

# BACHELOR'S DEGREE DISSERTATION

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An investigation into the extent to which developments in notation in the 1950s and 1960s have informed current compositional practices.

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# 1. INTRODUCTION

*"As long as notation remains a means of access to sound, or a means for individuals to make music together, it stays in the background and is never shown, never questioned. In such times of perfect harmony between musicians, notation is only an unimportant sketch that no one would think of considering as an element in itself"*<sup>1</sup>

-Jean-Charles François

*"For as we relate notations to the situations and circumstances in which they operate, they can be seen to act as barometers which register changes and fluctuations in the musical climate, reflecting the divisions and uncertainties of the age, the preoccupations, prejudices, and inter-relationships of their users."*<sup>2</sup>

- Hugo Cole

Notation is an aspect of music making, both on the part of the composers and performers, that for the most part remains unnoticeable. As the quote by Jean-Charles François above indicates, there is no reason for notation to come to the foreground as long as things are running smoothly, and musicians tend to take it for granted.

Of course, this presupposes that communication between people who take it for granted consists of not only what the notation prescribes or describes, but also a large accumulation of shared experiences and tacit knowledge that form a common cultural background among the people using the notation. As a result, the notation needs not be explicit about things which are taken for granted.

The limitations of notation to express any sort of idea adequately have mainly been brought about by three different threads of thinking. Firstly, at moments of great cultural upheaval, such as in post-war Europe and America, it is only natural that artists will start re-evaluating their own materials and methods, and reflect on whether what was taken for granted in the past is able to express their current needs. Secondly, since the beginning of the twentieth century onwards, with the development and institutionalisation of ethnomusicology, students and ethnomusicology researchers came across the difficulties of using western notation to notate anything else other than western music.<sup>3</sup> Lastly, with the advent of electronic music, composers were faced with the issue of describing the sonic outcome as accurately as possibly, either for purposes of copyright protection (the composer Ussachevsky comes to mind, and how he had to spend forty hours producing a score of a tape composition to establish the work's copyright in the USA<sup>4</sup>), for analysis (e.g. Stockhausen's *Kontakte*), or for further reproductions of the piece (e.g. John Cage, *Imaginary Landscape No.5*).

However, the most cited books and articles on the topic were written in the

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1 François (1992), p.9

2 Cole (1974), p.2

3 See Cole (1974), pp.11-12: *"Our notation could never serve for a music in which interest centred on mode of attack, or in which the expressive force lay in the way in which each note was joined to the next, or in which a mechanically divided scale was used [...] It could tell us little about the real nature of semi-improvisational Eastern music – and least of all [...] about the gong and lute musics of Ancient china, where the flavour of every sound has to be savoured separately"*

4 Cole (1974), p.10

1960s, 70s, or 80s, and as a result there is not much information about what has happened to music notation after these developments had taken place. It has been a long time since then, during which these developments have been reflected upon, evaluated, and familiarised, and it is thus possible to see to what extent these developments in notation are relevant in current compositional practices.

## 2. THE NATURE OF NOTATION

*“[The] interdependence [between music and its notation] is so great that in many cases where one can only understand the music through knowing the notation, one can only understand the notation through being in sympathy with the music.”*<sup>5</sup>

–S. Townsend Warner

A characteristic of musical notation (as with all kinds of written representations of spoken forms of communication) is that it is selective. We only notate what we (as a culture, society, or individual) praise as being noteworthy to be notated – the rest is left unnotated and, by extension, unnoticed.<sup>6</sup>

Another characteristic of notational systems is that they always lag behind the spoken word.<sup>7</sup> It is said, for example, that the way English words are spelt today reflects how words were pronounced five hundred years ago.<sup>8</sup> Western music notation, at its state in the beginning of the twentieth century, “*was complete: it had all the signs and directives necessary to notate the great Romantic works.*”<sup>9</sup> However, it proved to be inadequate for the incredibly rapid developments in music and music ideologies which took place in the first half of the twentieth century.

To understand the underlying principles of the changes that took place, and in what aspects of musical notation they had an effect, it is important to outline the main functions of notation prior to these changes: to **conserve** and **preserve** music; to **communicate** music to the performers, and in turn to the audience; communication with **oneself** (by reflecting on the written score); and in the **conception** of music.<sup>10,11,12</sup> Out of these four functions that music notation serves, emphasis will be placed chiefly on the last one.

It is important to conceive of music notation, not as something arbitrary and extraneous to the tradition of composing and performing music (a tool only to accommodate a need to preserve and communicate music) but as something that is actively affecting the way in which we conceive of music, and how music and music notation are interdependent and cannot be separated.<sup>13,14</sup> Notation is not simply

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5 Warner (1918-19), p.53

6 Watts (1960), “*Because what we notice is what is noteworthy. And we notice it in terms of notations: numbers, words, images - what is notable, noteworthy, notated, noticed is what appears to us to be significant and the rest is ignored as insignificant.*”

7 Crowds (2010)

8 Cole (1973), p.12

9 Rastall (1982), p.237

10 Cook (2000), pp.51-52

11 Schwartz & Godfrey (1993), p.399: “*From the composer's point of view, then, notation provides one more important form of communication: communication with oneself. It permits an ongoing internal dialogue between the composer and the work, and also between the composer and a level of deep consciousness activated only when he or she is in the creative mode.*”

12 Karkoschka (1972), p.1

13 Cole (1952), p.243: “*[...] thought and the language in which thought is clothed are interdependent. New concepts call for new symbols: while, conversely, the composer is limited, and to some extent directed, by the structure, degree of accuracy, and associations of the terms he uses, and the symbols by which he represents those terms*”

14 It is interesting to note what Jacques Derrida (1998, p.36) says about written language in general: “*Representation mingles with what it represents, to the point where one speaks as one writes, one thinks as if the represented were nothing more than the shadow or*

something that comes at the end of the compositional process (for example, in the way Mozart and Beethoven composed music)<sup>15</sup> but something that determines the way in which we think of music and the way we compose music.<sup>16</sup> As a result, since notation as the twentieth century welcomed it was fit for nineteenth-century ideals, with Schoenberg and his “emancipation of dissonance”, as well as the general tendency away from tonality (with special vigour after the World Wars and the new generation of young, aspiring composers who wanted to “rewrite” western music tradition, such as Boulez and Stockhausen), it is only natural that the notation that suited tonal music would no longer be fit for non-tonal music.<sup>17</sup> Karkoschka goes further to point out that the possibilities of notation not only affect the way musicians compose music, but also the way the entire community of musicians within a given culture is shaped, “*so that the aural image of a musical work in every epoch is characteristically related to its visual configuration.*”<sup>18</sup>

