performer has to choose a variety of different types of tone production with which to interpret these lines (see Figure 2).

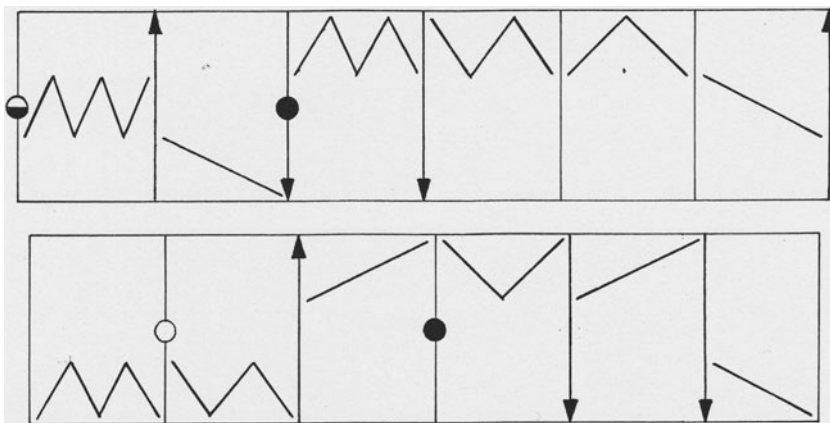


Figure 2:  
Christopher Fox, *Generic Composition*  
#5, p. 1, first two systems. © Fox  
Edition; used by permission.

Similarly, *Chromascope* is a descendant of both Stockhausen's *Plus Minus* (1963) and Cardew's *Solo with Accompaniment* (1964) – the latter was itself a very obvious parody by Cardew of the Stockhausen score, which Cardew had premiered in 1964. I had worked on a realisation of *Plus Minus* for the Ives Ensemble, first for concert performances in 1999 and then again for a recording in 2002; I had also heard Apartment House give a number of performances of *Solo with Accompaniment*, and my intention with *Chromascope* was to create 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 (see Figure 3).

The main difference between *Chromascope* and its ancestors is the simplicity of the matrix content: my 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

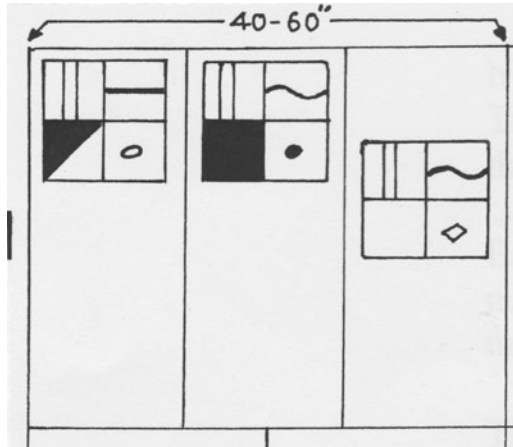


Figure 3:  
Christopher Fox, *Chromascope*, p. 1,  
first three matrices. © Fox Edition;  
used by permission.

*Chromascope* consistently counterpoints four different matrices, one for each musician, whereas 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). My intention was to shift the focus from the score to the musicians, to enable a creative process that, because it was less burdened with the task of reading, could be much more about playing. The matrices in *Chromascope* may be relatively simple, but they can nevertheless yield complex musical results and, because each musician has their own matrix, it is much easier to hear the particularities of what each of them is 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.

At the same time as I was returning to graphic score production I became aware of an emerging generation of composers with similar interests. Perhaps the most notable of these is Claudia Molitor. She too makes scores that involve many different types of notation, some conventional, others not, but her innovations go further still. Many of her scores 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. There is an element of playfulness in this which is evident at every level of 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)*, written for Apartment House in 2007, where a strange alien creature – a note elf? – appears out of the middle of the score, seeding the staves with symbols (see Figure 4).