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*reflection of the representer.”*

15 Also compare with Lombardi's (1983-4, p.263) comment that “*we cannot behave as if we were living in the time of Mozart or Schubert; their spontaneity was possible only because it was articulated within an extremely formalized linguistic system which had become – insofar as it was an inter-subjective conventional idiom – almost a second nature. Today, an inter-subjective language does not exist, and to behave as if it did leads to quoting (maybe without realizing it) shreds of past grammars. In our situation, the composer must construct his own spontaneity and freedom.*”

16 Cook (2000), pp.51-52

17 See Rastall (1982), p.237: “*Tonal music and tonal notation go together.*”

18 Karkoschka (1972), p.1



### 3. WHY CHANGE?

*“[...] musical notation is always in a state of change, constantly subjected to pressures which cause it to embrace innovations, to become more explicit, more flexible, or otherwise more suited to the prevailing musical style.”*<sup>19</sup>

—Richard Rastall

*“It is well known that notation has been a constant difficulty and frustration to composers, since it is a relatively inefficient and incomplete transcription of the infinite totality which a composer traditionally 'hears,' and it should not be at all surprising that it continues to evolve.”*<sup>20</sup>

—Earle Brown

*“Whether in an evolving species in the natural world or a cultural project like music, new uses are found for existing structures, previous transformations are transformed again, and things gradually lose their resemblance to their ancestors.”*<sup>21</sup>

—Scott Johnson

Hugo Cole attributes the dramatic changes and developments in notation in the twentieth century to seven main factors: the need of composers of the day to win the performers on their side for **financial** reasons as (indeterminate notations are more appealing to performers) they are in turn more interested in performing the works, as they are actively involved in the piece rather than acting merely as executioners; the **shift of focus** from pitch and duration (which leaves other aspects of the music indeterminate) to other aspects of music, which leaves pitch and duration indeterminate; developments in **communication** brought about the ability of non-linear ordering of material, and the possibility of escaping the printed page and creating sound in many layers; there is **no need for a universal language** in notation, as with the advent of recordings a single recording can suffice to establish a composer's fame (thus, a lack of universal language is not inhibiting dissemination of a composer's reputation or his works); notation **lost** its function of **preserving** music, thus allowing it to gain other functions<sup>22</sup>; new scores needed an investment of the performer's time and energy which **protected** the compositions from non-understanding performers;<sup>23</sup> and lastly, developments in the **printing industry** have since facilitated the dissemination and publishing of (facsimiles of) such scores, and thus are no longer an obstacle to reproducing extremely complex or purely graphic scores.<sup>24</sup>

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19 Rastall (1982), p.231

20 Brown (1986), p.186

21 Johnson, Scott. *The Counterpoint of Species*. from Zorn (2000), p.30

22 Rastall (1982), p.269

23 Cardew, in his preface to *Four Works*, remarks that “*Pieces need camouflage to protect them from hostile forces in the early days of their life. One kind of protection is provided by the novelty and uniqueness of the notation; few musicians will take the trouble to decipher and learn the notations unless they have a positive interest in performing the works.*” as quoted in Cole (1974), p.147-8

24 Cole (1974), p.147-8

Furthermore, Cole acknowledges that, aside from these seven reasons outlined above, two forces which helped realise the limitations of the traditional notational system were present from the fields of ethnomusicology and electronic music, where practitioners in each came to realise that there are many more aspects of sound and music that are meaningful other than just pitch and duration, which is what Western music has been mainly focusing on.<sup>25</sup> As Nicholas Cook remarks, “a score sets up a framework that identifies certain attributes of the music as 'essential' “. <sup>26</sup>

In the 1950s and 60s, as demonstrated earlier, what was considered to be 'essential' changed dramatically, from avant-garde to experimental composers (Boulez vs. Cage, for example), and within a group of composer (e.g. Cage vs. Feldman), and as this is the case, music notation **had** to change to accommodate these new needs accordingly.<sup>27</sup>

### 3.1 Changes In The Past

To put the more recent notational developments of the 1950s and 60s in a historical context, a very brief overview of similarly significant changes in notation in the past is apt. In the history of music notation, there have been two other such dramatic shifts in musical notation which can be paralleled to the more recent changes in question.

The first shift was around 900 C.E., when composers started moving away from monody and towards polyphony. As a result of this, and because of the demands of the new music, neumatic notation was abandoned and staff notation was introduced, which was more precise in terms of pitch. Emphasis was placed on the exact durations of notes, which resulted in mensural notation.<sup>28</sup>

The second shift was in the fifteenth and sixteenth centuries. The emergence of functional, chordal harmony around 1600 C.E. resulted in the use of scores as opposed to partbooks, which allowed for much more complex music to be composed, and notation began to become to a certain degree standardised.<sup>29</sup>

Experiments in notation, therefore, is not a new phenomenon. Before 1600 C.E., composers had at their disposal a variety of ways to notate their music.<sup>30</sup> What is more, depending on the location and time when a piece was written, the interpretation of very similar symbols in a given piece could have been entirely different.<sup>31</sup> A very interesting case is that of the so-called “mannerist composers” in the fourteenth and fifteenth centuries, who composed “Augenmusik” (German for “eye-music”). Written before the invention of print, it was handwritten by the composers and featured a visual manifestation of the music in a way that is visually appealing, and also functional as a music score. Such scores have been often referred

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25 Cole (1974), p.152

26 Cook (2000), p.62

27 As Brown (1986, p.180) comments, “*Notation and performance, heretofore 'given' and inherited practices, have become significant and necessary areas of re-viewing precisely because of the radical transformations which have taken place within the areas of compositional techniques and aesthetics. Each has developed independently, to a degree, on the basis of two seemingly contradictory directions that new music has taken: serialism and so-called aleatoric music.*”

28 Stone (1980), p. xv

29 Stone, *ibid*

30 Brown (1986), p.181

31 Le Basile (2010), in “*Off the Staves*” conference

to as examples of notation which places more importance on what the music looks like, rather than just how it should be performed.<sup>32,33</sup>

However, these experiments in music notation are of a very different nature to the developments that took place in the 1950s and 60s. The integral difference is that the eye-music notations of the fourteenth and fifteenth centuries “are not an integral part of the musical notation system itself”, and so in the middle of the twentieth century, for the first time in history we had notations in which a “*pictorial representation of sound [...] functions as notation and not calligraphy.*”<sup>34</sup> Another very interesting characteristic, to quote Luca Lombardi, “*of the current musical situation when compared to earlier epochs is the awareness of materials and techniques and of diverse musical cultures*”<sup>35</sup> which may help explain why there was such an intense production of incredibly varied and different graphic scores over a relatively short period of time.

## 3.2 The 1950s and 60s

The stylistic changes in notation in post-war Europe and America resulted in two main and distinct directions with which composers aligned themselves.<sup>36</sup> These two directions are best expressed in terms of the avant-garde and the experimental composers (alternatively, as Earle Brown distinguishes them, the “serialist” and “aleatoric” composers).<sup>37</sup> Although the line separating the two is not a fine one, and often composers from one group will exhibit characteristics belonging to the other, for the purposes of this essay and for reasons of simplicity the developments in musical notation will be explored in relation to these two general categories of composers and styles.

One must not forget that these developments in notation, whichever direction they take, did not come about out of thin air, nor are they mere reactions to one aspect of musical notation or another. They are indeed part of the very same tradition, and are simply an expression of the struggle that composers had to go through in order to find a better way to express and transcribe aural impressions onto paper, as well as due to an increased awareness of the nature of music-making – which involves “*the composer, the score, the performer, and the audience*”.<sup>38</sup>

### 3.2.1 The Avant-Garde: More control

“*We must put music beyond the reach of amateurs.*”<sup>39</sup> –Ferruccio Busoni

The direction of the avant-garde displayed an increase in the accuracy and precision of all details of musical performance, with a great interest in components of

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32 For two famous examples, see Appendix, Figures 1 and 2

33 Le Basile, *ibid*

34 Smith & Smith (1981-2), p.75

35 Lombardi (1983-4), p.253

36 Stone (1980), pp. xv-xvi

37 Brown (1986), p.180

38 Brown (1986), p.183

39 Busoni, Ferruccio, as quoted by Cole (1952, p.244)

sound-making previously left unnotated, such as defining dynamics more precisely, indicating and controlling changes in timbre, altering pitches (either via microtones or detailed glissandi) specifying the location of performers on the stage, and so forth.<sup>40</sup> It seems that, as Cole suggests,<sup>41</sup> composers have lost trust in the performers, and thus any trace of ambiguity must be removed – the work need not be “interpreted”, merely “performed”.<sup>42</sup> Of course, with the degree of precision that these works demand, less and less space is left for any form of interpretation.

This led to an ever-increasingly precise notation to deal with the needs of writing such demanding music, and developments took place within the already-established traditional notational system. As David Behrman comments, “*the performer's 'musicianship' came to outlive its usefulness. The composer no longer expected him to read between the lines of his score. [...] To make up for the suppression of interpretation, the specifications grew more numerous and exacting than ever before.*”<sup>43</sup>

Apart from these reasons, other factors that contributed to this increasingly difficult (to read and perform) form of notation were that composers expected the performers to invest more time and effort into rehearsing and learning a piece; and that playing techniques had been extended dramatically over a very short period of time, and thus there had been no standardised practices for the notation of particular effects (such as playing in the strings of the piano, hitting the body of a string instrument with the bow, or even quarter-tones).<sup>44</sup>

In this area of composing, notation entered a kind of vicious circle – on one hand it aimed to leave no space for (mis)interpretation of the composer's intentions, therefore enhancing our culture's reverence for the urtext, the original, the authentic (which is the reason why composers have been so keen on notating as many aspects of their music as they can)<sup>45</sup> and on the other hand, an extrapolation of this desire to control an ever-increasing number of aspects of musical performance would implicate a notation which is so clear that it is unambiguous, one which does not need explanation and which leaves no space for questioning. However, as Earle Brown warns,

*“all notation is basically 'only suggestive' but once it arrives at the extreme point of fragmentation and fractioning that it has, it becomes a statistical accuracy and the question arises, Is there not a more functional and less self-defeating and more realistic graphic suggestion? There is not, of course, if one insists that any degree of fragmentation of duration is accurately performable, and it may be, but if it is not, the development of precision in notation has contradicted itself.”*<sup>46</sup>

Attempts at creating such a 'perfect notation' has become the holy grail of the avant-garde, which, due to the very nature of notation (and as demonstrated by the quote above), is ipso facto unattainable.<sup>47</sup> For many composers it is not

40 Stone (1980), pp. xv-xvi

41 Cole (1952), p.244

42 See also comments by Stravinsky (“*I have often said my music is to be 'read', to be 'executed', but not to be 'interpreted'.*”) and Schoenberg (“*The piece is so orchestrated (at least that was my intention) that the sound depends on the players playing exactly what I have written.*”), both as quoted in Cole (1974), p.127

43 Behrman (1965), p.58

44 Rastall (1982), p.258

45 See Cole (1974), p.12: “*It is our veneration for the urtext that leads us to the attitude that 'whatever is not in the score must be wrong'.*”

46 Brown (1986), p.193

47 See also comment by Cardew: “*Russell: 'a perfect notation would be a substitute for thought'. Stockhausen: 'a perfect notation? Would that be one where you can immediately*

even desirable, as the impacts of such a notation would deal a severe blow to the creativity of composers and performers alike, and largely reduce their need to express anything.<sup>48</sup> *"notation's ambiguities are its saving grace."*<sup>49</sup>

Of course, these extremely determinate and precise notations have been subject to protest from performers and composers alike, as well as from publishers, for having to start from scratch with every score to accommodate each composer's newly-invented symbols and mannerisms (as standardisation is difficult to take place, despite good-willed attempts – such as the *International Conference on New Musical Notation* [1974] and the *Index of New Musical Notations*) due to the great number of different composers with different intentions and backgrounds) at an increased cost.<sup>50</sup>

However, it must be noted that the indeterminate notations of experimental composers are, in some occasions, a (conscious or unconscious) reaction to these extreme forms of precision and determinacy.<sup>51</sup>

### 3.2.2 The Experimental Composers: Less Control

*"We do have a 'crisis of consciousness,' and it has changed the nature of the artist's relationship to his work and the relationship of the work to a performer, reader, viewer, or listener. The 'loosening' of notational controls and the conscious introduction of ambiguity and spontaneity in performance were, for me, a way to deal with this new situation [...]"*<sup>52</sup> –Earle Brown