### Texts

The advent of the text score was another development from the 1960s that, 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



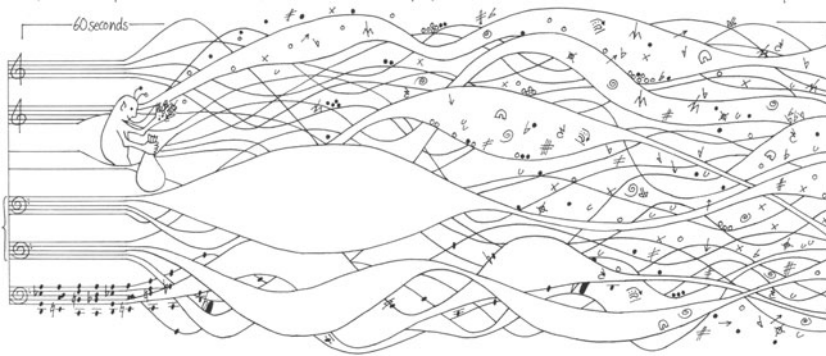


Figure 4:  
Claudia Molitor, *untitled (fizzy paintings make me happy)*, p. 2, first system. © Claudia Molitor. Reproduced by permission of the composer.

the 1960s, first with the Fluxus movement – particularly George Brecht and La Monte Young, and later Christian Wolff, Stockhausen and the composers associated with the Scratch Orchestra. The most successful text scores have a precision rarely found in graphic scores so that even so brief a text as that of La Monte Young's *Piano Piece for David Tudor #3* (1960) – 'Most of them were very old grasshoppers' – manages in just those seven words to define both a sound-world and a particular way of interpreting that sound-world. Christian Wolff's *Stones* is more obviously prescriptive, as are all the pieces in his *Prose Collection* (1968–71), yet it still leaves room for the performer's fantasy.<sup>3</sup>

#### *Stones*

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.

Christian Wolff

Figure 5:  
Christian Wolff, *Stones*

To generalise, one might say that text scores delineate fields of musical activity and offer guidance as to how to operate in those fields; on the other hand, graphic scores 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. *Treatise*, for example, 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 which is the intended outcome of any traditional score. *Plus Minus* appears to have the visual authority of a set of electrical circuit diagrams, but it turns out to be more like a collection of linked riddles whose answers have frustratingly unpredictable consequences for anyone engaged in realising the score.

Similarly, as I have suggested earlier, scores like *Reeling* and *A landscape without figures* are deliberately inconsistent and partial in their

<sup>3</sup> Christian Wolff, *Cues: Writings & Conversations* (Cologne: MusikTexte, 1998), p. 470.

use of 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 much less ambiguous. The very specificity of words makes language an awkward tool with which to describe and define musical events; consequently in most text scores it is soon quite clear which aspects of the music have been fixed by the composer and which are open to performer intervention. Also, because text scores cannot be read in performance in the way in which musicians read and play notation, they must necessarily be succinct and memorable.

In the period after the late-1960s heyday of the text score, the most consistent master of the medium was probably Alvin Lucier, who has used the medium to articulate the specifications of a series of distinct musical entities. Lucier's scores are fascinating in a number of different ways, most obviously because they produce beautiful results that extend our ideas of what music can be. In general, they are the outcome of protracted periods of research into particular sonic phenomena, so the scores are intended to enable people other than Lucier to reproduce sound-generating situations that he has already successfully created. Necessarily, many of 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).<sup>4</sup>

Yet the scores also often include suggestions that 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 the purely practical into the domain of the entirely fantastic. 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 are turned into 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 which takes *Gentle Fire* into the same virtual territory in which, as I suggested earlier, the most satisfactory readings of Cardew's *Treatise* take place.<sup>5</sup> Like the texts of Stockhausen's *Aus den sieben Tagen*, *Gentle Fire* is as much about a way of being in the world as it is about making music. Cardew's *The Tiger's Mind* is another example of the text score as spiritual guidance, although its prose style is closer to a teaching story than to a commandment and its content is so enigmatic as to leave little or no audible trace in most performances that bear its name.