The direction of experimental composers saw a rejection of the aforementioned extreme expressions of precision, and instead focused on intentional ambiguity, as well as indeterminacy of various kinds, whether in pitches (e.g. Feldman, *Intersections*), rhythms (e.g. Feldman, *De Kooning*), structure (e.g. Cage, *Concerto for piano*<sup>53</sup>), instrumentation (e.g. Cage, *Five*), or even in terms of the soundscape produced in total (e.g. Cage, *Imaginary Landscape No.4*) as well as incorporating all forms of sound in the vocabulary of musically accepted sound (i.e. sounds that can be considered to be *music* as opposed to *noise*). It also focused on other elements of notation which provided the performers with more responsibility towards the final sonic outcome, by providing choices of material to play from, improvisatory elements, as well as using external sounds and unpredictable circumstances (e.g. Wolff's *Duo*

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*imagine 'how it sounds'? Then order me one right away. But because it will always be imperfect, we have to go on thinking through a lot of rubbish. When you read music, it's better to imagine music than to think all the time what the signs mean.' – But there is a limit to the music that can be drawn"* Cardew (1961), p.30

48 Composer Michael Finnissy, when asked if it would be desirable to create a notation that would be so clear so that you wouldn't need to ring up the composer, replied “ *Why would you want to do this, sweetheart? This is a recipe for disaster*”. He further commented that “*A score should be a negotiable text*”, and that our obsession with the urtext is due to the dangerous behaviour of a society which “*pays more for recording than performing*”.

Finnissy, Michael, from a lecture in the “*Getting it Right?*” conference (2010)

49 Gerhard, Robert, in Cage (1969), pp.239-40 (after the Satie score, before the Sauguet)

50 Evarts (1968), p.405

51 See Karkoschka (1972), p.2: “*Serial methods, which on the whole place musical structures above numerical arrangements, lead finally to such complicated notation that it is increasingly difficult to interpret this music. For these reasons, composers turned to less determined or indeterminate areas at the end of the 1950s.*”

52 Brown (1986), p.197

53 Appendix, Figure 2

for pianists).<sup>54</sup>

As all these new changes in the conception of music were taking place in the immaterial world of the composers' heads, new developments needed to take place in the material world of the same composers' field of composing (notation) to accommodate them. This resulted in a conscious awareness of, on one hand the limitations of traditional notation in expressing anything more than nineteenth century ideals about music, and on the other hand the potential of the written material in communicating an unprecedented variety of ways of producing music. It is blatant that dramatic changes in the composers' ideology about music making would lead not only to developments and changes within the notational system, but a change of notational systems altogether. As a result, traditional notation and symbols were in some cases wholly abandoned, while an increase in so-called "implicit notations"<sup>55</sup> was witnessed, as such scores have a much greater ability to communicate that sort of freedom to the performers and make use of the degree of contribution the performers were given in compositions of this nature.<sup>56,57</sup>

It is, of course, no coincidence that the group of New York experimental composers of the 1950s and 60s (Cage, Feldman, Wolff, Brown) were in the same circle of friends as some of the leading so-called "abstract expressionist" painters of the time, such as De Kooning, Rauschenberg, Guston, Rothko, and Pollock. The awareness of the graphic nature of notation must have been of great importance to these composers, who in turn concentrated on this particular aspect of notation. In the process, they produced scores of such graphic appeal which highly resembled paintings from the visual arts, to the point where galleries would exhibit music scores and Stockhausen would speak of a 'music for reading', which would now be feasible due to the "*emancipation of the graphic from the acoustic element*".<sup>58</sup>

The main distinction between the avant-garde and the experimental composers is that the avant-garde, through their developed vocabulary of musical notation devices (but still within the framework of traditional notation), continued to prescribe the sonic outcome of the performance, ever-increasingly more accurately and precisely, whereas experimental composers were notating "*the activities associated with the compositional process rather than the sonic remnants of that process*."<sup>59</sup> This is also evident in what seminal experimental composers said about notating music at the time, as well as in the nature of the scores produced by these composers and people who have committed to studying experimental music.<sup>60</sup>

Nevertheless, this decrease of control by no means implies a decrease in sophistication, and as Earle Brown points out, these developments in the future will certainly prove to be "*an addition, rather than a subtraction, of musical possibilities and in no sense a negative development*."<sup>61</sup>

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54 Stone (1980), pp. xv-xvi

55 Cole (1974), p.143

56 Stone (1980), *ibid.*

57 Karkoschka (1972), p.2

58 Stockhausen, Karlheinz, *Musik und Graphik*, Texte, I. pp.176-188, as quoted in Griffiths (1995)

59 DeLio (1981), pp.199-219

60 See DeLio, Thomas, *ibid.*: "[...] recent compositional activity has witnessed a shift in emphasis away from the creation of sonic structures toward the creation of more precise ways of notating activities and attitudes." Compare to "Let the notations refer to what is to be done, not what is to be heard." by John Cage, and "A notation should be directed to a large extent towards the people who read it rather than towards the sounds they will make." by Cardew, both as quoted by Cole (1974), p.135

61 Brown (1986), p.190

## 4. MUSIC NOTATION TODAY

It is interesting to note, however, that, despite these very wide-spread and striking developments in notation, after the 1970s and 80s, notation started moving away from these extreme forms of experimenting, and towards a more refined traditional western notation, embellished with all sorts of new symbols, freedoms (for example, time-signature changes were rare before Stravinsky and his *Rite of Spring*, but now it is expected that any decent performer is able to read multiple time-signature changes), and space for improvement.<sup>62</sup> “*Current notational advances have stagnated while the previous half-century's advances were rejected.*”<sup>63</sup> Rastall<sup>64</sup> and Cole<sup>65</sup> correctly predicted, more than thirty years ago, that developments in notation will eventually subside to allow for a developed traditional notation to emerge, more versatile than before and more apt to serve the needs of the next generations of composers.

Another significant impact these developments in notation have had in the music realm is that a lot of techniques which were once considered non-musical, unplayable, bad for the instruments (or voice), and unreasonably difficult, have now been assimilated into composers' notational language to the point where performers are no longer surprised by such notational innovations. A lot of these techniques have become a necessary part of a musician's training in music conservatories today, to enrich the students' vocabulary of available sound-producing techniques and provide them with the ability of performing newer works of music.<sup>66</sup>

However, standardisation may not necessarily be a positive development. Although music engravers, publishers, and notational software developers are likely to be most grateful for such a standardisation of notational practices (not just a standardisation of symbols, but a standardisation of notation), variety, plurality, and multitudinousness is of the essence in all areas of creative activity.<sup>67</sup> By standardising notation, one standardises the artists' way of thinking and limits their creativity – “*creative people are not immune to their tools' limitations.*”<sup>68</sup>

There could be many reasons or factors that have contributed to the stagnation of the development and experimentation in graphic notation: notation could be **inadequate** for the kind of precision demanded by composers (in terms of orchestration, timbral nuances, or synchronisation); the developments in the 1950s and 60s were largely a **fluke**, happened only once at that particular time and place,

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62 Stone (1980), p. xviii

63 Báthory-Kitsz (2009), p.25

64 See Rastall (1982), p.273: “*the period of notational expansion seems now to be ending in favour of standardization*”

65 See Cole (1973), p.153: “*Many of the wilder notational experiments of the past decades will no doubt soon be forgotten, and there is some reason to hope that [...] we shall be left with a wider and more versatile vocabulary of directive signs than at any previous time in the history of Western Music.*”

66 See Behrman (1965), p.58: “*Traditional notation has been abandoned in so much of the last decade's music that players are no longer shocked by the prospect of tackling a new set of rules and symbols every time they approach a new composition*”.

67 See Smith & Smith (1981-2), p.4: “*This codification process would lead to convenience, communication, and accessibility. At the same time it would strike the death blow to the primary function of art – the expansion of our consciousness. To standardize notation is to standardize patters of thought and creativity. Our present abundance of notations is as it should be.*”

68 Báthory-Kitsz (2009), p.25

and are **irrelevant** to contemporary practices; or graphic scores have been **suppressed** by institutions and professions in which they are more problematic than not (publishers, engravers, copyists, notational software, conservatories).

Of course, not any one of these factors is the sole reason behind what is observed to be an almost universal detachment from graphic notations. Indeterminate notations, by definition, cannot possibly notate in precision what traditional notation can. As a result, composers who are after such a precision in the sonic outcome of their compositions are better served by the traditional notational system, in which the potential performers of their work have spent years training during their musical education.<sup>69</sup>

The incredible variety of scores that emerged in the middle of the twentieth century were indeed the product of certain people being at certain places in certain times, and by reflecting on their own personal views about notation or music, and upon their cultural and social background, they responded by exploring the possibilities of the graphic aspect of notation to the most extreme ends (e.g. Earle Brown's *December 1952*<sup>70</sup>). There is big difference between the two other pivotal points in the history of music notation where there were similarly drastic changes in notation (as previously mentioned) and the notational changes in the 1950s and 60s. In the previous changes in notation, the developments that took place were in the spirit of a common ground, a common notation which was being developed, progressed, moved forward.

The developments that took place then were **longitudinal**, whereas the developments that took place in the 1950s and 60s were both **longitudinal** and **latitudinal**, that is, within a notational system and a **change of** notational systems. Therefore, the effects that the developments of the middle of the twentieth century had in more recent music are evident in the direction of the longitudinal developments (which mostly coincides with the avant-garde developments in notation, as seen above: invention of more symbols to convey different performance techniques, more precise nuances of the music, etc.), whereas the latitudinal developments could not be assimilated or developed in the same manner, due to the nature of the notation: there is little in common between the immensely varied output of experimental composers in the 1950s and 60s other than that they question and discard (to various degrees) the different aspects of musical notation previously taken for granted. Due to the very individualised nature of graphic scores, between composers but also between compositions of a single composer, even if someone composed a piece using a notation similar to Feldman's *Projection II*<sup>71</sup> today, it would not just be 'a piece in graphic notation', but 'a piece using Feldman's notation'.

There are, of course, a few areas in which graphic notation can be, and has developed longitudinally, in the same spirit as the earlier developments but of a different nature. Contemporary composers have at their disposal printing reproduction machines and scanning equipment that allows them to reproduce any kind of notation written on paper. Combined with more elaborate photographic techniques and equipment, composers can now experiment and create more complex pictorial scores, in the form of image collages (e.g. Jennifer Walshe's *Tentative for Bed of Soft*<sup>72</sup>) or processed photographs. More particularly, in the last twenty years or so, the use of colours in compositions has found its way in graphic scores with easily available colour printing. In addition to this, even more recent developments in drawing and design software has contributed to the range of possibilities a composer working in the graphic field can experiment with (e.g. Theresa Sauer's

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69 See Dr Burney, as quoted by Cole (1974, p.40): “*Innovators will always find that a known method, however bad, will be preferred to the good method that is to learn.*”

70 Appendix, Figure 6

71 Appendix, Figure 7

72 Sauer (2009), p.270



*Parthenogenesis*<sup>73</sup>). These are, of course, some of the ways in which contemporary composers have indeed continued working in this tradition, and will continue to do so for as long as new technological developments provide us with ever more possibilities of manipulating images, and as a result of this, sounds.

Music notation software has both hindered and nurtured what has been observed to be a recent “resurgence of interest in both writing and reading graphic scores.”<sup>74</sup> The most obvious effect which notational software has had is that of inhibition,<sup>75</sup> placing bars in the ability to disseminate ideas and music which do not fit in the (almost strictly) nineteenth-century framework<sup>76</sup> around which notational software has been developed. In much the same way as music notation not only provides us with the ability to preserve and communicate music, but also affects the terms in which we conceive of music, notational software “suggests – demands – ways of working with a score, even of conceptualizing it” and the limitation of notational software to serve nineteenth-century ideals “may injure subsequent generations of composers.”<sup>77,78</sup> Of course, notational software is only a tool, and one must first learn how to circumvent the tool's limitations in order to use it efficiently and to the best of one's intentions. However, the tremendous inconvenience with which non-standard notational devices can be notated in notational software inhibits the fluency with which one composes, and even when composers are not working directly on notational software, they are (to some degree) composing with the notational software in mind, as eventually they (or someone else) will have to typeset their manuscripts for the various conveniences this provides (such as preparing parts).<sup>79</sup>

On the other hand, there has been “a backlash of composers who treasure the handwritten manuscript and remain resistant to the depersonalization of digitally manufactured scores.”<sup>80</sup> Jane Alden considers that it is very significant that this recent revival of interest in graphic notations coincides with a greater availability of notational software: “The pen seems to have renewed appeal as a greater tool as our lives become ever more digitised.”<sup>81</sup>

Lastly, as music education becomes ever more institutionalised, the use of graphic notations poses difficulties in training the musicians to achieve a technical competence to perform compositions of the canon of western music. What's more, music students, having spent a large part of their education specialising in and expressing themselves through the traditional notational system, are largely unwelcoming towards composers who either want to “teach” the musicians new symbols or playing techniques, or composers who do not use traditional notation altogether.<sup>82</sup> Composition students need to use traditional notation in order to get the

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73 Sauer (2009), p.206

74 Alden (2010), in “*Off the Staves*” conference

75 See Lupton & Philips (2008), p.10: “*Too often, the temptation to turn directly to the computer precludes deeper levels of research and ideation – the distillation zone that unfolds beyond the average appetite for testing the waters and exploring alternatives.*”