<sup>4</sup> Alvin Lucier, *Reflections* (Cologne: MusikTexte, 1995), p. 294 (*Music for Solo Performer*), p. 360 (*Music on a Long Thin Wire*), p. 378 (*Risonanza*).

<sup>5</sup> Lucier, *Reflections*, p. 334.

More recently, as with graphic scores, there has been a revival of interest in the text medium among younger composers. In Britain the most successful text exponent is probably John Lely, and it is no coincidence that, as with Claudia Molitor, it is the ensemble

#### The Harmonics of Real Strings

for a bowed string instrument

The performer bows one string continuously: slowly; as regularly as possible; with a light, relaxed bow pressure that remains as consistent as possible; beginning with bow position ordinario.

The performer begins on an open string. After some time, and while continuing to bow the string, the performer introduces a light stopping pressure at the point where the string meets the fingerboard. The performer then commences a very slow and consistent movement along the length of the string towards the bridge, maintaining a consistent stopping pressure throughout.

In the later stages of this movement, as the stopped point approaches the bridge, the performer should begin to adjust the contact point of the bow on the string so that the bow is always equidistant between the stopped point and the bridge. When the stopped point and the bow eventually converge on the bridge, the performer ceases bowing.

This is a very slow, gradual piece, and the duration of a performance will be informed by the physical length of the string. For a smaller instrument, such as a violin, a performance might last between 10 and 20 minutes. For a larger instrument, such as a cello, a performance might last considerably longer.

dedicated to Anton Lukoszevieve

John Lely

Figure 6:  
Score of *The Harmonics of Real Strings*  
by John Lely. © John Lely.  
Reproduced by permission of the  
composer.

Apartment House and its director Anton Lukoszevieve who have played a key role in promoting his work. Lely's work for bowed string instrument, *The Harmonics of Real Strings* (2006/2013) is an elegant example.

Like those of 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.

### Hybrids

Wolff, Cardew, Lucier and Lely's text scores also demonstrate the limitations of the medium. Composers make scores and give them names because they want to articulate something unique, so if the music

produced from a reading of one of these scores is to have an audible identity the text must present a relatively simple prescription for action. If there are too many variables, or if the text is too enigmatically vague, then performers and audiences may reasonably ask, as Vinko Globokar did of his involvement in *Aus den sieben Tagen*, how the music differs from a free improvisation by the same musicians.<sup>6</sup>

Yet variability is an abidingly attractive characteristic of most musical traditions, many of which also relish the possibility of something quite different interrupting a defined field of musical activity. In a number of my recent works I have been exploring the ways in which a marriage of elements drawn from text scores, graphic scores and traditional notations can produce scores which have this variability. They also have some of the unpredictability of an improvisation, but combine this with the arbitrariness that, for me, distinguishes composed from improvised music: arbitrary because the listener has a sense of a decision-making process beyond the performer. Everything I have discussed thus far would seem to suggest that each notation medium is best suited to the transmission of a different sort of information to musicians and that musicians' response to a score in performance will vary according to the medium used. To make another crude generalisation, musicians' approach to staff, graphic and text notations will tend to emphasise, respectively, precision, fantasy and exploration, all qualities I want to be part of my music.

To date, the work in which I have developed this approach most thoroughly is the ensemble work *hearing not thinking* (2006–08). 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, of which that for accordion is the most straightforward, a series of changing harmonies in staff notation. The prepared piano part adopts a version of Cage's action notation: rhythms are traditionally notated but, because only seven keys are used, a seven-line tablature replaces the normal staff.

In the context of this discussion, however, it is the other parts that are most interesting. My experience, both as a composer and a performer, has taught me that when musicians are confronted with a score in which notations are preceded by introductory textual explanations they will almost always try to play the notations without reading the text. Consequently, in *hearing not thinking* all the text material is on the same page as the other notations because neither can make sense without the other. Following the example of Wolff, Lucier and Lely, I base each part around a particular way of playing the instrument; this is described and defined primarily in the text that runs down one or both sides of the score; the graphic symbols in the centre of each page notate the moment-to-moment details of the playing – the aspect of performance which text struggles to express.