76 See Báthory-Kitsz (2009), pp.24-25: “*Software adopted symbology and techniques straight out of the 19th century–measure-based, horizontal, graphics-free, note-bound workflow lifted right from the engraver's plates. It is as if the 20th century never happened. [...] Confirmation that notation programs are still based on 19th century music can be seen in the list of symbology weakly or not supported. [...] Equitone, Klavarscribo and the entire universe of graphical notation are entirely absent.*”

77 Báthory-Kitsz (2009), p.25

78 See Timin (2008): “*In recent years, computer notation software programs such as Finale and Sibelius have made standard notation more convenient than ever, further marginalizing the possibility of more experimental approaches.*”

79 Crowds (2010), in “*Off the Staves*” conference

80 Timin (2008)

81 Alden (2010), in “*Off the Staves*” conference

82 Cardew (1971) talks extensively about musicians' education and their approach to graphic

performers on their side, and also to be trained in traditional aspects of music composition, such as counterpoint, harmony, and orchestration. Furthermore, as they have to deal with notational software to print their music to high standards (without access to a publishing house or professional engraver) and distribute it to the performers, they end up thinking in terms of the limitations provided by the notational software (as demonstrated above).<sup>83</sup>

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scores in his essay *Towards an Ethic of Improvisation*.

83 See Suzuki (2003): “*We must continue to grapple with this matter and find ways of integrating it into music curricula. It is clear that composers are moving ahead as they see fit, score or no score, and rest [sic] of the musical world should do its level best to move ahead with them.*”

## 5. CONCLUSION

Notation today has achieved a greater degree of agility and versatility in dealing with composers' needs, which are largely due to the developments of notation in the 1950's and 60's.<sup>84</sup> Composers now have the freedom to choose from a variety of ways in dealing with the task of notating on paper what they want to hear, and with the technological achievements that characterise the twenty-first century, they have an extraordinary arsenal of tools to achieve the most impressive of results.

The resurgence of graphic scores is evident in collections such as SoundVisions (Möller, Shim, and Stäbler, PFAU 2005) or Theresa Sauers' *Notations 21*. Sauers comments that composers in *Notations 21* have a different attitude to notation because they are dealing “*with new and very powerful political and social issues, ideas of freedom and our [sic] environment on a larger and more global scale.*”<sup>85</sup> Further on she points out that “[...] *these new, daring musical manifestations are also ideas and philosophies put to paper that should be heard and understood and brought into mainstream consciousness. It is the future of music and art together.*”<sup>86</sup>

Discussing the future of notation (or any other aspect of art) is very complicated, if not impossible to do – so there is no way to evaluate our notation today from the standpoint of musicians a hundred years from now.<sup>87</sup> However, the music of the western world finds itself in a very particular historical, social and cultural context, from which it is difficult to be entirely liberated. Nevertheless, in order for composers to use whatever notational means are best suited for the music they want to make (rather than the other way around), there must be changes in the way musicians are trained, development of much more versatile notational software, and an understanding of the necessity of graphic notations.

Such an acceptance of the essential function of notation in artists' expression is the sine qua non for a resurgence of graphic notation and the emancipation of the graphic score from the limitations of traditional western notation, especially an understanding of the need for such a plurality of expressive forms of notation from people in the music industry who are not directly related to the creative part of the artistic creation (such as publishers, engravers, etc.<sup>88</sup>), and who (directly or not) inhibit in one way or another the composers' fluency of expression. Notation is a part of the way we conceive of music and should be treated and taught as something which is as important in composition as counterpoint or harmony.<sup>89</sup>

One remembers the anecdote about Cardew, who required his students to start composing on a completely blank piece of paper: if they felt that a staff and notes was what they needed, they could of course do that; and if they felt they could invent a new way of writing what they had in their mind, they were also free to do so. Compared to educational institutions forcing their students to use notational

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84 See Cage (1982), interview with Peter Gena: “[...] *although more and more composers now are using conventional notation, it's a type of music that could never have happened without the graphic movement. The re-exploration of tonality can only exist because of what happened in the fifties, sixties, and seventies.*”

85 Sauers, Theresa, interview with Sheridan, Molly (2009)

86 Sauers, Theresa, *ibid.*

87 Black (1983-4), p.117

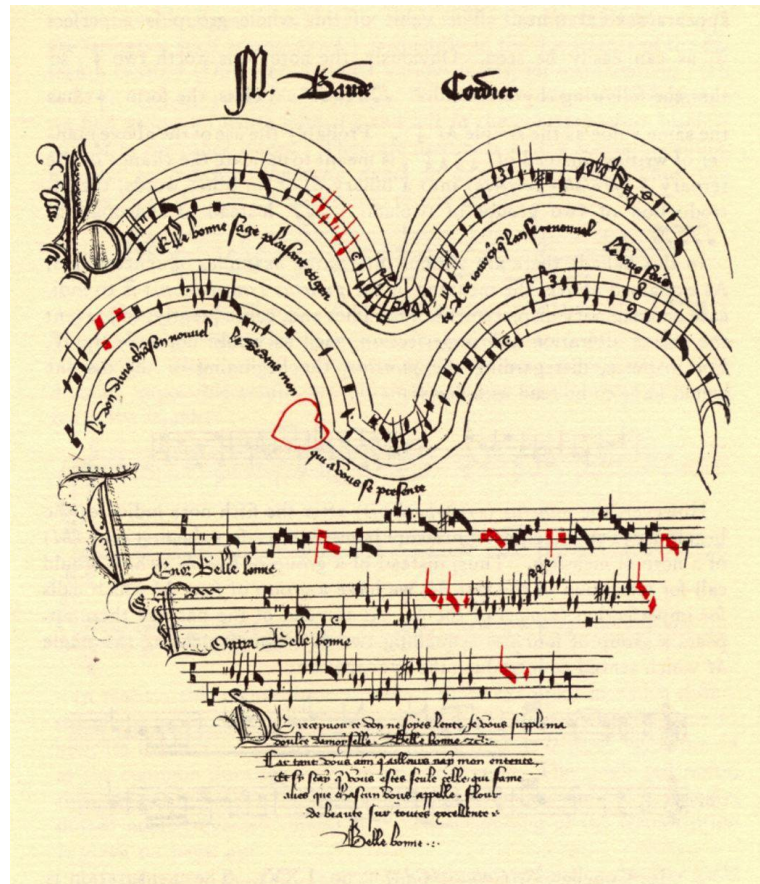
88 See Ross (1987), p.1: “*the rules are now accepted by publishers and composers, as proper notation.*”

89 See Schaeffer (1976), pp.60-61: “*Within traditional conventions of composition, notation is frequently substituted for composition; one composes not only with the help of notation but often simply thanks to it. In new music the composer must tear himself away from this convention and consequently from the notation.*”

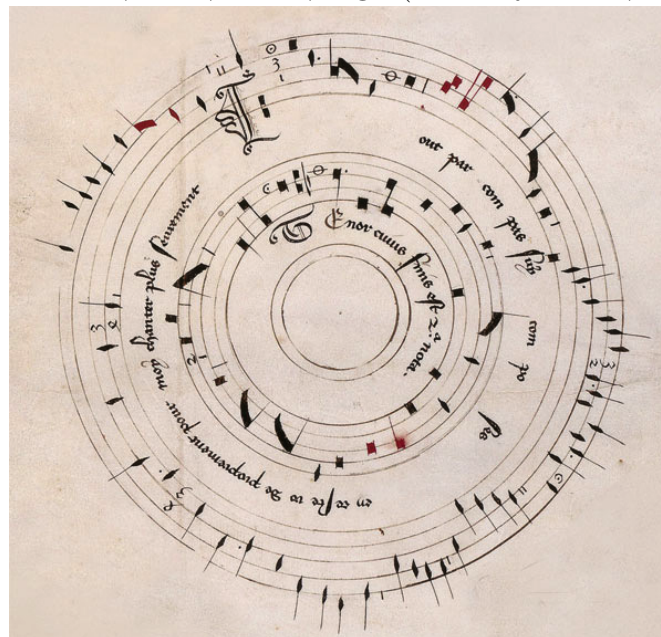
software restricted to 19<sup>th</sup> century ideals of music, Cardew's approach appears to be a healthier alternative, one which brings the written score to the foreground of the creative process and which is aimed at expanding the musicians' consciousness and identity through their relationship with the written score.

## 6. APPENDIX

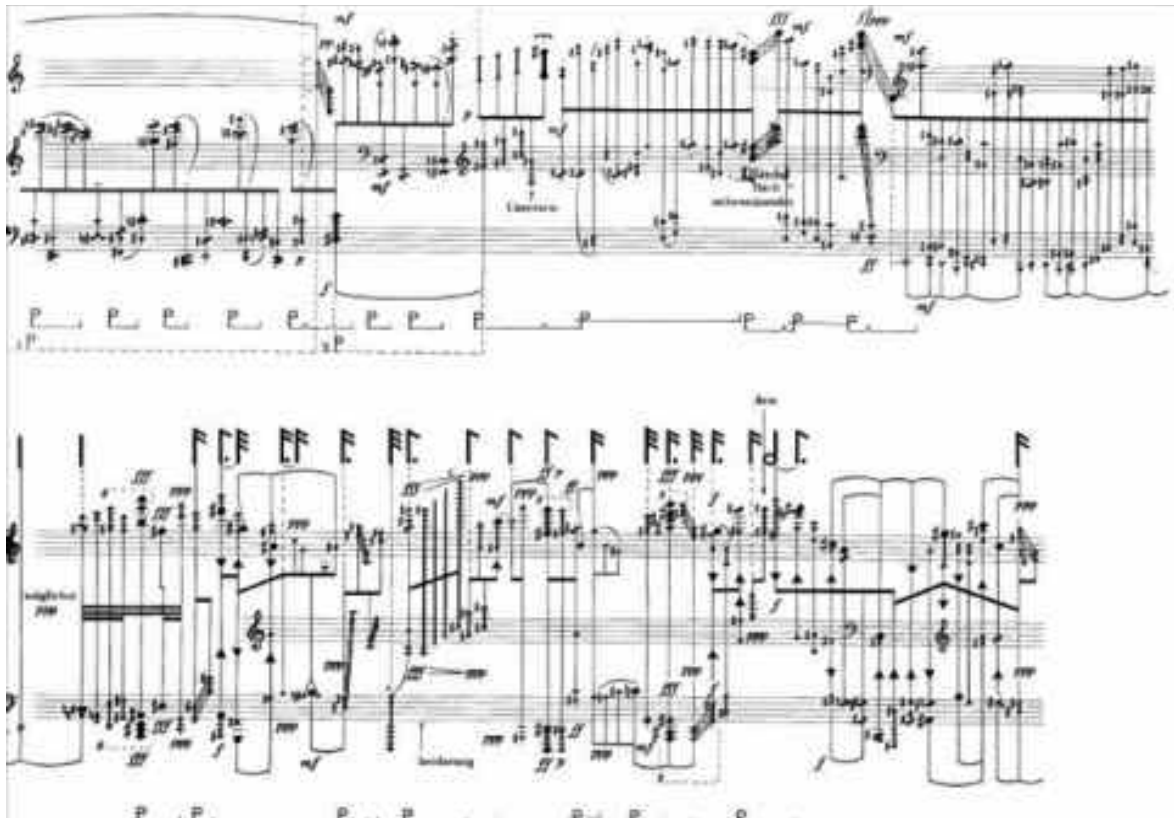
### SCORES



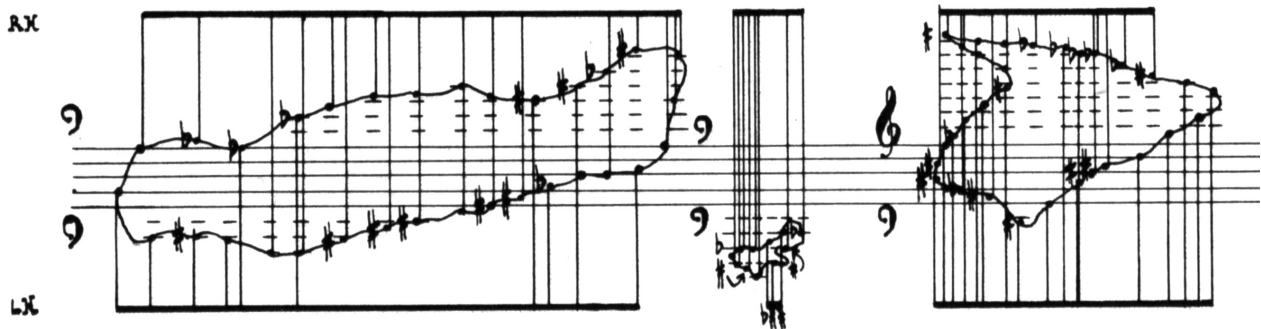
**Figure 1:** Baude Cordier, *Belle, bonne, sage* (Chantilly Codex, c.1400, Apel NPM, 427)