It could be argued that it is composition enough to have fixed the instrumentation and types of sound production and that, given some

<sup>6</sup> See Jonathan Goldman, "'How I became a composer': an interview with Vinko Globokar", *Tempo*, Vol. 68, No. 267 (January 2014), pp. 23, 25.

general textual guidance, the elaboration of the piece could have been left to the musicians. For me, however, part of the purpose of being a composer is to be present in the wilful individuality of the music's details, since it is the presence of the arbitrary in the midst of the apparently inevitable which so delights me in the work of composers as various as Josquin, Beethoven or Cage. In the woodwind part there are a number of significant performance options proposed in the text for the performer to resolve – which fingerings to choose, whether to play the material as two large blocks or as twelve shorter passages – but the sound world of the music is defined and the note-to-note

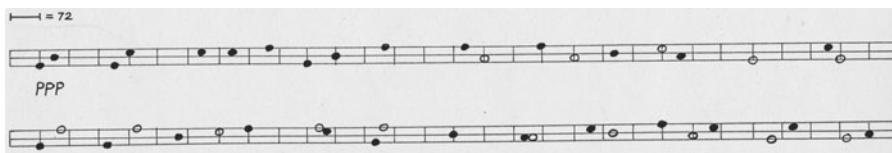


Figure 7:  
Christopher Fox, *hearing not thinking*,  
woodwind part. © Fox Edition; used  
by permission.

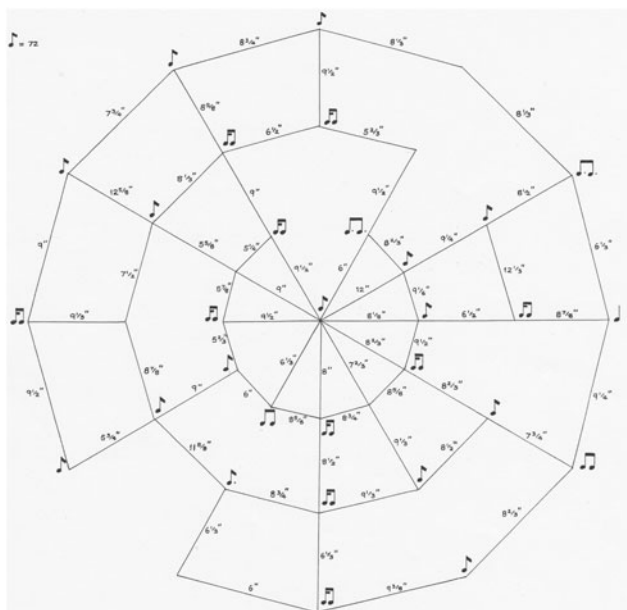


Figure 8:  
Christopher Fox, *hearing not thinking*,  
bass drum part. © Fox Edition; used  
by permission.

movement is precisely notated (see Figure 7). In the bass drum part the notation provides not only a web of timed connections between single or double strokes of stick on skin but also a map of the position of each stroke on the skin (see Figure 8).

Composing, rehearsing and listening to *hearing not thinking* and the other scores discussed here suggest a number of conclusions. 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, spaces left for them by ambiguities or omissions in the score, and it is part of the composer's work to decide how and where to leave these spaces. It also seems to me that staff, graphic and text notations each privilege particular ways of communicating musical ideas to performers and, therefore, different types of interpretation. Since so much compositional energy has been expended in developing each of these media it would seem foolish not to take advantage of all these possibilities, although not necessarily all of them all the time in every score.

Yet the widespread availability of composer notation packages has made composers today, and perhaps young composers especially, far less likely to practise notational innovation and far more likely to believe that there is a simple equivalence between the score and the music. Programs like Finale and Sibelius have had an insidious influence on composers' imaginations: why try to imagine music that 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 probably only temporary, however, and I remain optimistic that the resurgence of interest in different ways of thinking about notation which is so evident in the work of younger composers like Molitor and Lely and the musicians of Apartment House will continue and flourish.