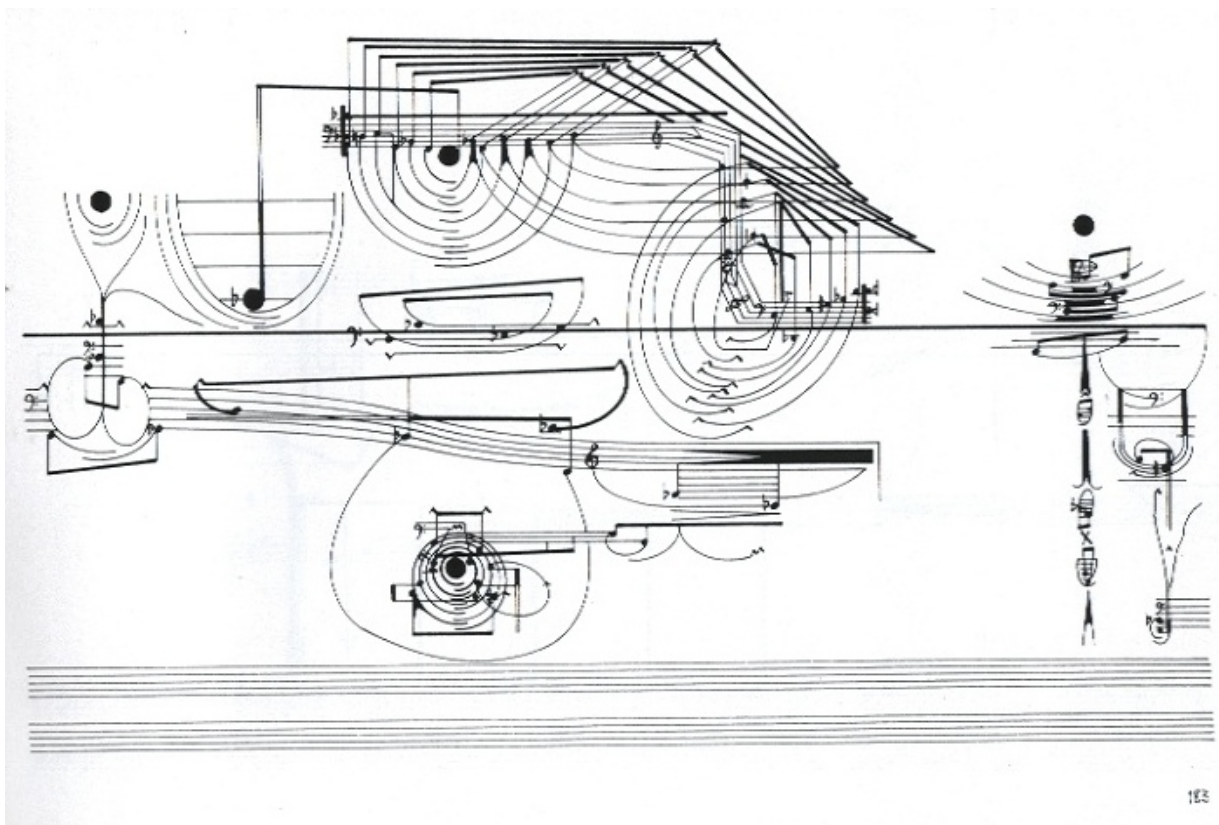
**Figure 2:** Baude Cordier, *Tout par compas* (Chantilly Codex, Parrish NMM, 187-193, plate LXII)



**Figure 3:** Karlheinz Stockhausen, *Klavierstück X* (extract, Universal Edition, 1954-55)



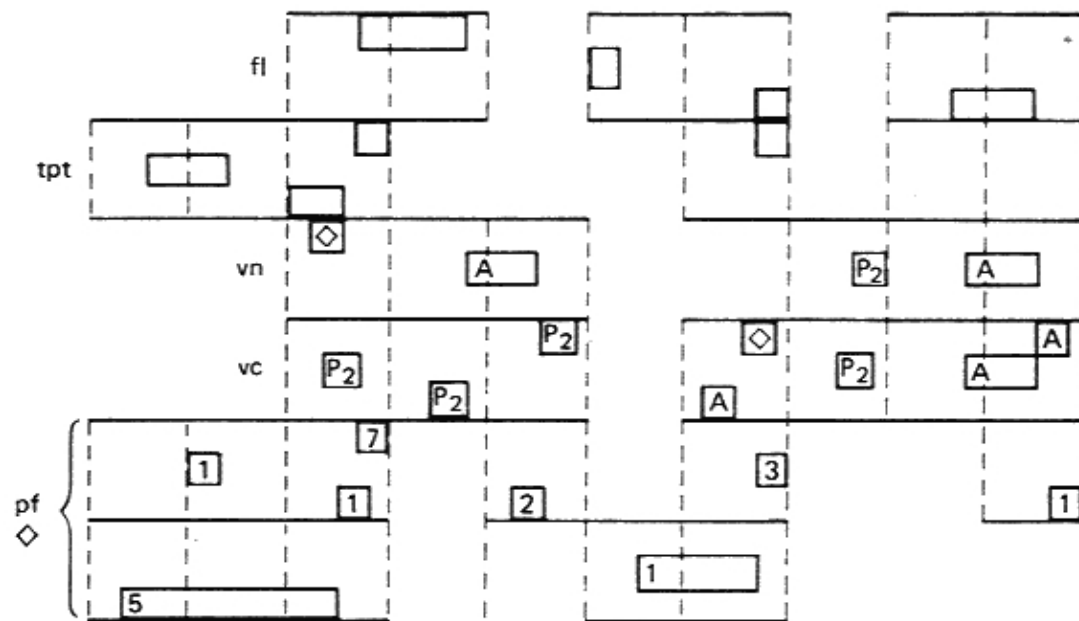
**Figure 4:** John Cage, *Concerto for piano and orchestra* (extract, Edition Peters, 1960)



**Figure 5:** Cornelius Cardew, *Treatise* (p.183, Edition Peters, 1970)



**Figure 6:** Earle Brown, *December 1952* from *Folio*



**Figure 7:** Morton Feldman, *Projection II* (opening, Edition Peters, 1951)



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\* *The Cage book has no page numbers or index. However, the scores are sorted alphabetically by composer's name, so for any quote used there is a page number (which means that many pages have to be counted from the beginning to get there) and the names of the composers before and after the quotation in question.*

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